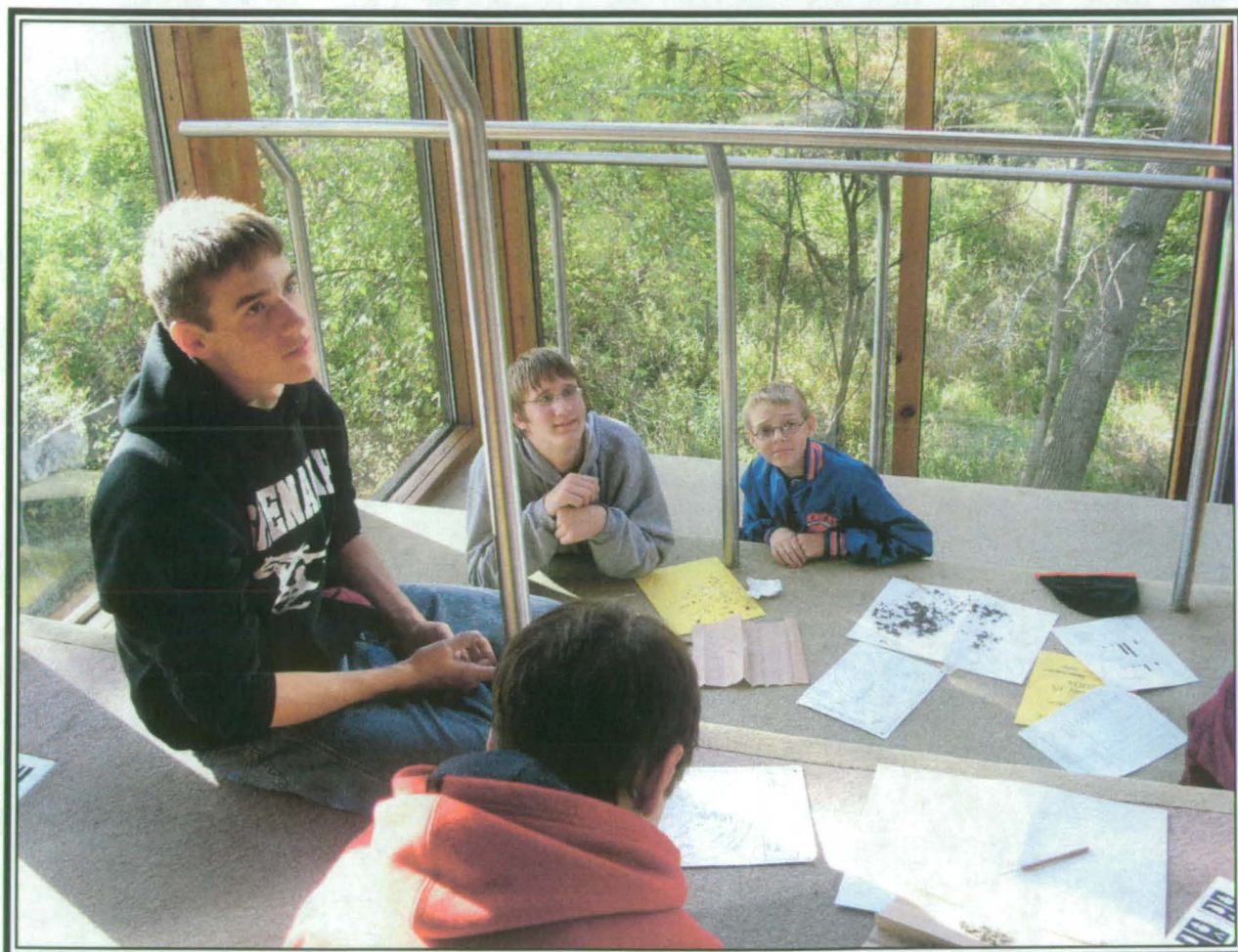


DeSoto National Wildlife Refuge Annual Narrative Report

Missouri Valley, Iowa
Fiscal Year 2004



Environmental education instills a sense of wonder.

Larry Klimet 3/28/05
Refuge Manager Date

Don Koppell 4/5/05
Refuge Supervisor Date

Nita M. Zuer 4/6/2005
Regional Chief, NWRS Date

Highlights

Monitoring and Studies

- Studies conducted on the refuge include: white-tailed deer research continues since 1990, survey of native grasslands, and grassland and forest bird studies.

Habitat Restoration and Management

- Exotic plant control receives high priority at the refuge.
- New 80 acre wetland was completed as part of a North American Wetlands Conservation Act one million dollar grant.
- The refuge has now restored over 1,880 acres of grassland, including the 158 acres restored this year.

Coordination Activities

- Coordination with the National Park Service resulted in a diorama at the Gateway Arch in St. Louis detailing flora and fauna of the Lewis & Clark expedition.
- The Corps of Engineers worked with the refuge on three projects which involved Missouri River habitat.

Resource Protection

- Total crimes prosecuted rose over 300 percent this year compared to the ten year average.
- Conservation work of the *Bertrand* collection continues with 9,714 objects handled this year.
- Refuge Operations Specialist VanRiper turned in his commission.
- Two men drowned in DeSoto Lake.

Public Education and Recreation

- Bicentennial of the Lewis and Clark Corps of Discovery: numerous activities on the refuge, new kiosk near the historic campsite.
- Fourth annual RefugeFest.
- Over 5,200 students visited the refuge for environmental education.
- Reciprocity was obtained from Iowa Department of Natural Resources and Nebraska Game and Parks Commission in February 2003. With this in place pheasant and turkey hunts were initiated and deer hunting was expanded.
- Refuge held first disabled hunter turkey hunt.
- Refuge opened for the first time to turkey and pheasant hunting.

Planning and Administration

- Youth Conservation Corps returns to DeSoto after a ten year absence.
- Student Career Employment Program enrollee Dave Murcia was hired.
- Visitor Center parking lot was redone.

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Introduction

DeSoto National Wildlife Refuge is found south of U.S. 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 acres 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 1,454.2 acres are biologically managed as croplands. Cool- and warm-season native grasses have been reestablished on more than 1,880 acres to provide additional biological diversity.

The focal point for both man and wildlife is the former oxbow of the Missouri River, the 788 acres DeSoto Lake. Recreational demand of 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. An average of 90,000 visitors pass through the center each year.

