

DeSoto National Wildlife Refuge

Annual Narrative Report

Missouri Valley, Iowa
Fiscal Year 2002



Great Blue Heron on DeSoto Lake

PHOTO: USFWS/Cindy Myer

Larry Klimke 5/1/03
Refuge Manager Date

Don Karffeld 5/6/03
Refuge Supervisor Date

John M. Zuer 5.15.2003
Regional Chief, NWRS Date

Highlights

Monitoring and Studies

- The refuge's first bald eagle nest fledged two eagles on the fourth of July.
- A peak of only 148,000 snow geese occurred in the fall.
- Lowest waterfowl use days since 1999. This fall only 2,700,000 total use days. In the 1980's and 1990's totals ranged from 15 to 26 million
- Very high wild turkey numbers, up to 450 counted in one field.
- Studies on the refuge include; grassland monitoring, water quality, grassland birds, and the continued white-tailed deer research.

Habitat Restoration and Management

- 147 acres of cropland were planted to grassland this spring.
- 21 acres of trees were planted as part of the recent CCP.

Coordination Activities

- The Refuge Manager worked with the Nebraska Game and Parks Commission and the Iowa Department of Natural Resources to establish reciprocity on refuge lands.
- Ducks Unlimited submitted a NAWCA grant for 1 million dollars which included funds for the refuge.

Resource Protection

- 417 law enforcement incidents occurred during the year.

Public Education and Recreation

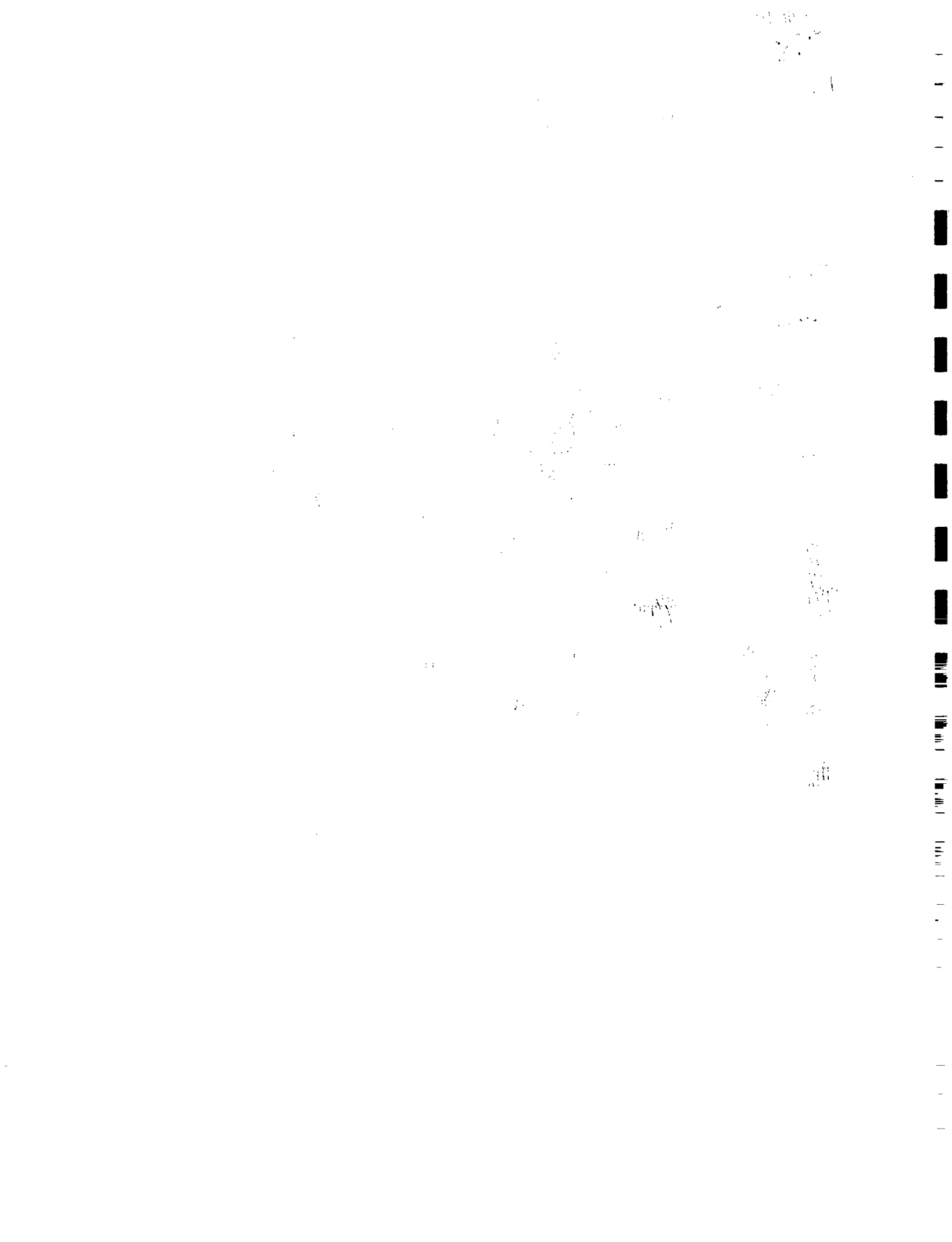
- The second annual DeSotoRefugeFest was a success.
- Refuge staff began the process of establishing ring-necked pheasant and wild turkey hunting.
- 271,000 visitors came to the refuge this year.
- The refuge's first Artist In Residence sculpted a bald eagle.

Planning and Administration

- A total of 107 volunteers contributed 5,467 hours to the refuge.

Table of Contents

Introduction	1
Monitoring and Studies	
1a. Surveys and Censuses	3
1b. Studies and Investigations	5
1c. Climate Data	7
Habitat Restoration	
2a. Wetland Restoration	9
2b. Upland Restoration	10
Habitat Management	
3a. Water Level Management	13
3b. Moist Soil Management	13
3c. Graze/Mow/Hay	13
3d. Farming	13
3e. Forest Management	Nothing to Report
3f. Fire Management	15
3g. Pest Plant Control	16
Fish and Wildlife Management	
4a. Bird Banding	17
4b. Disease Monitoring	17
4c. Reintroductions	18
4d. Nest Structures	18
4e. Pest, Predator, and Exotic Animal Control	Nothing to Report
Coordination Activities	
5a. Interagency Coordination	19
5b. Tribal Coordination	Nothing to Report
5c. Private Land Activities	19
5d. Cooperating Associations	20
Resource Protection	
6a. Law Enforcement	22
6b. Permits and Economic Use Management	22
6c. Contaminant Investigation	22
6d. Contaminant Cleanup	22
6e. Water Rights Management	Nothing to Report
6f. Cultural Resource Management	23
6g. Land Acquisition Support	Nothing to Report



Public Education and Recreation

7a. Provide Visitor Services	25
7b. Outreach	37

Planning and Administration

8a. Comprehensive Conservation Planning	35
8b. General Administration	37
8c. General Maintenance	41
8d. Safety	42
8e. Compliance	42



Visitors viewing snow geese during fall migration from Visitor Center

PHOTO: USFWS\Staff Photo

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 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 bottom lands characterize portions of the refuge. Approximately 1,800 acres are biologically managed as croplands. Cool- and warm-season native grasses have been reestablished on more than 1,838 acres to provide additional biological diversity.

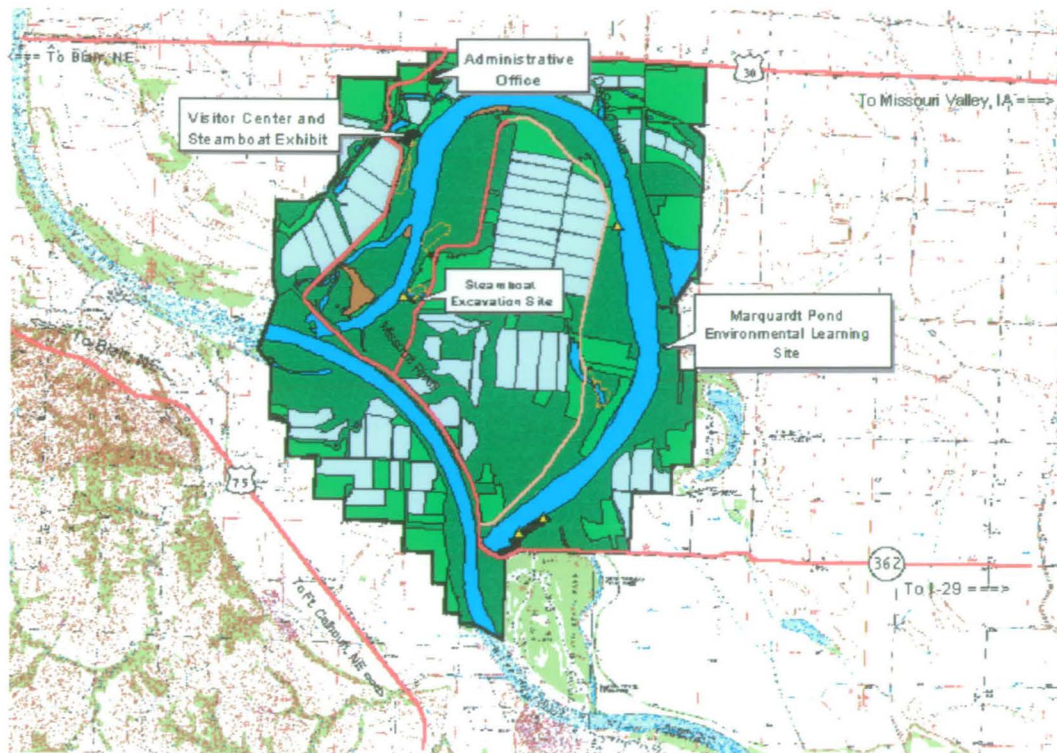
The focal point for both man and wildlife is a former oxbow of the Missouri river - the 788-acre DeSoto Lake. Recreational demand for its use has remained high since refuge establishment in 1958. The refuge provided active recreation throughout its early history, including fishing, picnicking, boating, 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 most 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.