Monitoring and Studies

1a Surveys and Censuses

The fall migration was slow. The majority of the month of October only brought a smattering of ducks. Snow geese and ducks began arriving at DeSoto National Wildlife Refuge (NWR) on November 5. Snow goose numbers peaked on November 19 with over 250,000 but the geese only stayed that day and by the next morning (official count day) only about 52,000 remained. Duck numbers peaked on November 12 with 25,000 mallards. By December 10, the majority of the lake was frozen over with only small pockets of open water and only about 13,600 snow geese, 2,300 Canada geese and 2,500 mallards remained. Goose numbers dropped rapidly and remaining stragglers were finally driven south by December 17. Some small holes in the ice remained open virtually all winter with Canada geese numbering from 1,800 to 315, remaining all winter.

Use-days are shown in Table 1a-1. Total duck use-days for the year (Oct '03 – Sept '04) was slightly below the five-year average of 534,554 use-days. Goose use-days were well below the previous five-year average of 4,230,509 use-days. The lake began to thaw by early March. Several duck species, numbering over 2,000, used the Refuge on their way north. The first broods of Canada geese were observed by mid-April.

Table 1a-1. Waterfowl use-day summary for fiscal year 2004.

	Oct-Dec 03	Jan-Mar 04	Apr-Sep 04	Totals
Ducks	475,955	23,323	8,392	507,670
Geese	1,217,798	36,165	12,087	1,266,050
Total Use-Days	1,693,753	59,488	20,479	1,773,720

DeSoto held the annual Audubon Christmas Bird Count on December 20, 2003. This was the third count with a new circle that encompasses Boyer Chute and DeSoto National Wildlife Refuges. Volunteers from the Omaha Audubon Society and other interested birders recorded 68 species and 12,198 individual birds.

Volunteer birders also participated in the DeSoto Spring Bird Count on May 1, 2004. This count, which includes only the Refuge, recorded 109 species and 2,559 individual birds. This is a relatively high species count for the spring, and included a number of shorebirds and other migrants such as orioles, warblers, vireos and various sparrows.

Spring pheasant crowing counts were conducted at 12 stops three times between May 27 and June 22 to index the pheasant population. The number of "crow" calls averaged 34.3 calls per stop and ranged from 26 – 45 calls per stop, with the highest on June 22. The breeding population index averaged 7.5 pheasants per stop. During 2003 the average number of calls per stop was 57.7 and the population index averaged 11.5 pheasants per stop. Differences may be

attributed to the late start of the survey. Since this is only the second year trends can not be determined at this time.

On February 13, 2004, researchers from the University of Nebraska at Lincoln conducted a survey of the refuge deer population from a helicopter. The survey was conducted from 12:00 to 14:30 hrs under an overcast sky with winds at 15 mph and about 20" of snow cover. Confidence was high that all deer on the refuge at the time were counted, with little or no double counting. The final count was 983 deer on the refuge or about 88 deer per square mile of terrestrial habitat. The average for this part of the country is 25-35 deer per square mile. The refuge can support a higher density of deer, around 65 per square mile, which provides for good wildlife viewing by our visiting public. Increases in deer harvest have been taking place, but a much bigger push will need to be initiated.

1b Studies and Investigations

White-tailed Deer Research at DeSoto National Wildlife Refuge, 2004

Research on white-tailed deer (*Odocoileus virginianus*) at DeSoto was initiated in 1990 and has continued through 2004. In 2004 radio-telemetry efforts were expanded to include male deer. Seventy deer were captured on DeSoto using netted cage traps and chemical immobilization and 20 males were fitted with custom designed expandable radio-collars. Five additional females were fitted with collars. Forty-five other deer were equipped with plastic and metal ear tags. Over 5,000 radio-locations and over 4,000 direct observations were collected from May 29, 1999 to the present on 95 radio-collared deer. They are in the process of evaluating 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. Data will also be used to construct models that will be used to predict the potential for, and rates of disease transmission through riparian corridors. Currently, they are tracking 12 deer at Boyer Chute National Wildlife Refuge in conjunction with the DeSoto study. A similar research project was also initiated in the Panhandle of western Nebraska in 2004. The research is affiliated with the University of Nebraska-Lincoln and the USDA-National Wildlife Research Center. They are looking to continue field research at DeSoto through at least 2006. This research will increase our understanding of deer ecology and disease transmission and facilitate wise management of our natural resources.



Survey of Native Grassland Plants

Dr. Carla DeLucchi, professor at Dana College, NE, sampled plants on 15 grassland sites on DeSoto to document the species composition, relative abundance, and diversity of the species present. In addition, woody invasive plants and non-native species were documented.

Grasses accounted for 35.1 – 95.8%, forb abundance ranged from 3.9 – 62.4% and woody species ranged from 0 – 21.5%. Average species diversity indices ranged from 0.88 to 2.07. Compared to 2002, diversity increased in 21 of 36 (58%) fields. Percent of native species ranged from a low of 37.7% to a high of 100%. Of the introduced species recorded, smooth brome and intermediate wheatgrass were the most abundant. This is to be expected as these species were planted over large areas of the refuge. Fields with high percentages of introduced species and/or woody vegetation will be examined to determine the best course of action for addressing the problem.

Studies of Grassland and Forest Birds

The Avian Ecology Lab at University of Nebraska at Omaha, lead by John McCarty and LaReesa Wolfenbarger, conducted research on a variety of questions pertaining to wildlife at DeSoto and Boyer Chute National Wildlife Refuges. The refuges continue to be core sites for their long-term project on the ecology of grassland birds in relation to agriculture. As part of this project they censused the refuges for grassland birds in May and June of 2004. They continued to find large numbers of birds of conservation concern, including Dickcissels and Grasshopper Sparrows. They also found at least two singing Henslow's Sparrows for the second year. They now have data on distribution and abundance at the refuges for 3 years. These data formed part of a masters thesis completed in the summer of 2004 by Shannon Engberg. Ms. Engberg found differences in the abundance and diversity of grassland birds related to both the species planted in restored grasslands and their size.

They also collected information on the reproductive success of Dickcissels on both refuges. This information shows that while reproductive success is low, it tends to be higher than at surrounding farm sites. Their results also indicate that, unlike populations further south, parasitism by Brown-headed Cowbirds is not a major cause of reproductive failure at either refuge.

Lorelle Berkeley finished her second field season working on the post-fledging survival and habitat use of Dickcissels at the refuge and completed her masters degree in the fall of 2004. She found that 1) the early fledgling stage is a critical period for Dickcissels with very high mortality rates, 2) habitat quality influences the survival of juveniles Dickcissels. Specifically, higher densities of forbs are associated with higher survival. 3) Movement is limited in the first three weeks after fledging. Birds that left the field where they were hatched used a variety of habitat types, including agricultural fields. However, these birds eventually dispersed into nearby grasslands.