DeSoto National Wildlife Refuge



Land Use

- Aquatic
- Bare Ground
- Crop
- Facilities
- Grass
- Timber

- Year Round Road
- Seasonal Road
- ▲ Boat Access
- Interpretive Trails
- Refuge Boundary



1

Monitoring and Studies

1a Surveys and Censuses

Bald Eagles - DeSoto's First Successful Nest

The refuge typically has mid-winter thaws. This year the weather turned very mild, upper 60's low 70's, in late January and opened up much of the lake. Bald eagles, as in the past several winters, pushed into the refuge. A total of 109 eagles were counted on January 29th. Mild weather again thawed the lake in mid-February. Eagle numbers were again high and at least twenty stayed on the refuge through March. During this time, a pair built a substantial nest on the north end of Center Island in February. The nest was built in a cottonwood tree on the east side of a timber stand. In March the pair was sitting on eggs. On April 14th DeSoto's first bald eagle nest hatched two eaglets. Both eaglets successfully fledge on the 4th of July.

A dead adult bald eagle was found near the nest in late February. The bird was shipped to the Health Lab. They confirmed the adult male had died of lead poisoning.

Waterfowl

October - The fall migration began slowly and never brought many birds to the area. By the end of October only 1,316 ducks; mallard, gadwall, wigeon, teal and wood duck, and 330 canada and geese were using the refuge. The first trickle of snow geese showed up the last day of October.



River of Geese

PHOTO:PHOTOGRAPHER\Dale Bohlke

November - The month was warm and clear. Duck numbers averaged around 3,000, with up to eleven species present. Snow geese numbers only climbed to 12,000 birds. The bulk of the snow goose flock was sitting tight at Sand Lake Refuge in South Dakota. A winter storm finally drove the birds out by the end of the month. However, the majority of the flock migrated east of DeSoto through central Nebraska.

December - On December 5th, the refuge saw a meager 148,000 snows, 1,200 canada geese and 20,000 ducks. These count totals turned out to be our peak numbers for the fall migration. By Christmas the lake had begun to freeze and the ducks and geese moved south.

Fall Use Days - Waterfowl use days were extremely low. Fall duck use days totaled 307,791, compared to the five year average of 1,429,212. Snow goose fall use days totaled 2,724,841, much lower than the five year average of 7,009,433. But even the five year average is very low. Since 1999 the refuge has been experiencing low use. During the 1980's and 1990's the waterfowl use days ranged from between 15 to 26 million. The total fall waterfowl use days totaled 2,724,841.

January - 950 mallards and 250 canada geese kept a small hole open in the ice and held out during the first week. The ice eventually won and drove out the birds. A thaw began late in the month and several holes opened up. Bird number rose to 2000 ducks and 300 canadas and even 250 snow geese.

February - The month brought weather that thawed and refroze the lake several times. Duck numbers fluctuated from 500 to 1200 birds. Canada geese numbers ranged from 1200 to 300.

March - Waterfowl pushed through the area by mid-March. Peaks of 11,000 ducks, which included twelve species, and 4000 canada geese were counted.

April through September - The spring and early summer months saw a few ducks and canada geese using the refuge. The Iowa Department of Natural Resources came to band the canada geese in late June. A total of 70 birds were captured and banded. Groups of up to 120 American white pelicans were counted in September.

Christmas and Spring Bird Counts

DeSoto held the annual Audubon Christmas Bird Count on December 22nd. This was the second year using the newly established count circle that encompasses Boyer Chute Refuge. Twenty years of data were established under the former circle. It was a cold and stormy count day. Very few volunteers from the local Audubon Society and other interested birders made it out to count. However, they did manage to count 74 species and 101,623 individual birds. Volunteer birders also participated in the DeSoto Spring Bird count on May 11th. The count never even got started due to a downpour. The rain never let up and the birders went home.

White-tailed Deer

The refuge was flown on February 1st. A total of 254 deer were counted, however, we do not feel that this was a quality count. There were several large areas that were not covered. The continuing deer study (see 1.b. Studies and Investigations), and other observations lead us to believe that the deer number around 500. The herd is healthy, and twins are commonly observed along with occasional triplets.



As many as 300 Eastern Wild Turkeys may be seen at any one time on refuge.

PHOTO: VOLUNTEER\Gary Caldwell

Wild Turkey

The coyote population on the refuge has plummeted since a mange outbreak in 1999. This spring the turkey had a winning combination of low predators and lots of food in the form of a grasshopper invasion. Counts of over 450 birds in one 40 acre field have not been uncommon this year. The turkey population is estimated at 600 birds. The visiting public has really enjoyed watching the turkeys.

1b Studies and Investigations

White-tailed Deer Research at DeSoto National Wildlife Refuge, 2002

Research on white-tailed deer (*Odocoileus virginianus*) at DeSoto was initiated in 1990 and has continued through 2002. From March 9th to April 14, 2002 researchers captured 31 additional deer on DeSoto. Fourteen of the captured deer were equipped with radio collars with the remainder equipped with plastic and metal ear tags. Over 3,860 radio locations and over 2,720 direct observations were collected from May 29, 1999 to the present on 50 radio-collared deer. Data will be used to evaluate the movements of deer, impacts of land-use practices on home ranges, and habitat selection of emigrating, migrating, and resident deer associated with the refuge. Similar research has been initiated at Boyer Chute National Wildlife Refuge. The testing of frightening devices was completed in 2002. Data collected on crop loss, field incursions, and home ranges indicated that propane exploders, electronic guards, and a deer-activated bioacoustic frightening device were ineffective at reducing deer damage to cornfields at the silking-tasseling stage of growth. The research is affiliated with the University of Nebraska-Lincoln and the US Department of Agriculture-National Wildlife Research Center.

Survey of Native Grassland Plants

Dr. Carla DeLucci, professor at Dana College, NE, and an undergraduate biology student sampled plants on 36 grassland sites on DeSoto NWR to document the species composition, relative abundance, and diversity of the species present. In addition, woody invasive plants and non-native species were documented. Dominant species were Switch Grass (*Panicum virgatum*), Big Bluestem (*Andropogon gerardii*) and Indian Grass (*Sorghastrum nutans*) occurring on 100%, 90%, and 47% of all plots, respectively. Average species diversity overall was 0.642 (range 0.400 to 0.977).

Table 1b.1 <i>Native grassland plant survey preliminary results.</i>			
	Forbs	Woody Invasives	Introduced Species
Average Relative Abundance	21.8%	5.4%	9.5%
Range	5.1% - 61.9%	5.5% - 28.0%	0.03% - 72.9%

DeSoto Lake Water Quality Monitoring

Dr. Carla DeLucci, professor at Dana College, NE, and undergraduate biology students conducted sampling as part of a project to get preliminary information about the backwater of DeSoto Lake near the boat house at the south end, and the backwater that extends behind Wilson Island. Twice a month during the summer they measured phosphate, total phosphorus, chlorophyll levels and plankton. Once a month, water was collected and sent to a lab to test for nitrate, ammonia and total nitrogen levels. Once early in the summer, samples of benthic invertebrates were collected using a D-frame net. In early August, aquatic plants were surveyed. The data from these activities is not yet available.

During the fall, sediment samples were collected using an Ekman dredge in the backwaters and in DeSoto Lake. The sediment was analyzed for percent organic matter, percent sand, percent silt and percent clay. Invertebrates in the sediments were also identified.

Table 1b.2. <i>Benthic invertebrate and sediment sampling results.</i>			
	DeSoto Lake	DeSoto Backwater	Wilson Island Backwater
Oligochaeta (#/sample)	9	33	30
Phantom Midge Larvae (#/sample)	39		28
Midge Larvae (#/sample)	-	23	39
No-See-Um Larvae(#/sample)	-	3	22
Mayfly Nymphs (#/sample)	-	-	15
Organic Matter (%)	7.1	6.1	7.7
Sand Content (%)	30.7	51.1	26.9
Silt Content (%)	58.7	35.6	45.7
Clay Content (%)	10.6	13.1	27.6

1c Climate Data

Season's Highlights

Temperatures - High temperature for the year was 101 degrees on the 21st and 22nd of July. The low temperature for the year was -3 degrees on the 3rd of March. Maximum daily temperatures were above average for both the winter and summer months. The low temperatures for the month, were well below normal during the period of time from December thru March. The first killing frost was October 26th, when we dropped down to 26 degrees.

Precipitation - The refuge actually received above normal annual precipitation for the year. However, with the two years that the drought has been in effect, we are still far below the needed subsoil moisture content. One of the longest dry spells was when only 0.85 inches of rain fell over a 40 day period from October 14th thru November 22nd. The first significant snow fall wasn't until January 19th, when 6" of snow fell. The accumulative snow amounts were a welcome site due to the drought conditions we have been experiencing the last couple of years. The data below is from the National Weather Service's Tekamah, NE Weather Station.

Table 1c.1. <i>FY 20020 Precipitation and Temperature Summary</i>				
Month	Precipitation (Inches)*		Temperature (F)	
	2001-2002	Average**	Maximum	Minimum
October	2.10	1.80	88	22
November	1.55*	1.46	77	24
December	0.71*	0.88	65	1
January	0.70*	0.65	66	1
February	1.53*	0.96	67	2
March	1.80*	1.51	62	-3
April	2.74	2.60	92	18
May	5.32	3.75	92	36
June	2.08	4.49	94	53
July	2.70	3.23	101	59
August	8.05	3.48	97	54
September	0.90	3.07	93	42
Total	30.18	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 \$11,000 for FY 2002. Additional funding from the Service's Challenge Cost Share Program and partnering with Ducks Unlimited have helped restore additional acres for numerous landowners. Other partnerships with both private and government organizations have helped considerably to restore, enhance, and protect wetland and upland habitats within DeSoto's 18-county Private Lands Management District. The more active partners included Ducks Unlimited, Pheasants Forever, Golden Hills Resource Conservation and Development, Loess Hills Alliance and the Loess Hills Stewardship Committee, Natural Resource Conservation Service, and the Iowa Department of Natural Resources.

During the fiscal year, five habitat projects were completed in three counties totaling 35.4 acres using the Private Land's program's habitat restoration dollars. Three projects were in Carroll County and one in both Pottawattamie and Shelby Counties.

Noteworthy project highlights included:

- The Swan Lake Westgate Wetland project in Carroll County was established to control sediment for the larger Swan Lake Wetland project that the Service partnered with in FY00.
- The Dedham Prairie Reconstruction II upland seeding project on 6 acres was completed in Carroll County as part of a larger prairie reconstruction project completed in FY01.

Nearly all of the habitat projects accomplished through the Private Lands program was in coordination with one or more outside organizations. See Section 5a for more information on Interagency Coordination.

2b Upland Restoration

On-Refuge - A total of 147.9-acres of warm season grass and wildflower seed were planted from early May through mid-June. Mechanical tillage was used to prepare seedbeds and to control invasive vegetation in new plantings. All sites were maintained after planting with periodic mowing. Initial assessment of stand establishment was fairly 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.

Table 2b.1. Summary of Grassland Planting			
Location	Acres	Seed Mix	Comments
Westside; Harrison Co. Iowa	19.54	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Westside; Harrison Co. Iowa	24.49	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Westside; Harrison Co. Iowa	16.59	Wet mix and wildflowers	Cropland reversion; Spring new seeding
East Dike; southwest of Hwy. 30 parking lot	14.21	Wet mix and wildflowers	Cropland reversion; Spring new seeding
East Dike; southeast of Hwy. 30 parking lot	13.39	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Northend Ct. Is., Harrison Co., Iowa	59.68	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Total = 147.9 acres			

2b.2. Grass and Wildflower Seed Mix Planted			
Seed Mix	Species	Cultivar	Seeding Rate (lbs. PLS/ acre)
Wildflower Mix	Purple coneflower	Not Applicable	0.12
	Leadplant		0.01
	Black-eyed Susan		0.008
	Illinois bundleflower		0.2
	Gray-headed coneflower		0.04
	Butterfly milkweed		0.01
	False sunflower		0.125
	Maximillian sunflower		0.07
	Wild bergamot		0.003
	New England aster		0.003
	Purple prairie clover		0.07
	Pale purple coneflower		0.07
	White yarrow		0.003
	Thimbleweed		0.01
	Canadian milk vetch		0.01
	Rounded-headed bush clover		0.01
	Rough blazing star		0.01
	Prairie blazing star		0.025
	Large-flowered beardtongue		0.01
	Gray-headed coneflower		0.05
	Compass plant		0.01
	Rosinweed		0.01
	Golden alexanders		0.01
	Partridge pea		0.1
Wet Warm and Cool-Season Grass Mix*	Big bluestem	Pawnee	1.5
	Little bluestem	Aldous	1
	Indiangrass	Holt	1.5
	Switchgrass	Blackwell	0.5
	Needlegrass	none preferred	1
	Canada wildrye	none preferred	0.5
	Virginia wildrye	O'ma'ha	0.5
	Tall wheatgrass	Alkar	0.5

* Wet grass mix is made up of species adapted to poorly drained sites.

This was the first year that DeSoto's cropland conversion included seedling tree plantings. One of the goals of this conversion, is to reduce fragmentation, by expanding the size of timber and grassland tracts. The three tracts planted to trees total 20.99 acres, with two of the tracts on the west side of the river in Harrison County and the third tract in Washington County on the east side of the river in the middle of the Center Island. This cropland conversion to our reforestation program, includes thirteen species of trees into wet mesic sites. The 10,900 seedlings were planted using the Iowa DNR's tree planter in April and May during an unusually dry period of time. The tree plots were kept mowed to reduce competition with weeds.

Table 2b.3 Summary of Seedling Planting			
Location	Species	Quantity	Comments
Two tracts (10.11 acres and 9.96 acres) on the Westside in Harrison County, Iowa, and one tract in the middle of Center Island (0.92 acres) in Harrison County, Iowa. All three tracts are wet mesic sites.	Ninebark	200	These were two year old seedlings, planted in the spring. Wet mesic seedling mix is made up of species adapted to poorly drained sites.
	Wild Plum	200	
	Sandbar Willow	200	
	Elderberry	300	
	Green Ash	2,500	
	Silver Maple	2,500	
	Bur Oak	400	
	Sycamore	800	
	Hybrid Poplar	1,300	
	Hybrid Willow	1,200	
	Black Walnut	800	
	Pin Oak	400	

Off-Refuge - Five upland sites were restored to native grasses totaling 23.9 acres in three counties. One site was the Dedham Prairie Reconstruction II site in Carroll County. This six acres restoration is part of a larger 15 acre tract which the Service partnered with in FY02.

Upland restoration efforts in the seven counties of the Loess Hills amounted to 681 acres of prairie restoration for 34 landowners which were awarded \$56,065 thru partnerships with the Loess Hills Alliance, Golden Hills Recreation & Conservation Development, Natural Resource Conservation Service and the Service. Majority of the grant funding was provided by the National Fish & Wildlife Foundation program and the Fish & Wildlife Service's Challenge Grant program.

3

Habitat Management

3a Water Level Management

The station's wetlands did not require any spring pumping. Willow, Botos, 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 near future.

Work began to renovate the old moist-soil unit last year. We continued to get the unit back in working order this summer. The levees had substantial damage from muskrats and beaver. All the levees were re-done and enlarged. The unit was also deep tilled to restore desirable plants and set back cattails.

3c Graze/Mow/Hay

All alfalfa fields were rotated to corn for the 2002 production year, therefore no haying was conducted on the refuge. Sixteen miles of the refuge's boundary was mowed to control woody vegetation. This is an annual maintenance practice.

3d Farming

Cooperative Farming - Five local farmers cultivated 1748 acres of refuge crop land using a three-year corn-soybean-sweet clover "biological" crop rotation on 1665.7 acres, and a two-year conventional crop rotation on 82.3 acres. Crop yields harvested were 46,179 bushels of corn and 8,617 bushels of soybeans. 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. <i>Crop Grown and Acres Planted</i>			
Crop	Biological Crop Rotation 3-Year	Conventional Crop Rotation 2-Year	Acres x Crop
Corn	594.0	49.9	643.9
Soybeans	418.9	32.4	451.3
Sweet Clover/Small Grain	604.8	----	604.8
Milo	48.0	----	48.0
Acres x Crop Rotation	1665.7	82.3	
Total Crop Acres	1748.0		

The lack of adequate rainfall during the year led to significantly lower crop yields. Corn yields averaged 71.7 bushels per acre and soybeans averaged 19.1 bushels per acre. The 5-year average yield for corn is 98.0 bushels per acre and soybeans is 33.3 bushels per acre.

Crop Scouting - This year was the fifth 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 minimizing herbicide use.

Excess Grain - The refuge stores approximately 1,000 bushels of corn for potential depredation or disease management problems per existing management plans. 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.

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 "2002 Iowa Custom Rate Survey") for custom farming such as seedbed preparation for prairie restorations. In 2002, DeSoto NWR complex farmers were reimbursed \$11,280.07 for custom farming services. Any excess remaining after reimbursing refuge farmers is transferred to the field stations.