Page Klug also finished the second season of her research and will finish her Masters degree in 2005. She has continued to document variation in populations of nest predators at the refuge. She has found snakes to be major nest predators, followed by small mammals and mid-sized mammals such as raccoons. While predation rates are high, habitat quality once again plays a role in moderating the effects of predation. As in Ms. Berkeley's work, Ms. Klug has found that the density of forbs is an important contributor to high quality habitat for grassland birds.

Two new Masters projects were started in 2004. Katy Simmons is building on censuses of wooded areas started in 2003 and is asking how public use of natural areas impacts forest birds. She is studying a wide range of natural areas including state parks, private nature centers, as well as the National Wildlife Refuges. Also in 2004, Nichollette Rider started a project looking at the impacts of agricultural practices on grassland butterflies. As part of this project she is using the refuges as reference sites and has collected information on the abundance and species richness of native butterflies. Both of these projects will continue for a second season in 2005.

Engberg, S. E. 2004. Landscape and habitat effects on grassland birds. MS Thesis, Department of Biology, University of Nebraska at Omaha.

Berkeley, L. I. 2004. The postfledging ecology of Dickcissels (*Spiza Americana*). MS Thesis, Department of Biology, University of Nebraska at Omaha.

Berkeley, L. I., J. P. McCarty, and L. L. Wolfenbarger. Submitted. Postfledging Survival and Movement in Dickcissels (*Spiza americana*): Implications for Habitat Management and Conservation. Journal of Applied Ecology.

A total of 66 species of birds were recorded in forested tracts sampled. At least some of these species are primarily grassland or edge species. Of the forest birds, the focal species were documented only in some of the sampled forest patches (wood thrush (78%), yellow-billed cuckoo (67%), red-headed woodpecker (56%), orchard oriole (33%)), or not at all (Bell's vireo 0%). Of the migrants that breed on the refuge, warbling vireo, rose-breasted grosbeak, house wren, and Baltimore oriole were found in all forest patches sampled. Great crested flycatcher, and eastern towhee were found in 90% of sampled patches. Red-eyed vireo and least flycatcher (67%), American redstart (44%), yellow warbler, indigo bunting, and gray catbird (33%). The remaining species (mourning warbler, eastern phoebe, brown thrasher, alder flycatcher, willow flycatcher, scarlet tanager, ruby-crowned kinglet, yellow-throated vireo, orange-crowned warbler, northern parula, blue-gray gnatcatcher, tufted titmouse, and pine warbler) were found in less than 25% of sampled patches and many may not remain to breed on the refuge. Analysis of species occurrence in relation to forest tract size has not been completed.

1c Climatic Data

Season's Highlights

Temperatures – The high temperature for the year was 93 degrees in September. The low temperature for the year was a bitter -11 degrees in January. Maximum daily temperatures were above average for the early winter months until after the first of the year. The first killing frost wasn't until November with a low of 8 degrees. Lows of -11 degrees in January and -5 degrees in February, kept a blanket of snow on the ground for the latter half of the winter.

Precipitation - The Refuge's precipitation for the year was 26.90 inches (including moisture from snow fall), which is 5.7 inches below normal. April and May were unusually dry (2.03" vs. the 30 year average of 7.65"), so the refuge's subsurface moisture is still far from normal.

The first measurable snow (6") was recorded in November. The snowfall total for the twelve month period was over 47 inches, which was the sixth largest accumulation on record, for the Omaha/Council Bluffs area. Unfortunately, the moisture content in the snow amounted to less than 5". The snowfall totals below are included in the total precipitation totals.

Table 1c.1. FY 2004 Precipitation and Temperature Summary				
Month	Precipitation (Inches)		Temperature (F)	
	2003-'04/ "snow	Average*	Maximum	Minimum
October	1.70	2.55	87	31
November	1.67 6.0	1.76	71	8
December	1.73 6.7	1.04	62	7
January	1.49 16.9	0.82	55	-11
February	0.67 10.8	0.81	55	-5
March	3.74 7.0	2.23	77	18
April	1.06	3.13	89	29
May	0.97	4.52	89	34
June	2.37	4.46	87	49
July	6.01	4.24	92	54
August	2.12	3.51	91	51
September	3.37	3.55	93	45
Total	26.90	32.62		

*30-year average

Habitat Restoration

2a Wetland Restoration

On-Refuge – Work on a new, two unit, 80 acre wetland along Highway 30 was completed this summer. Two wells were installed to flood this new unit along with Botos and Willow Ponds. The wells were part of a North American Wetlands Conservation Act (NAWCA) grant. The one million dollar grant when combined with partners contributions will total \$3,110,831 and will affect 4,470 acres along the Missouri River valley. After completion of the wells the NAWCA grant enhanced a total of 180 acres on DeSoto.

Off-Refuge - There were approximately 60 landowners that were provided technical assistance toward restoration or enhancement of their wetland habitat in 2004. There were two wetland projects funded during the year with Private Land's funding. The Mark Evans Wetland in Mills County, Iowa totaling 32 acres and the William Cordell Wetland also in Mills County totaling 35 acres. Both projects included restoration and enhancement of existing wetlands, as well as, upland seeding of native grasses and forbs.



This is the second year that the Private Lands Program has been working in eastern Nebraska within ten counties along the Missouri River, assisting the Partners for Fish & Wildlife Program in Region 6. Natural Resource Conservation Service in Nebraska is responsible for allocating several million dollars of Wetland Reserve Enhancement Program (WREP) funds. DeSoto's Private Lands Program has given priority to this program, working with agencies, non-government organizations, and private landowners to allocate the funds. A group of engineers, biologists, and agronomists called the "wetland team", have inspected and evaluated several thousand acres of wetland habitat on numerous landowners' properties along the Missouri River, during the year. Ultimately, many acres of Missouri River floodplain habitat will hopefully be protected through restoration and acquisition efforts.

The Rock Island Ecological Services Office requested our assistance this summer with the investigation of a wetland restoration project in Mills County, Iowa that may impact the endangered Massasauga rattlesnake and its habitat. This project has yet to be completed, but inspections and monitoring are continuing at this time. Crawfish holes, reed canary grass, temporary wetlands, and low brush habitat are all present and considered ideal habitat for this species.