Table 3b.2. <i>Inter-elevator Grain Transfers to USFWS Field Stations</i>	
Field Stations	\$ Amount
Region 3	
Agassiz	6,000.00
Necedah	800.01
Swan Lake	12,287.70
Region 5	
Blackwater	7,999.96
Great Swamp	1,000.00
Region 6	
Kulm Wetland Management District	3,252.73
Fort Niobrara/Valentine	3,054.24
National Elk	4,229.04
Total	\$38,623.68

Some grain was left in fields as standing crop to limit use by waterfowl, providing food through the winter bottleneck for resident wildlife and afford cover for hunters per the snow goose hunting program.

3f Fire Management

Six cool-season grasslands were prescribed burned in March and April. Eight native grasslands were burned in April. A total of 383 acres were burned for the fiscal year.

The refuge fire crew kept current with required physicals, training, burn boss refresher, pack tests, etc. Two members traveled to Port Louisa and Squaw Creek Refuges to help with their burn program. The fire crew also assisted our neighbor Boyer Chute Refuge in conducting their

prescribed burns. Several crew members were also put on the list to help with western fires, but they were never called out.

3g Pest Plant 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 NWR:

- ▶ 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 brome grass (*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 crop land habitats

- ▶ Velvet leaf (*Abutilon theophrasti*) - This is a very common species in crop land 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 drummondii*), 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 DeSoto.

4

Fish and Wildlife Management

4a Bird Banding

Personnel from Iowa Department of Natural Resources spent a day on the refuge with the staff banding Canada geese. A total of 70 geese were banded.

4b Disease Monitoring

Disease monitoring is done throughout the year.

A mange outbreak in the coyote population began in the fall of 1999. The high coyote population plummeted after the first winter. Last year it appeared to have run its course, however we are again seeing a lot of bald coyotes.

Epizootic hemorrhagic disease or blue tongue virus was observed in the deer herd. EHD tends to occur each summer. We have not observed any suspected chronic wasting disease infected deer.

West Nile virus became a reality in our part of the country. The local raptor recovery people were inundated with sick and dead birds.

4c Reintroductions

A rehabilitated bald eagle was released on the refuge on March 6th. A red-tailed and sharp-shinned hawk were released during RefugeFest. All of these birds, along with many others, are due to the rehabilitation work done by the Raptor Recovery of Nebraska volunteers.

4d Nest Structures

Of the 61 wood duck boxes, two boxes had been smashed by falling trees or the roof was missing rendering the boxes unavailable. Wood ducks used only **three of 59 available boxes** in the 2002 nesting season, with 20 eggs hatched, see Table 4d.1. More than **47.5%** of wood duck boxes were used by eastern screech owls and 22.0% were unused or used only by wasps. Other evidence of nest box use included squirrels, opossums, and wrens.

Nest box occupancy rate (#boxes used / #available) by wood ducks has declined steadily since 1988. Several factors probably contribute to the lack of use. One may be the dense understory of roughleaf dogwood found in many areas of the refuge. The dogwood may be obscuring nest boxes from view, or may present a barrier to entry by wood ducks.

During 2003 additional stem densities around existing boxes will be measured, and hand thinning of dogwood around some nest boxes will be accomplished in order to improve wood duck use of nest boxes. Boxes that have not been used by wood ducks will not be replaced when they have deteriorated, with the exception of those boxes showing regular use by screech owls.

Table 4d.1. Wood duck nest box use 2002		
Box Used By	# Boxes	%
Wood Duck	3	5.1
Screech Owl	28	47.5
Wren	10	16.9
Squirrel/Opossum	5	8.5
Unused	13	22.0
Totals	59	100

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 hunting reciprocity agreement between the refuge and the States of Iowa and Nebraska, 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 Ducks Unlimited and numerous other partners on a million dollar NAWCA grant for the middle Missouri River area.. 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.



Partners for Fish & Wildlife Program continue to assist private landowners with wetland improvement opportunities 1/02
PHOTO: USFWS\Steve Van Riper

5c Private Land Activities

The Private Lands (Partners for Fish & Wildlife) program at DeSoto National Wildlife Refuge includes 18 western Iowa counties, and starting this year, five additional counties in extreme eastern Nebraska along the Missouri River were added as a primary responsibility and another five counties as a secondary responsibility. The five primary counties of responsibility are; Burt, Washington, Douglas, Sarpy, and Cass counties, and as a secondary responsibility the counties include; Dakota, Thurston, Otoe, Nemaha, and Richardson counties. Nebraska's State Private Lands office in Grand Island didn't have a Private Lands field office coordinator for eastern Nebraska, so DeSoto's Private Lands Coordinator has taken on these counties.

Outreach efforts to improve wildlife habitat, as well as, address other wildlife conservation issues continued throughout the year. During the year, private landowners, county conservation boards, Natural Resource Conservation Service, Golden Hills Resource Conservation and Development, and the Loess Hills Alliance were given technical assistance with site evaluations, habitat restoration and enhancements, and cost share funding. 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.

Again this year, 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 continued to serve on the Stewardship Committee and participate on scoring committees rating applicants for grant funding. The Stewardship Committee had multiple projects going on during 2002 including; wildland fire training courses, twelve person intern crew that worked on clearing invading woody plants and clearing fire breaks, landowner workshops for brush & woody vegetation management including prescribed fire, securing funding through the National Fire Plan Wildland Urban Interface grant to reduce fuels through the implementation of a prescribed fire program, continuing the Service's fire cache program for loaning out fire equipment for prescribed burns on private lands, and providing S-130 and S-190 fire training courses to landowners, volunteer fire departments and conservation agencies. Finally, the Loess Hills Alliance and the Stewardship committee was responsible for being selected as one of 25 landscapes from around the country to participate in the Fire Learning Network, part of a cooperative project, Restoring Fire Adapted Ecosystems with the Department of Interior, US Forest Service and The Nature Conservancy.

The Fish & Wildlife Service has been responsible for funding 87k for invasive species control and for creating an instructional video about prescribed burning to be used by private landowners.

5d Cooperating Associations

The Midwest Interpretive Association (MIA) has completed its twenty first year of operation. Bruce Barkley, the Association's Executive Secretary, a non-government employee, operates a \$119,000 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 \$68,075.28 and \$11,073.01 in donations. MIA sales activities are itemized in Table 5e.1.



Visitor Center Sales Area managed by the MIA provides educational materials for all ages.

PHOTO:USFWS\Staff Photo

Table 5e.1. <i>MIA Sales activity for FY 02.</i>			
Outlet	Gross Revenue	% of MIA Revenue	Monetary Contributions
DeSoto	\$79,148.29	66.55	\$78,646.41*
Mingo	3,331.36	2.80	55.27
Squaw Creek	12,274.56	10.32	3,036.26
Swan Lake	1,202.65	1.01	0
Horicon	20,932.21	17.60	4,479.79
Lewis and Clark Lake	2,049.98	1.72	37.78
Total	\$118,939.05	100.0	\$86,255.51

*includes \$75,000 in anonymous donations from previous years.

The Association provided funding for the volunteer program, visitor center open house, and provided ribbons for the Student Art Show. MIA received \$2,300 in donations for the 2nd annual DeSotoRefugeFest to cover expenses. There was also over \$700 in gift cards and merchandise donated that were given away in a free random drawing.

MIA had received three \$25,000 anonymous donation in the past five years. These funds were used to receive a matching \$50,000 grant from the Iowa West Foundation in FY 01. These funds will be used for Phase II of the visitor center's exhibit renovation, which will be installed by Wilderness Graphics at the end of June, 2003.

A \$5,000 matching grant was received from ConAgra Foods Corporation, Omaha, Nebraska. These funds will be matched by Ducks Unlimited (\$7,500) and Southwest Iowa Planning Council (\$2,500). These funds will be used to develop a wetland near the refuge's visitor center. The project should be completed in the spring of 2003.

Total contributed funds of \$78,646.41 were donated to the refuge. In addition to these funds, the Association's Executive Secretary actively contributes to the refuge's operational programs such as computer operations and in the refuge's interpretive programs. Contributed assistance to DeSoto Refuge totaled an additional \$4,800.00.

6

Resource Protection

6a Law Enforcement

Four hundred seventeen law enforcement incidents were reported from which 42 citations were issued during the fiscal year. One hundred twenty written warnings and 180 verbal warnings were issued. Citations included drug violations, felony stops, trespass, fishing and hunting violations, and vehicle and traffic violations.

Full-time Law Enforcement Officer Rod Hansen transferred to DeSoto in late April.

6b Permits and Economic Use Management

Seven Special Use Permits were issued during the year. Permits were issued for: commercial fishing of rough fish in DeSoto Lake; guiding for the snow goose hunt; collecting water samples, water plants, & insects for Dana College; artist in residence program at the visitor center; spraying of chemicals to control woody vegetation around DeSoto drainage ditches; and collecting amphibians and reptiles for research.

6c Contaminant Investigation

During the summer of 2001, an active and exposed septic tank discharge pipe belonging to a private landowner north of Highway 30 was located discharging within the north boundary of the refuge. The Harrison County Zoning and Environmental Health Department and the refuge has contacted the landowner. It is anticipated this will be corrected in 2003.