2b Upland Restoration

On-Refuge

Forest Restoration

During 2004, approximately 60 acres (ac) were planted to a cover crop of short native grasses including side-oats grama (*Bouteloua curtipendula*), sand lovegrass (*Eragrostis trichodes*), blue grama (*Bouteloua gracilis*) and buffalo grass (*Buchloe dactyloides*) to reduce weed competition. The native grasses should keep annual weed/grass populations in check and allow for better establishment and lower maintenance of new tree plantings. Due to the extremely wet spring and late planting of these fields, large numbers of cottonwood seedlings have become established. The two fields were mowed 12-14" above the ground to reduce weed competition and spare the seedling cottonwoods.

Grassland Restoration

During 2004, six crop fields totaling 157.7 ac were permanently removed from production and were planted to native grasses and wildflowers. Field N45 (21.2 ac) was planted on May 14, 2004 using a broadcast spreader followed by culti-packing. Field N46 (20.4 ac) was planted November 22, 2003, Field N47 (35.9 ac) was planted November 20, 2003, and Field N48 (43.2 ac) was planted November 21, 2003 all using a seed drill for both grasses and forbs. Field N49 (14.5 ac) was planted May 17, 2004 by drilling in the grass seed and broadcasting the forb seed immediately after the drill. Field N50 (22.5 ac) was planted November 24, 2003 by broadcasting both grass and forb seed on top of a light snow. See Figure 2b, below.

In addition to cropland conversions, two cool-season fields (CS33, CS36) comprised primarily of smooth brome, tall wheatgrass, and intermediate wheatgrass were converted to warm-season species. Field CS33 (renamed N51) was burned on March 31 and approximately 50 ac of the 77.6 ac field was interseeded with warm-season grasses on April 15, 2004 using a Truax drill followed by broadcast seeding of forbs. Grass seed used for this field was a mixture of old seed left over from previous years, the complete composition of which is too large to include in this narrative. However, 50 lbs of the following mixture of forbs/wildflowers was broadcast on top of the drilled area immediately after drilling. If other grass seed becomes available after the other plantings are complete, the seed can be used to fill in the rest of this field.

Field N23 (formerly CS36) was comprised of 128 ac of wheatgrass and smooth brome and also was becoming overgrown with dogwood trees. The field was burned on April 6, 2004 and allowed to green up for about three weeks. After the non-native grasses began to grow, the field was sprayed with glyphosate at two quarts per acre. Spring rains delayed planting the site until June 9. Grass seed was drilled into the field and the area was sprayed again with glyphosate at a rate of two quarts per acre. Forb/wildflower seed was added to only the western-most portion of the field due to the presence of a large number of Canada and musk thistle patches and resprouting dogwood trees that will need to be sprayed in the fall and following spring. Forb/wildflower seed (same mix as for N51) will be broadcast following the last herbicide treatment. During fall of 2004, the row of large trees dividing the field will be removed to

provide a less-fragmented grassland area. Since this planting converted the remainder of this block all to warm-season species, the block was renamed N23, after the existing small patch in the northwest corner of this unit.

Table 2b-1. Forb Species Planted in CS33 = N51 and for Diversity Enhancements during 2004.

Species	Lbs PLS/lb	Species	Lbs PLS/lb
Aster, New England	0.003	Illinois Bundleflower	0.200
Beardtongue, Large-flowered	0.010	Leadplant	0.010
Black-eyed Susan	0.008	Milkweed, Butterfly	0.010
Blazing Star, Prairie	0.025	Partridge Pea	0.113
Blazing Star, Rough	0.010	Rosinweed	0.010
Clover, Purple Prairie	0.070	Sunflower, False	0.125
Clover, Rounded-headed Bush	0.010	Sunflower, Maximilian	0.070
Compass Plant	0.010	Thimbleweed	0.010
Coneflower, Gray-headed	0.090	Vetch, Canadian Milk	0.010
Coneflower, Pale Purple	0.070	White Yarrow	0.003
Coneflower, Purple	0.120	Wild Bergamot	0.003
Golden Alexanders	0.010		

Table 2b-2. Grass Species planted in CS36 = N23 during 2004.

Grasses	Lbs PLS/ac		Lbs PLS/ac
Big Bluestem, Pawnee	1.00	Sideoats Grama, Trailway	0.50
Little Bluestem, Camper	1.00	Canada Wildrye, VNS	0.75
Indiangrass, NE54	1.00	Virginia Wildrye, Omaha	0.50
Switchgrass, NE28	1.00	Western Wheatgrass, Barton	0.50
Green Needlegrass	0.75		
Total Lbs PLS/ac	7.0		