6d Contaminant Cleanup

The Fish & Wildlife Service provided funding during the year for each field station to acquire oil spill cleanup materials needed (according to the Spill Prevention, Control, & Countermeasure Plan recently written) to contain 10% of the stored hazardous chemicals stored at the station. Materials currently on station include; 14 sorbent booms, 20 sorbent pillows, 70 sorbent pads, 4 overpack/recovery drums, 10 waste bags for dry absorbent materials, 2 transport containers (containing 2 booms, 2 pillows & 20 pads) for fuel truck. These materials are stored in the overpack/recovery drums in the basement of the visitor center and in the Bertrand Building.

6f Cultural Resource Management

It was a typically busy and productive year for the Bertrand Collection despite reduced staff (the curator position remained vacant during this fiscal year).

Research Requests/Access to Collections - Museum Technician responded to 39 requests for information on the *Bertrand*, the cargo and artifact curation. This year most research responses were answered electronically rather than through conventional mail, with most researchers preferring this response method. 7 individuals were sent 160 jpeg images, while an additional 2 individuals borrowed 56 slides for use with research, publication and public presentations. Subjects included clothing, candles, miscellaneous crate dimensions and stenciling. The most frequently requested information was on the howitzer cases and ammunition. 12 individuals and 1 family were assisted with on-site collections research.

The Bertrand Collection has a web page which is linked to the DeSoto NWR's web page where all necessary visitation information can be found. The web page describes the Steamboat *Bertrand*, the museum and the cargo. There is a direct link to the curator's e-mail for questions [<http://refuges.fws.gov/generalinterest/steamBoatbertrand.html> and r3bertrand@fws.gov]. The Department of the Interior internet disconnect severely impacted this site, with queries substantially lower since the site was reconnected in March.

Conservation - Staff continued upgrading permanent storage conditions of the collection with 4,570 objects handled this year. Object types treated included rubber slickers, hardware fasteners, crate wood, coffee and yeast cans, cigar box pieces, window frames and bottle fragments and howitzer cases. Storage upgrades entail removing acidified storage materials or stopping abrasion damage by individually bagging of objects, as well as fabrication of specialized storage containers or mounts.

Major conservation projects completed this year:

- ▶ DeSoto Refuge Archives. With attention to the National Wildlife Refuge System Centennial, a large group of neglected photographs and negatives photographically documenting the history of DeSoto Refuge was arranged and housed in archival quality materials. This refuge archive contains in excess of 15,600 photographs and negatives, dating primarily from the late 1950s to the mid 1980s. In addition, an index for additional photographs and negatives previously rehoused was prepared (these images relate to the *Bertrand* and its excavation, the conservation laboratory and artifacts, among other subjects). The total number of photographs and negatives arranged and housed is estimated to be 25,000.
- ▶ Dr. Larrie Stone performed his yearly examination of the foodstuffs and alcoholic beverages. 36 bottles of foodstuffs needed treatment for contamination or loss of liquid. Overall, these objects are in stable condition.

Backlog Cataloging / Records Maintenance - This year 71 numbers were fully cataloged and an additional 10 which had been partially completed years ago were finished. In addition to the above, 17 catalog numbers were re-cataloged after extensive accession and provenience research was conducted, thereby providing more complete and accurate information in the permanent museum records.

Volunteers - Museum operations benefitted greatly from the help of a small but very dedicated bunch of volunteers: Pat Jensen and Dan & Faith Meurrens. Pat Jensen continues working with the refuge library while the Meurrens work as "long distance" volunteers through data conversion from their home in Minnesota (typing up of old hard-copy record descriptions which are e-mailed back and then imported into the museum's collections management program, *Re:discovery*).

Other -

- ▶ **Temporary Exhibitions**
41 objects from the Bertrand Collection were loaned to the Durham Western Heritage Museum, Omaha, Nebraska for a temporary exhibition entitled *River of Discovery: Follow in the Footsteps of Lewis and Clark*; objects lent for the exhibition included hardware, champagne bottles, clothing and a model of the *Bertrand* fabricated and donated by E.E. Roberson. In conjunction with the second annual *DeSotoRefugeFest*, a case exhibit entitled *Fish of the Bertrand* was installed in the visitor center. On display were collection items not normally seen, including codfish bones, mackerel keg ends and a sardine case.
- ▶ **Artifact Return**
In February, 75 pig bones and 49 codfish bones from the *Bertrand* cargo were returned from the Midwest Archeological Center, National Park Service. The bones had resided at the Center since shortly after the steamboat was excavated. The pig bones were subsequently loaned to the McClung Museum in Knoxville, Tennessee, for analysis and eventual publication by Professor Walter Klippel and an associate in an international scientific journal.

Special Funding - The museum received \$5,000 from the Region 3's Art & Artifact FY2001 budget and the following projects were finally completed this year :

- ▶ Vonnda Pulscher, a student in the museum science graduate program, University of Nebraska, Lincoln, was hired for a paid internship from June 2001 until late January 2002. In addition to working with and learning general museum practices, Vonnda provided invaluable assistance with cataloging and work with re-housing of the rubber slickers, cigar boxes, coffee and yeast cans and other assorted "back-logged" objects requiring attention.
- ▶ Conservators from the Ford Conservation Center conserved the following objects in the collection: a toy pony cart, a howitzer sabot with attached powder sack, 65 straight pins, and howitzer munitions (a friction primer and a primer case with primers). In addition, a case board marked *STr Bertrand* was examined with infra-red photography.

7

Public Education and Recreation

7a Provide Visitor Services

Visitation - Refuge visitation totaled 270,717, slightly down from last years total of 292,129. The 10-year average is 303,151 visitors per year. November is normally the busiest month of the year due to the draw of the fall snow goose migration. Visitation totaled 35,628 for the month of November, even with a poor showing by the geese.

Summer refuge visitation, Memorial Day through Labor Day, totaled 75,988 people. There were 2,070 people on Memorial Day weekend, 1,740 on the July Fourth Thursday, and 4,728 on Labor Day Weekend.

The visitor center hosted 95,496 people this fiscal year, which is up from 92,000 last year. The ten-year average for visitor center use is 133,700 visits.

A major event again this year was the second annual DeSotoRefugeFest, which was held on Saturday June 1st. This year 2,000 people enjoyed a family oriented day. Events included; an adult and youth carp fishing contest, U.S. Coast Guard boat inspections and U.S. Army Corps of Engineers displays and motorized boat rides, free smoked and fried carp samples, games and contests for the kids, casting clinics, nature walks, and a deer telemetry talk. The film "Grandpa, Can We Go Fishing" was shown throughout the day in the visitor center. Balloon Man, George Lewis, made animal balloons for the children. Raptor Recovery Nebraska had several birds on display in the visitor center and released several rehabilitated birds. Concessions were sold by the local Boy Scout Troops. Puddles the Blue Goose wandered the refuge throughout the day. The day was hot and humid.



The second annual REFUGEFEFEST on June 1st drew a crowd of 2,000 people.
PHOTO:USFWS\Bruce Weber

Table 7a.1 FY 2002 Visitor Activity Comparisons		
Activity	Activity Units ¹	Activity Hours
Interpretation	350,195	154,073
Environmental Education	4,818	14,198
Consumptive Wildlife Recreation	26,834	75,567
Non-Consumptive Recreation	222,857	151,696
Non-Wildlife Recreation	3,875	1,940
Total Activity Hours	608,579	397,474

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

Interpretation - A contract for \$140,000 was awarded to Wilderness Graphics for Phase II of the visitor center exhibits renovation. This will be completed by July of 2003.

DeSoto Visitor Center contains exhibits on cultural history, natural history, wildlife, conservation and FWS-oriented displays. Two galleries feature displays about the Steamboat *Bertrand*, which sank on what is now refuge land in 1865, and the effects of westward expansion on the habitat and wildlife of the Missouri River Basin. Another gallery contains a new life-size diorama depicting Missouri River wetlands, woodlands, and grasslands as they would have appeared to Lewis and Clark in 1804.

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 generally shows "Wildlife of DeSoto." 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 as part of the continuing work to upgrade the visitor center display by Wilderness Graphics.

We also offer a touch-screen computer, that provides the public with 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 generally 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 21,637 people viewed these introductory films, in addition to all school groups. Weekend wildlife films were viewed by 2,375 people.