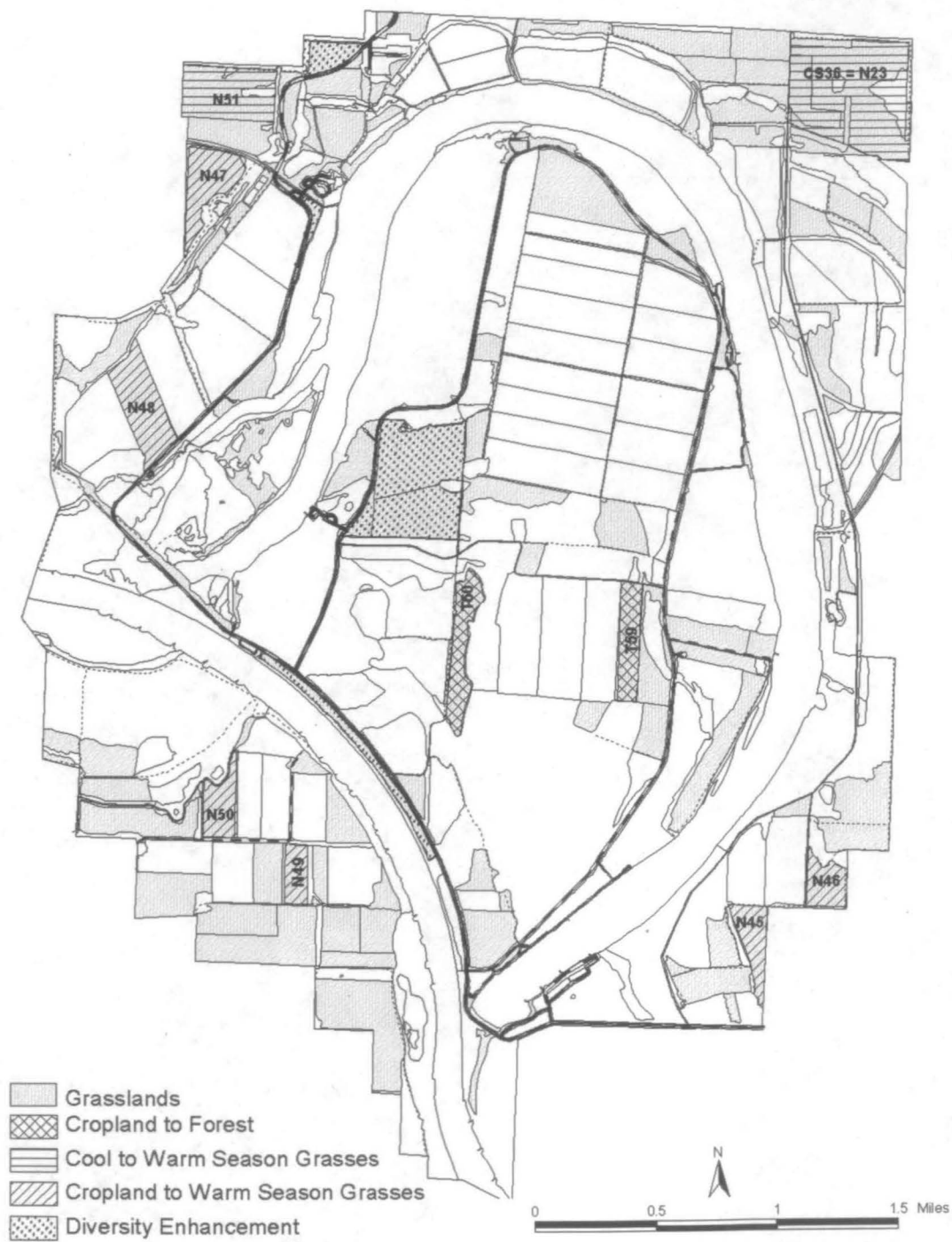


Figure 2b. Prairie restoration sites on DeSoto NWR during fiscal year 2004.

Grassland Diversity Enhancement

In addition to converting cropland to grassland, four fields lacking in overall plant species diversity were interseeded with wildflowers for a total of 165.2 acres. Fields N01 (9.0 ac), N07 (115.9 ac), N30 (16.9 ac), and N38 (23.4 ac) received 10 lbs, 50 lbs, 15 lbs, and 25 lbs respectively of the same mix of 23 species used elsewhere. Each of these fields had been burned during the spring and seeds were broadcast around each unit using an ATV-mounted spreader.

Table 2b-3. Forb Species Planted in CS36 = N23 during 2004.

Species	Lbs PLS/lb	Species	Lbs PLS/lb
Aster, New England	0.050	Golden Alexanders	0.010
Aster, Prairie	0.050	Flax, Blue	0.200
Beardtongue, Large-flowered	0.020	Illinois Bundleflower (local)	0.100
Black-eyed Susan	0.100	Indian Blanket	0.050
Blazingstar, Prairie	0.025	Leadplant	0.020
Blazingstar, Rough	0.015	Milkweed, Butterfly	0.015
Clover, Purple Prairie	0.100	Sunflower, False	0.040
Clover, Rounded-headed Bush	0.020	Sunflower, Maximilian	0.040
Compass Plant	0.010	Vetch, Canadian Milk	0.020
Coneflower, Gray-headed	0.050	Blanketflower	0.040
Coneflower, Orange	0.020	Weed, Rosin	0.010
Coneflower, Pale Purple	0.050	Weed, Thimble	0.010
Coneflower, Purple	0.100	Wild Bergamot	0.020
Coneflower, Yellow Prairie	0.100	Yarrow, Western	0.040

Native Seed Collection

During August and September, an effort was made to collect seeds from several native species present on the refuge. Seeds will be used for diversity enhancements and in new plantings. Approximately 200 lbs of mixed grass seed (big bluestem, little bluestem, indian grass, switch grass, side-oats grama, sand lovegrass) was harvested using a pull-behind seed stripper. The following list of wildflower/forb species were collected by hand by staff and volunteers.

Table 2b-4. Forb Species collected during 2004.

Species	Lbs	Species	Lbs
American Licorice	4.0	Cup Plant	1.0
Aster, Heath	2.0	Gumweed, Curly-cup	0.5
Aster, Panicked	4.0	Illinois Bundleflower	68.0
Beardtongue, Large-flowered	0.1	Ironweed	0.5
Black-eyed Susan	17.0	Leadplant	17.0
Clover, Purple Prairie	28.0	Rattlebox	0.2
Clover, Rounded-headed Bush	8.0	Rosinweed	1.0
Coneflower, Gray-headed	4.0	Sage, Blue	1.0
Coneflower, Purple	7.0	Sunflower, False/Ox-eye	5.0
Coneflower, Yellow Prairie	0.1	Sunflower, Maximilian	6.0
Coreopsis, Plains	0.2	Wild Bergamot	3.0

Off-Refuge - DeSoto's funding allocation for the Private Lands (Partners for Fish & Wildlife Program) totaled \$25,000 for FY 2004. Additional funding from the Service's Challenge Cost Share Program, the Private Stewardship Grants Program and the Cooperative Conservation Initiative, as well as, partnering with Golden Hills Resource, Conservation and Development, The Nature Conservancy, Natural Resource Conservation Service, Ducks Unlimited and numerous other partners, allowed us to accomplish much more than we would have on our own. 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.

Approximately 50 landowners were assisted with cost-share funding restoring approximately 2,500 acres of prairie habitat through burning, invasive species removal and reseeded within the seven counties of the Loess Hills. These restoration efforts are all apart of the Stewardship Initiative project that the Loess Hills Alliance and DeSoto's Private Lands Program are involved with. Additional work associated with the Stewardship Initiative project included; work with the Loess Hills Prescribed Fire Initiative Program, the fire management plan, the mobile fire crew, landowner fire ecology workshops, the Grazing Initiative Program, work with the numerous Farm Bill Programs and the Fire Learning Network Program.

During the year, a portion of two projects were completed with the 1121 Private Lands funding. Both projects were in Mills County, Iowa and included both wetland and upland restoration efforts. Native grasses and forbs were planted on 53 acres on these two private landowner sites.

This is the second year that DeSoto's Private Lands Program has been working in eastern Nebraska assisting with the Partners for Fish and Wildlife Program in ten counties along the Missouri River. With several million dollars becoming available from the Wetland Reserve Enhancement Program, priority has been given to working with numerous agencies, non-government organizations (NGO), and private landowners to restore and protect the Missouri River floodplain.

Nearly all of the habitat projects accomplished through the Private Lands program were in coordination with one or more outside organizations, federal, state, local governments and numerous NGOs.

3

Habitat Management

3a Water Level Management

Fall pumping was done to fill Willow, Wood Duck, Botos, and Buchardt wetlands. Heavy March rains recharged the wetlands in the spring.

3b Moist Soil Management

An electric well was installed on the New Moist Soil unit in time for fall pumping. The well takes the place of setting two crissafulli pumps and tractors to run them, hauling heavy rubber hose and diesel fuel to the site. The wells can also run 24 hours a day instead of eight.

The Old Moist Soil Unit was pumped in the fall and recharged the following spring.

3c Graze/Mow/Hay

Maintenance Mowing - Sixteen miles of the refuge's boundary was mowed to control woody vegetation. This is an annual maintenance practice. In addition, road shoulders were regularly mowed throughout the year.

Weed Control Mowing

Field # N44a/b (12.2 ac) was mowed in an attempt to set back the heavy infestation of cow vetch. The first mowing knocked down many of the plants which then resprouted. The eastern end of Field N15a (5 ac) was mowed twice to control thistles and marijuana. Field N22b (24.4 ac) was also mowed to reduce weed competition.

Fields N23 (128 ac), N45 (21.2 ac), N46 (20.4 ac), N47 (35.9 ac), N48 (43.2 ac), N49 (14.5 ac) and N50 (22.5 ac) were mowed once to reduce weed competition in these newly planted fields.

Two fields (60 ac), removed from crop production for forest restoration, were mowed to reduce annual grasses and thistles. The 17-acre field planted to tree seedlings during 2003 was mowed between the tree rows to allow access to the field for herbicide treatment.

3d. Farming

Four local farmers cultivated 1,454.2 acres of refuge crop land using a three-year corn-soybean-wheat/sweet clover "biological" crop rotation. Farmers contracted to farm refuge cropland for a two-thirds crop share. Cropland provides food and loafing areas for migrating waterfowl, food, and cover for other species. Crop yields and acres in production are summarized in table 3d.1.

Table 3d.1. <i>Crop Grown, Acres Planted, and Yields for 2004.</i>			
Crop	Acres	Total Yield (bu)	Avg Yield (bu/ac)
Corn	368.8	26,391	71.6
Soybeans	623.8	16,872	27.0
Wheat/Sweet Clover	461.6	10,390	22.5
Totals	1454.2	53,653	

Under the current cropland management plan, the refuge's entire share of soybeans and some corn was harvested, sold locally and funds were transferred to several field stations (Table 3d.2). Some corn was left in fields as standing crop to provide food for resident wildlife. However, most of the corn was consumed prior to December. Abundant spring/summer rainfall led to

lower crop yields for wheat as the underlying sweet clover grew rapidly and prevented several fields from being harvested. Corn and soybean yields were well below the 5-year average yield of 98.0 bushels and 33.3 bushels per acre due primarily to heavy use by deer.

Excess Grain - The refuge stored approximately 800 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. Some corn is used by the University of Nebraska deer researchers for trapping and radio collaring deer on the refuge. When spring arrives, any held-over grain is used to reimburse refuge farmers for early season custom work provided to the refuge or is transferred to other field stations.

3e. Forest Management

The field planted to hardwood tree seedlings during 2003 (17 ac) was mowed between the tree rows and glyphosate was used to kill weeds around some of the seedlings. It appears as though these 2nd-year seedlings have better survival than the 1st-year seedlings and many are doing quite well. Two fields planted to trees (20 ac) on the west side of the refuge during 2002 were evaluated as to the number and condition of trees remaining alive after the first year. Few seedling trees remained alive during 2004 and most of those were still quite small and nearly lost in the vegetation.

During 2004, an inventory of 10 forest stands confirmed that the forest is dominated by large cottonwoods (*Populus deltoides*) with a midstory of basswood (*Tilia americana*), box elder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), hop hornbeam (ironwood) (*Ostrya virginiana*), Siberian elm (*Ulmus pumila*), and silver maple (*Acer saccharinum*). The data shown in the table below reflect that cottonwoods make up the majority of the canopy, with average heights ranging from 74 to 91 feet and average diameter-at-breast-height (dbh) ranging from 15.5 to 33.2 inches. All other species in the overstory, when present, had average heights ranging from 22 to 50 feet and average dbh ranging from 3.6 to 11.2 inches. This indicates that the cottonwoods that pioneered the site have reached maturity, and the next stage of succession (barring major disturbances) will see increases in the other hardwood species.

	Cottonwood			Other Species ^a			Totals		
Stand No.	# Trees per ac	Avg Ht (ft)	Avg Dbh (in)	# Trees per ac	Avg Ht (ft)	Avg Dbh (in)	# Trees per ac	Avg Ht (ft)	Avg Dbh (in)
1	12	75	26.2	153	34	7.0	165	37	9.7
2	10	87	28.1	126	33	7.1	136	37	10.2
5	20	91	24.4	237	27	4.0	257	32	7.8
7	31	84	23.1	209	30	6.2	240	37	10.1
8	20	76	22.9	152	42	7.7	172	46	10.6
9	15	74	26.2	114	48	7.5	129	51	11.4
10	20	78	24.6	153	43	7.9	173	47	11.2
12	20	74	25.0	66	22	3.6	86	34	12.4

15	5	90	33.2	94	50	11.2	99	52	13.3
18	51	80	15.5	0	0	0	51	80	15.5

^a Other species include basswood, box elder, green ash, hackberry, ironwood, Siberian elm, and silver maple.

Increment cores of four trees on the site revealed the age of the trees at approximately 70 years. With this estimate of age, combined with the heights of the dominant and co-dominant cottonwoods from the inventory, the site index for the cottonwoods is estimated to be around 95 feet at age 50. The other species were aged at approximately 55 years old; indicating that they became established after the cottonwoods had pioneered the site.

Inventory of the midstory and understory revealed that silver maple and hop hornbeam are predominant species. Green ash, box elder, elm, hackberry, basswood and cottonwood were also present in small amounts. Table 3e-2 summarizes the results of the inventory of regeneration in the stands. Stand 12 was not available at the time of inventory because bald eagles were nesting in the stand.