Table 7a.2 FY 2002 Visitor Center Exhibits and Activities	
October 4, 2001	National Wildlife Refuge Week
October 4, 2001	Weekend Wildlife Art Show and Sale
October 1 - 31	Michael Forsberg Photo Exhibit
October 14	National Wildlife Refuge Week
October 15	Wildlife Auto Tour
November 3, & 4	Wildlife Art & Photography Show & Sale
November 15-December 15	Kent Peters Boyer Chute Digital Photo Exhibit
December 2001	Federal Duck Stamp Exhibit
January 1 - 31, 2002	Lewis & Clark Exhibit
January 1 - 31	"Birds At Our Windows" display
March 1-28	Student Wildlife Art Exhibit
March 14, 2002	Exhibit Panel on Eagles
March 2002	"Suitcase for Survival" - endangered species exhibit
April 1 - 30	Jim Fox's "Landscapes of Iowa" Photo Exhibit
April 6 - 7	Harland Groff Waterfowl Carving Exhibit
May 4, 2002	International Migratory Bird Day Celebration
May 1 - 31	Gary Caldwell photography exhibit
June 1, 2002	DeSotoRefugeFest
June 17, 2002	Lewis and Clark Program by Paul Sivitz
July 1 - 31	Outdoor Writers of America Exhibit
July - August - September	Richard Hart - Artist In Residence (bald eagle sculpture)
September 2002	Dave Uhlig Photography Exhibit

DeSoto Visitor Center hosted a variety of temporary special exhibits:

- ▶ During the month of September a prairie appreciation exhibit of native grasses was on display which taught visitors the historical importance of prairies.
- ▶ In October the Michael Forseberg Exhibit was on display. His limited edition photographs appear in both private and corporate collections. He is dedicated to working extensively in the Great Plains region.
- ▶ The second DeSoto Wildlife Art/ Photo Show and Sale was held November 2nd and 3rd with seventeen artists and photographers present. It was well received shown by the nearly 1,000 visitors in attendance. The artists were pleased with the sales. The theme focused on the regional wildlife of the Missouri River and Great Plains.



Naturalist Liz Bisbee of Pottawattamie County Conservation Board gave an informative program on mammals.

PHOTO:USFWS\Bruce Weber

- ▶ On February 9th the program "Furry Animals of the Missouri River Valley" was shown along with Naturalist Liz Bisbee of the Pottawattamie County Conservation Board discussion of furs, pelts and hair and the animals they protect.
- ▶ On February 15th, 16th and 17th, DeSoto participated in the Audubon Society's 5th annual "Great Backyard Bird Count." Visitors to the visitor center took part in counting birds outside the windows as part of this national program to discover trends in winter bird populations.
- ▶ The annual Student Wildlife Art Show was held during March. This year was the 18th annual showing. Seventy pieces of artwork, from 16 classes in 7 Iowa and Nebraska kindergarten through twelfth grade schools were in the exhibit. The schools that participated were from the towns of Lewellen, Omaha, and Blair, Nebraska, and Council Bluffs, Iowa. Ribbons were awarded and all participants received a personalized parchment certificate. Judges were Tom Walker of Harlan, Iowa, Dr. Milton Heinrich of Blair, Nebraska and Russ Christensen of Neola, Iowa. About 4,964 visitors enjoyed the exhibit in the Center's multipurpose room.
- ▶ During the month of March a photo exhibit of Jim Fox's "Landscapes of Iowa" was on display. The exhibit included 40 Black & White Iowa landscapes.
- ▶ In March the "Suitcase for Survival" was on display. This is a case of confiscated endangered species items. The public always finds it interesting.
- ▶ In March Iowa's 4th Infantry (7 costumed interpreters) spent Saturday in the visitor center interacting with the visitors.

- ▶ On April 6th and 7th Harland Groff exhibited his waterfowl carvings as part of the Western Iowa Artist Studio Tour.
- ▶ The nature photography exhibit of Gary L. Caldwell was on exhibit April 30-June 28. The photo show included 46 framed color images.
- ▶ International Migratory Bird Day was celebrated Saturday, May 4, with a morning bird walk conducted by Ione Werthman of Omaha Audubon Society. Posters, a tee-shirt raffle and a film about birds was also part of the days events.
- ▶ In June Paul Sivitz of Pennsylvania gave a public program on Lewis and Clark in the theater about the two explorer's wildlife observation techniques. Sivitz is the author of the new guide book, "Discovering the Birds and Mammals of the Lewis & Clark Trail."
- ▶ Sculptor Richard Hart was an artist in residence at the Center. Richard sculpted a life sized clay bald eagle. The clay was then used to create the finished bronze eagle. Richard sculpted in the multi-purpose room and spent considerable time visiting with the public. This was the first artist in residence at DeSoto and it was well received by the staff and public.
- ▶ The Outdoor Writers Association of America exhibited, in July, an array of black and white and color photos by some of the nation's premier outdoor photographers. This was co-sponsored by Nikon Sport Optics.
- ▶ Dave Uhlig exhibit of wildlife and nature photography was on display during the month of October at the visitor center.
- ▶ The monthly Walk With A Ranger program was conducted throughout the year. Programs varied from nature walks, to bald eagle programs.



Artist in residence Richard Hart sculpting an Eagle from clay June 2002
 PHOTO: USFWS\Bruce Weber

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.

Staff presented talks and programs to a variety of groups other than students. A total of 85 organized groups and bus tours, containing 1,975 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.

A list of the various groups that we presented to were: Omaha Church Group, Elder hostel of Fremont, NE, Jewish Center Omaha, NE, T.C. Travel of Pine Island, MN, Yachad Group of Omaha, Fremont New Corners, Chippewa Trail of Wisconsin, First Reformed Church and Urbandale Historical Society of IA, St. Niell Church of Omaha, Western Literature Assoc. Lewis & Clark Experts of Omaha, NE, Cub Scouts of Woodbine, IA, Scouts of Omaha, St. Weinslehoff of Omaha, USS NE submarine Group, Oakland Handicapped Group., Nat'l Assoc of Interpretation of Omaha, Boy Scout Packs 549 and 122 of Millard, NE and Norfolk, NE, Marshall County Conservation Board of Marshalltown, IA, Hall Tours of Lincoln, NE, Cass County Conservation Board of Atlantic, IA, Boy Scouts of Omaha, NE, Fremont Nursing Home, Girl Scouts of Omaha, Sarpy County Tourism of Bellevue, NE, Scouts of Papillon, S.D. Farmer's of Huron, SD, Bethal Reformed Church of Sheldon, IA, Morningside Lutheran of Sioux City, IA, Risen Sun Village of Council Bluffs, IA, Trinity Methodist Church of Lincoln, NE, Girl Scouts #187 of Omaha, and Crown Point Sr. Group of NE.

The Weekend Wildlife Film Series was enjoyed by 2,375 visitors throughout the year. Many are local folks that come each Saturday or Sunday to enjoy a film. Each feature is shown three times, both Saturday and Sunday. The series included special programs for International Migratory Bird Day, Prairie Appreciation Week, endangered species and Lewis and Clark weekends. Weekend films are discontinued in November because of high public visitation and crowded parking lots during the peak waterfowl migration.

As part of a classroom assignment, five 5th graders from the Woodbine Elementary School computer club designed a DeSoto specific poster supervised by teacher Don Groff. Their completed poster was displayed during March along with Student Art Show.



The Woodbine Elementary School 'Computer Club' designed a Refuge Poster as a class project.

PHOTO: USFWS\Bruce Weber

Entrance Fees - This was the 15th year of entrance fee collection. 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 sold for \$15. Commercial vehicles pay \$20 daily, or \$30 if more than 20 people are aboard. Because of the fee demonstration program, the refuge keeps all but the Duck Stamp sales. Duck stamps have dropped from around 1,000 stamps sold every year to around 150 (158 this year), since starting the Refuge Pass system. Twenty-four Golden Eagle Passes were sold at \$65 each bringing in revenues of \$1,560.00.

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
2002		\$67,002	16,877	270,717

Entrance fees collected for FY2002 was \$67,001.59

Table 7a.4 FY2002 Entrance Fee Permits		
TYPE OF PERMIT	NUMBER	RECEIPTS
Single Visit (\$3)	26,757	\$50,631.59
Groups/Commercial (\$20 & \$30)	40	\$1,070.00
Golden Eagle Passports (\$65)	24	\$1,560.00
Golden Age Passports - (NC) REISSUED FREE OF CHARGE	34	000.00
Golden Age Passports (\$10)	357	\$3,570.00
Golden Access Passports (NC)	84	00.00
Federal Duck Stamp (\$15)	158	\$2,370.00
Refuge Pass (\$15)	520	\$7,800.00
Total	27,974	\$67,001.59

Public Information - The staff responded to 8,786 public inquiries. Thirty-eight news releases were sent to news media in Iowa and Nebraska, as well as major Kansas, Missouri, and South Dakota media resources. Our mailing list consists of 200 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 Bluffs Nonpareil, and Lincoln Journal-Star newspapers. Twenty-five interviews were granted to newspapers and 15 to TV/radio representatives. Topics included goose migration, art show, fishing, auto-tour, the Bertrand Collection, and our special exhibits.

Students - The refuge is active with students and classes especially in spring and fall. A total of 4,818 students (306 classes) visited the refuge 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.



As part of the off-site Environmental Education program, Barb Nielsen, Park Ranger teaches Mondamin school students about wildlife using the game of "Concentration".
PHOTO: USFWS/Cindy Myer

Our busiest months were May and November with 2,611 students. 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.