Survey of regeneration on the site revealed that most of the stands currently have silver maple and hop hornbeam coming up under the cottonwood. Green ash was present in Stands 2 and 5, while box elder was found in Stands 2 and 8. Other species (basswood, cottonwood, hackberry, and Siberian elm) were found in small amounts in Stands 1, 2, and 8. This also reinforces the theory that the cottonwoods are being replaced by other hardwood species in most of the stands.

Table 3e-2. Number of small trees in the understory as a measure of regeneration within stands.

<i>Stand No.</i>	<i>Silver Maple</i>	<i>Hornbeam</i>	<i>Green Ash</i>	<i>Box Elder</i>	<i>Other^a</i>	<i>Total</i>
1	28	0	0	0	83	111
2	227	1,068	46	23	23	1,387
5	0	50	400	0	0	450
7	300	42	0	0	0	342
8	150	0	0	50	150	350
9	1,063	0	0	0	0	1,063
10	0	800	0	0	0	800
12 ^b	n/a	n/a	n/a	n/a	n/a	n/a
15	0	333	0	0	0	333
18	3,250	0	0	0	0	3,250

^a Other species include basswood, cottonwood, hackberry, and Siberian elm.

^b Not surveyed due to nesting bald eagles.

3f Fire Management

The prescribed burn crew held their annual refresher training and took the pack test to prepare for the upcoming fire season. Prescribed burns began in March and continued through May. Refuge staff conducted 15 prescribed burns totaling 541 acres. Both native and cool-season grasslands were burned. Burning was completed on all the units for the fiscal year.

Four people went to Squaw Creek NWR to assist with several burns.

3g Plant Pest Control

Exotic plant species, which often aggressively invade new habitats, are of particular concern and are receiving more management attention. The following list of exotic, invasive or nuisance species known to occur on the refuge during FY04.

Musk thistle (*Carduus nutans*) is the most common invasive species on the refuge. A number of infestations contain high population densities and cover 20 or more acres each, with 80-100 total acres affected. The worst infestations are in Fields N23, N43, CS09, CS37c, CS46, CS47 and the small fields just south of the middle archery parking lot. Some mowing (Fields T60, N15a), limited spot spraying (Field N23, N43, N44, N46, T60) and hand removal (Field T60, N19d, N46) was accomplished during the summer of 2004 to reduce populations. Mowing is not effective and may even make the problem worse by increasing the number of seed heads produced unless repeated.

The musk thistle seed head weevil (*Rhinocyllus conicus*) has been monitored since 1,000 adult beetles were 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. During June 2004, four heavy musk thistle populations (N19b, N43, CS09, CS47a) were sampled for weevils. Fifty thistle seed heads were collected at random from around each field and the number of weevil penetration sites (small granular bumps on sepals) were tallied in categories of 0=none, 1-10=moderate, and more than 10= heavy infestation. Fields N19b, CS09 and CS47a all had about half moderate and half heavy infestations while field N43 had about 2/3 of the seed heads with no weevils and 1/3 with moderate infestations.

Canada thistle (*Cirsium arvense*) has been previously found in patches ranging in size from a few square yards to over two acres in size (Fields N09a, N19b, N22a, N23, N28, N34b, N38, N43, N51, CS04, CS43, CS47a). Most of these patches were treated at least once with 2,4-D but will need continued monitoring and additional treatments. Field N23, which was just converted from non-native cool-season grasses to native warm-season grasses, has a particularly bad infestation of Canada thistle. At least ten separate patches were found and sprayed with 2,4-D in the eastern half of the field. Additional treatments of this field will need to be accomplished in early summer and fall of 2005.

Crown Vetch (*Coronilla varia*) is currently limited in distribution to a few areas (Fields N15a, N16, N25, N29) however it is rapidly invading those sites. Treatment of crown vetch in fields N15a and N29 with 2,4-D during the summer appeared to kill the majority of the treated patches, however these sites need to be checked again in 2005.

Tatarian honeysuckle (*Lonicera tatarica*) and amur honeysuckle (*L. maackii*) are two of the invasive bush honeysuckles. While they are present in scattered areas around the refuge, a major infestation occurs right around the Visitor Center where they were planted as landscape plants. They have spread through most of the area around the handicapped access to the Missouri

Meander Trail and around the lake side of the building. Other major infestations occur around field CS50, in the patch of trees next to the outlet building, and between the Bertrand excavation site and the road. Some of the honeysuckle has invaded into the Research Natural Area. Large specimens will need to be cut with chainsaws and then be treated with glyphosate. The numerous smaller plants may be brought under control by fall spraying with glyphosate.

Autumn Olive (*Elaeagnus umbellata*) occurs in several areas of the refuge where it was apparently planted some time in the early establishment of the refuge and occupies about 50 acres. Large patches occur on the west side of the river adjacent to field N33, at the Lakeview boat ramp parking area, in the South Gate Recreation area, and along US Highway 30 just east of field N44b. Like the honeysuckles, autumn olive can be controlled by cutting with chainsaws and treating with glyphosate.

Reed Canary Grass (*Phalaris arundinacea*) occurs in many of the low spots that have ephemeral water and currently occupies about 120 acres. The two worst areas are at either end of the lake, river-side of the levee in the old river channel. Control will be difficult due to the large area and locations.

Garlic Mustard (*Alliaria petiolata*) occurs as the ground layer in almost all of the wooded area of the refuge (3,300 acres). To date, no control measures have been attempted due to the enormity of the infestation. It does appear that areas with incomplete canopy cover do not support heavy stands of garlic mustard.

Common Mullein (*Verbascum thapsus*) is widespread in low densities and could be controlled with spot spraying and/or hand removal.

Multiflora Rose (*Rosa multiflora*) is found in most of the hedgerows bordering cropland, particularly in center island. It does not appear to be spreading to other areas so is not an immediate threat. It also provides some cover for wintering pheasants and bobwhite quail as well as nest sites for passerines.

Chinese elm (*Ulmus parviflora*) and siberian elm (*Ulmus pumila*) are found throughout the refuge, primarily in windbreaks, and were probably planted as such. Locating these species will require extensive forest inventories. Removal of existing trees can be accomplished by cutting, girdling, or herbicide injection.

Common reed (*Phragmites australis*) has been observed in a number of locations; at the north end of Bucharadt Pond (Field CS40a) and along the lake shore in a number of places. It is currently uncertain as to whether these are the native or introduced variety. Several patches will be sampled during fall 2004 and will be sent to an expert for confirmation.

Fish and Wildlife Management

4a. Bird Banding

During June 2004 the Iowa Department of Natural Resources conducted its annual banding of resident Canada geese. A total of 21 geese were banded with no recaptures.