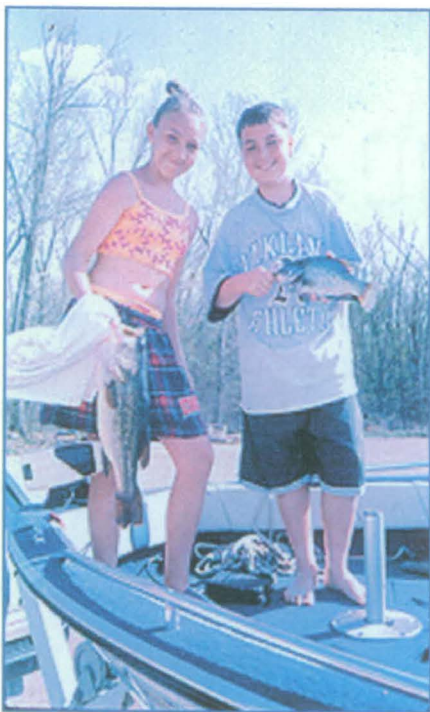
Park Ranger Barb Nielsen worked up a curriculum of talks, games, hands-on materials, etc., to take to schools. Her programs have been well received by many schools who can not always make arrangements for on-site field trips.

About a dozen college classes used the refuge this year, including Creighton University, Clarkson College, Drake University, Dordt College, Dana College of Blair, Westmar College, the University of Nebraska, Iowa State University, Iowa Western Community College, the 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 28,919 visitors. Volunteers performed "trail patrol", picking up litter and pruning overhanging branches, plus periodically restocking the Cottonwood Nature Trail dispenser with interpretive leaflets. Guided tours of the trails were provided to 1,020.

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".

More than 147,615 people drove the horseshoe-shaped tour route during the Auto Tour. As usual, the best overall snow goose viewing was from the visitor center viewing gallery. 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



Spring catches of large mouth bass and crappie continue to improve
PHOTO: USFWS Steve Van Riper

Fishing - The peak fishing seasons for both ice fishing and our spring crappie, walleye, and fishing was fast, productive and short-lived this year. The mild winter provided ice anglers with only ten days of safe ice, during the second and third weeks of January, for harvesting those hungry crappie and bluegills. The spring opening for fishing on DeSoto Lake continued to be the prime time to find plenty of crappie and walleye both from the shore and from boats. This is the eighth year running that crappies in particular, were harvested in large numbers during the cooler spring time temperatures. Walleye were again caught during this same time period, which coincides with their spawning period.

Fishing visits are greatest from April 15th when we open, to the middle or end of June when the water temperature warms up to the high 70's and fishing success diminishes. This year early warm

summer temperatures played a major role in reducing the length of the spring season. With the warmer water temperatures, the crappie and walleye spawn stopped much sooner than normal and forced the larger females to find deeper cooler water and making it much harder for anglers to locate them. However, many an angler was able to fill their creel with enough crappie, walleye, an occasional white bass, and largemouth bass to satisfy nearly anyone.

During the summer months, the anglers that know flathead catfish fishing have found flats from 10-50 pounds in size. Bass tournaments start when we open in April and usually run into June. See the table below for results.

Table 7a5. 2002 Fishing Tournaments						
Date	Club	#Anglers	Caught	Entered	Total Weight/ Length	Species
4/21	Great Plains Bassin	27	11	11	25.6 lbs.	Largemouth bass
5/14	Iowa Catfish Drifters, Inc.	78	11	11	41.4 lbs.	Channel Catfish
5/4	IBEW	54	36	6	16.5 lbs.	Largemouth Bass
		54	8	4	14 lbs.	Walleye
		54	1	0		Drum
6/13	Iowa Crappie	6	12	12	7.2 lbs.	Crappie
6/9	Pottawattamie Bowhunters	50	146	146	530 lbs.	Common Carp
6/22	IBEW 763	65 est.	17	17	47.3 lbs.	Common Carp

Eight fishing clinics were held at DeSoto and the Marquardt Pond Environmental Learning Site during the spring, summer, and fall seasons. A total of 180 youth and 53 adults participated in 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 267 fish were caught and all but the roughfish were released back into Marquardt Pond.

Only one commercial fishing operator was issued a Special Use Permit for the commercial fishing season on DeSoto Lake. The first nets were dropped on April 18th and the last nets were pulled on the 26th of August. Only nine days of netting were recorded for the year, which is the least since commercial

fishing started on DeSoto Lake in 1989. Only 1,120 pounds of roughfish were harvested. Totals for carp were 130 pounds and 1090 pounds for buffalofish. This is also the least amount of roughfish harvested in the fourteen years of commercial fishing. This is a far cry from the 52,000+ pounds that was harvested in 1990 by only two commercial fisherman. According to these past anglers, the numbers and size of the larger roughfish have diminished and the smaller fish are escaping their 3 inch trammel nets. Obviously, the decreased number of hours netting has had a significant impact on these results, as well.

Stocking of game fish continued in DeSoto Lake, to improve our recreational fishing opportunities and to keep a balance between predator and prey species. No white bass were available from the hatcheries this year, to assist with the control of invasive gizzard shad. Our totals for fish stocked since renovation of DeSoto Lake in 1985 is now at 36,607,882 fish/fingerlings/fry. Marquardt Pond was stocked in January with fathead minnows again this year to assist in providing the necessary food source to hold over the newly stocked game fish for future fishing clinics.

Table 7a.6. Fish Stocking in DeSoto Lake and Marquardt Pond				
<i>Date</i>	<i>Species</i>	<i># of Fish Stocked</i>	<i>Size</i>	<i>Location</i>
10/30/01	Channel Catfish	6,965	7-8"	DeSoto Lake
11/09/01	Walleye	2,000	4-7"	DeSoto Lake
01/10/02	Fathead Minnows	243,000 (150 gal.)	2"	Marquardt Pond
06/12/02	Walleye	8,900	1.5"	DeSoto Lake
07/24/02	Channel Catfish	6,000	8-9"	DeSoto Lake
07/30/02	Channel Catfish	1,000	8-9"	DeSoto Lake
10/31/02	Channel Catfish	800	8"	DeSoto Lake
10/31/02	Largemouth Bass	1,380	5.5"	DeSoto Lake

White-tailed Deer Hunting - This is the third year to conduct an October antlerless only hunt. Due to the increasing deer herd on the refuge, it was decided to have an October hunt to reduce the resident doe population. The hunt was conducted on October 20th and 21st. A total of 90 hunters logged 1,133 hours during 127 visits to harvest 60 deer. The success rate was 67 percent. This was a very high harvest. The first two years of the October hunt harvested 53 and 47 deer consecutively.

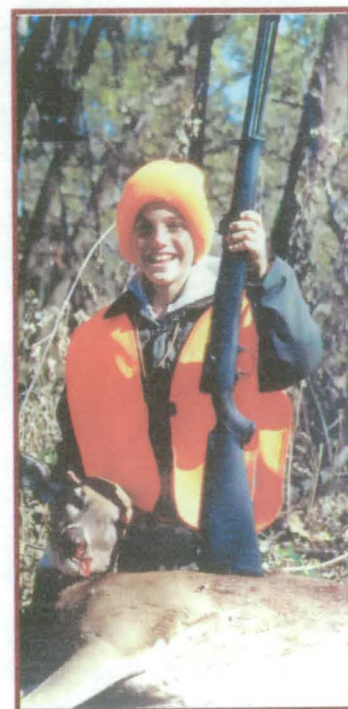


A whitetail buck harvested during the archery season.

PHOTO: USFWS\Steve Van Riper

The December 8th and 9th hunt brought out 93 hunters who logged 1,680 hours during 164 visits to harvest 42 deer. The success rate was 45 percent. This was a typical harvest for the December hunts.

The Nebraska and Iowa archery hunters were each offered hunting areas in their prospective states during the normal seasons. The Nebraska hunters self registered a total of 419 visits, 1,114 hours hunting, and 34 deer taken. Iowa hunters logged 312 visits, 1,069 hours hunting, and 20 deer harvested.



A young muzzleloader deer hunter gets his first deer.

PHOTO: USFWS

Waterfowl Hunt - Due to the increasing snow goose population, DeSoto Refuge went to a snow goose only hunt. The fall of 2001 was the third year to try and harvest appreciable numbers of snows. The Iowa snow goose season ran from September 29th through January 13th. The Nebraska season ran from September 29th through January 11th. The limit was 20 birds.

The migration was extremely late due to warm weather throughout the flyway. The snows did not begin to arrive, in large numbers, at DeSoto until late November. They peaked on December 5th with only 148,000 birds. By the 12th we had dropped back to only 70,000 geese. The first day of hunting occurred on November 26th. Shawn Larison, a guide from the past two years, and Dave Gray were the guides for the fall. Larison hunted 7 days and harvested 135 geese. Gray only hunted one day taking 17 birds. A total of 57 hunters harvested 148 snow geese, of which 76 were immatures. There were also four Ross' geese harvested.

This is the third year of low harvest numbers with this hunt. In 1999 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, 24 of which were immatures. The fall migration in 2000 was typical except that cold weather drove them south by early December. The guides only hunted for 18 days and harvested 183 snow geese. A total of 83 hunters put in 339 hours afield.

Mushroom Hunting - 13,612 people visited the refuge in search of the highly sought after morel mushrooms.

7b Outreach

Staff responded to speaker requests by civic groups for DeSoto programs. Park Ranger Barb Nielsen began a concerted effort to take the refuge to the schools. She developed talks, wildlife games and materials and took her show on the road. Groups that requested the programs were; Care-A-Lot Preschool Mondamin, West Harrison grade school, Missouri Valley Daycare, Blair Preschool, St. Patrick's Missouri Valley, IA, Blair Library, Our House Child Development Omaha, Shenandoah Iowa elementary school, Yorktown Head start and an IWCC Conference in Council Bluffs.

The visitor center was used by several groups to hold their meetings. The visitor center is the site for semi-monthly meetings of the Loess Hills Alliance, a proto-type national park planning group. It's also used by the Topeka Shiner Species Recovery Group. On June 15th and 16th mentors from from Blackwater Refuge (VA) and Forsythe Refuge (NJ) came to DeSoto to provide guidance on establishing a Friends Group. Approximately 20 people participated, including community leaders.

8

Planning and Administration

8a Comprehensive Conservation Planning

DeSoto initiated its Comprehensive Conservation Plan process during 1998 and completed it in January 2001. 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 still proving to be somewhat problematic as guidance for the format and content of the plans has not been decided for all the plans.

8b General Administration

Stephen VanRiper, Refuge Operations Specialist, was on a detail at Agassiz National Wildlife Refuge Private Lands District, Middle River, Minnesota for two weeks in October 2001 to help with surveying wetlands for construction through the U.S. Department of Agriculture.

Rodney Hansen, Park Ranger (LE) transferred to DeSoto National Wildlife Refuge from Union Slough, Titonka, Iowa in March 2002.

Bruce Weber, Outdoor Recreation Planner retired August 31, 2002. He and his wife plan to move to Las Vegas, Nevada.

Marco Buske, Refuge Biologist, transferred to Tule Lake National Wildlife Refuge in August.

Officer Rod Hansen went on a law enforcement detail on an Oregon wildfire.



REFUGE STAFF: Back Row LtoR: Mike Ellis (Boyer Chute NWR), George Oliver, Mark Cunard, Monty Storm, Bob Barry (transferred to DeSoto 12/02), Steve Van Riper, Rex Stambaugh. Front Row LtoR: Larry Klimek, Jennifer Stafford, Sharon Gilliam, Mindy Sheets, Susan Cooper, Barb Nielsen, Joan Martin, and Cindy Myer

Not Pictured: Rod Hansen, Marco Buske (transferred 8/02), Bruce Weber (retired 8/02), and Wanda Harbottle.

DeSoto National Wildlife Refuge Budget for FY 2002 (33510)	
Subactivity 1121-03TA Private Lands -Technical Assistance-Admin. Support	\$5,000.00
Subactivity 1121-03HR Private Lands - \$6,000.00 for habitat restoration and \$80,000.00 for Loess Hills PL-invasive alien species control	\$86,000.00
Subactivity 1234-0000 Joint Venture Funding - seed for Boyer Chute NWR	20,000.00
Subactivity 1261-0000 Base Salaries, Operating Expenses, Volunteers, Challenge Cost Share, etc.	1,201,336.00
Subactivity 1262-A3DE Annual Maintenance (MMS)	100,000.00
Subactivity 1262-B3DE Equipment Replacement (MMS)	30,000.00
Subactivity 1262-H304 Heavy Equipment Replacement (MMS)	60,000.00
Subactivity 9251-0000 Fire Preparedness	\$12,000.00

Volunteers - DeSoto benefitted greatly from the service of 107 individual volunteers this year. We try and offer a wide range of tasks to meet the specific interests of our volunteers. Projects ranged from environmental education, wildlife surveys, trail maintenance, blue bird box monitoring, visitor center and RefugeFest support, library and museum conservation. Recruiting and scheduling such a variety of people remains a challenge.

- Volunteers contributed 5,467 ½ hours. Activity categories included:

Table 8b.1 Volunteer Activities and Hours	
Surveys & Censuses	187.5
Studies and Investigations	1,987.5
Visitor Services/ Outreach	1,490.5
Maintenance	1,802
TOTAL HOURS	5,467.5

- The Annual "Volunteer Recognition Luncheon", was held February 14th at noon. Twenty seven people attended the luncheon including volunteers and staff from Boyer Chute NWR. Refuge Manager Larry Klimek spoke about the state of the refuge and his plans for starting a Friends Group. Naturalist Betty Grenon followed with a talk on "The Joy of Being a Naturalist" accompanied by a snake, a cicada and poison ivy leaves. Harry Duncan was selected as "Volunteer of the Year". Harry has been volunteering for 13 years.



Harry Duncan receives Volunteer of the Year plaque from Refuge Manager Larry Klimek and Bruce Weber Outdoor Recreation Planner at annual Volunteer Appreciation Program.

PHOTO: USFWS\Staff Photo

- Volunteer Gary Caldwell was awarded a 5,000 hour pin for maintaining nature trails. Gary commutes 35 miles each way and racked up 24,000 miles to date. He comes to the refuge at least three days a week. His work is never ending, keeping the nature trails clean and removing debris falling from the aging cottonwoods that line the trails along with helping in the visitor center. Gary has been coming to the refuge since 1996.



Bruce Weber, Outdoor Recreation Planner and Barb Nielsen, Park Ranger congratulating Volunteer Gary Caldwell upon receiving his 5,000 hour pin.

PHOTO: USFWS\staff photo

- Harry Duncan of Omaha, Nebraska was presented with a 1,000 hour pin and a refuge sweatshirt for his untiring contributions to DeSoto's environmental education program and bird counts. He has been a volunteer since 1989.
- Pat Jensen was the Museum's only volunteer for the FY2002 helping out with library work totaling 50.5 hours.
- Richard Hart became DeSoto's first Artist in Residence. Richard set up his studio in the multi-purpose room. There he spent 554 hours during 70 days to create a sculpture in clay of a bald eagle. The sculpture was then use to create the final bronze eagle. Richard spent much of his time talking with the visiting public and was a great asset to the visitor center.
- During National Volunteer Week volunteers met at DeSoto for a kickoff Volunteer meeting and breakfast - attended by 8 volunteers. Discussion was followed by a field trip around Wood Duck Pond and a visit to the eagle nest.

- Bluebird nest box monitoring was done throughout the spring and early summer by volunteer Michelle Widhalm. She seemed to enjoy it as much as we appreciated the help.
- 28 volunteers helped out with the June 1 Refugefest they contributed 141 hours.
- Jon Anderson (Dana College Student) and Carla DeLucci (Dana College Professor) worked on a chute study and grassland monitoring this summer
- Brian Cummins did trash pick up at least once a week on refuge.
- Heidi Puckett of Blair worked at the refuge as a volunteer summer intern from June through mid-August. She is a senior at University of Nebraska, Lincoln, majoring in biology.



Volunteer Michelle Widhalm checking Bluebird boxes. PHOTO: USFWS\staff photo

8c General Maintenance

- Completed 40' x 72' pole building at the headquarters complex.
- A wide variety of assistance was provided to Boyer Chute during the year, including; hauling and placing rock, maintaining roads, clearing debris from under the bridge, installing a new pit toilet, building maintenance, etc.
- Completed the replacement of copper water lines to softeners and filters at visitor center.
- Cleared boundary fence of brush and scrub trees, repaired fence and posts, and correctly signed the boundary.
- Completed work on radio tower at south end of DeSoto Lake.
- Installed new weather station on refuge.



Pole building at headquarters complex PHOTO: USFWS\Cindy Myer

- Began Pressure washing cedar accents on outside of visitor center. The wood was then treated with stain.
- Assisted the eagle scouts on the new nature trail.
- Maintenance Leader, George Oliver, began the implementation of the new SAMMS system.



Cedar wood siding of Visitor Center was pressure washed and then treated with stain sealer. Rex Stambaugh applying stain sealer PHOTO: USFWS\staff photo

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 and speakers this year included; OSHA regulations, fire drills, terrorism, Omaha Public Power Plant speaker, Fort Calhoun Nuclear Power Plant response, life jackets, Lyme disease, chiropractor, handling museum objects, oil spill containment, and chain saw safety.

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, the Environmental Compliance Audit was updated as needed, and the Spill Prevention, Control, & Countermeasure Plan was written for the Station. Oil spill supplies were ordered and received during the year, and all supplies are stored in the Headquarters, visitor center, and mobile fuel truck.

During the year, fire extinguishers were checked, first aid kits and universal precaution kits were checked, required physicals for fire and law enforcement personnel were completed, water samples were taken and analyzed, and staff and volunteers received defensive driving training refreshers.

Eight of the DeSoto staff and two of the Boyer Chute staff completed the AED (Automatic External Defibrillator) training required to use the new AED that we received in October of 2002.

8e Compliance

An Environmental Assessment was written in 2002 for the addition of upland game bird hunting on DeSoto National Wildlife Refuge. Limited wild turkey and ring-necked pheasant hunting are proposed for the upcoming 2003 and 2004 seasons on certain areas of the refuge.

Environmental Action Statements, including Section 7 consultations, were completed for: four wetland wells, including running electricity to the sites; wetland dike work, which included water control structures; and a new pole building.