4b. Disease Monitoring

Disease monitoring is conducted throughout the year. During 2004, no outbreaks of avian cholera or other disease was found in the waterfowl concentrations.

Epizootic hemorrhagic disease or blue tongue virus was observed in the deer herd as five deer were found dead around the refuge with no other apparent cause of death.

The coyote population is still being affected by sarcoptic mange. With the exception of one coyote observed near the refuge headquarters that appeared healthy, all other coyotes observed on the refuge during the year were nearly hairless due to mange.

4c Reintroductions

On March 7, 2004 an immature bald eagle, a golden eagle and a red-tailed hawk from Raptor Recovery, Nebraska were released at the Bob Starr Wildlife Viewing Area. The young bald eagle was apparently not in prime condition and was recaptured and returned to Raptor Recovery.

4e. Pest, Predator, and Exotic Animal Control

Nothing to report.

Coordination Activities

5a. Interagency Coordination

The refuge staff interacted and coordinated activities with many different federal, state, county and local governments during the year. Major coordination efforts were conducted with the

National Park Service, Corps of Engineers (COE), Nebraska Game & Park Commission, and Ducks Unlimited.

The National Park Service project consisted of designing and installing a diorama at the Gateway Arch in St. Louis detailing the flora and fauna of the Lewis and Clark Expedition. The display, consisting of mounted specimens, murals, and recreated habitats along the Missouri River was part of larger exhibit commemorating the Bicentennial of the Lewis and Clark expedition.

Refuge Manager Klimek, as a member of the Nebraska Game and Parks Commission's Partnership Team, attended numerous meetings representing national wildlife refuges in Nebraska for the Nebraska Natural Legacy Project. This is a long-term planning project whose goal is to conserve the state's flora, fauna, and natural habitats. In addition, hunting reciprocity and management of the refuge's deer population were important topics during the year.

Coordination activities with Ducks Unlimited, while not a governmental agency, are similar to the activities with the above agencies. Refuge staff and numerous other agencies were involved with applying for and receiving a North America Wetland Conservation Act grant for 1 million dollars for work within the floodplain of the Missouri River between Iowa and Nebraska. DeSoto Refuge received funding to install two new electric wells to assist in water management of the Red Barn units.



Coordination with the COE was on three projects primarily involving the creation of habitat in the Missouri River that would be favored by the endangered pallid sturgeon and increase habitat diversity in the riverine environment. The first project, completed in the Spring of 2004, consisted of lowering twelve wing dikes and building six chevrons on the west bank of the river within the refuge. This project was designed to widen the river

channel by eroding the river bank. The second project proposed by the COE was to reconnect DeSoto Lake to the Missouri River. This project was dropped by the COE during the 404 permitting phase due to public and Service comments. The third project, still in the design phase, is to remove 12 sections of the rock revetment on the east bank of the river. Each section will be approximately 200 feet long and approximately 20 to 30 feet wide and will create areas of different depths and velocities.

5c Private Lands Activities

The Private Lands program at DeSoto Refuge includes 18 western Iowa counties and ten eastern Nebraska counties along the Missouri River.

Outreach efforts to improve wildlife habitat and 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 partners that worked together on site evaluations, habitat restoration and enhancements, and allocating 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, a local grass-roots organization of landowners, government and NGOs all interested in the natural resources within the seven-county Loess Hills region of western Iowa. The DeSoto Private Lands Coordinator continues to serve on the Stewardship and Protection Committees and participate on scoring committees rating applications for grant funding. The Stewardship Committee has continued to have multiple projects underway during 2004. Some of these projects include; wildland fire training courses, funding of a summer intern crew that cleared invasive woody vegetation and established fire breaks on several landowner's property. Other projects undertaken by the Stewardship Committee and Loess Hills Alliance included; landowner workshops for brush and woody vegetation management including prescribed fire, continuing the Service's fire cache program for loaning out fire equipment for prescribed burning on both private and public lands, and providing S-130 and S-190 fire training courses to landowners, volunteer fire departments and conservation agencies.

Private Stewardship Grant Program awarded \$117,000, in FY03, to the Loess Hills Alliance for the control of invasive species and to increase habitat for endangered and threatened species in the Loess Hills. These funds are managed within a cooperative agreement with the Golden Hills Resource Conservation and Development, for the Loess Hills Alliance. The Cooperative Conservation Initiative program funding through the Challenge Cost Share Program was also used to buy fire equipment and hire a fire crew boss and crew to burn in the Loess Hills. There was over 98 K spent during 2004 for the mobile fire equipment and crew. Another 98 K was obligated to 42 landowners for work on 1,787 acres for prairie restoration in the Loess Hills.

Funding was received (\$10k) from the Challenge Cost-Share Program for the Mid-America Council, Boy Scouts of America Little Sioux Scout Ranch Project. This will be accomplished in 2005, with shoreline habitat improvement and native grass and forb plantings.

5d Cooperating Associations

The Friends Group, "The Friends of Boyer Chute and DeSoto National Wildlife Refuge", began their second year of operation with a major focus on getting their 501(C)3 status incorporated in the states of Iowa and Nebraska. The Eagle Emporium opened on November 15, 2003 and was an immediate success. Members of the friends group tasked themselves through many processes that eventually led to a workable pricing system, credit card acceptance ability, inventorying and purchasing, and sales display decoration. The sales area is a tremendous asset to DeSoto and is popular with the visitors.



The friends proved to be a valuable asset to DeSoto in 2004. During the year the friends group assisted with special events and took leading roles in operating concessions at the annual DeSoto RefugeFest activities held in June. The friends sponsored the tagged fish prize competition where, during RefugeFest, anglers tried to catch tagged carp from DeSoto Lake in hopes to win cash. Although no tagged carp were caught during the event, in late summer a tagged carp was caught and the fisherman received a \$100 prize from the friends.

The friends group played a major role in assisting with the Lewis and Clark Signature event held at Fort Atkinson State Park in Fort Calhoun, NE. In conjunction with Boyer Chute, DeSoto sponsored and staffed a booth at the four day event. The friends group provided volunteers to assist at the booth and well as lead interpretive presentations on the shuttles between the activity areas of Fort Atkinson and Boyer Chute NWR.

The friends received a grant for \$1,500 from the North American Nature photographer's Association to create special photo opportunities for serious photographers. DeSoto used the money to build four blinds. Two photo blinds were constructed and installed during the fall of 2003 and available for the migration. Two more blinds were completed over the winter and made available during the spring of 2004.

Resource Protection

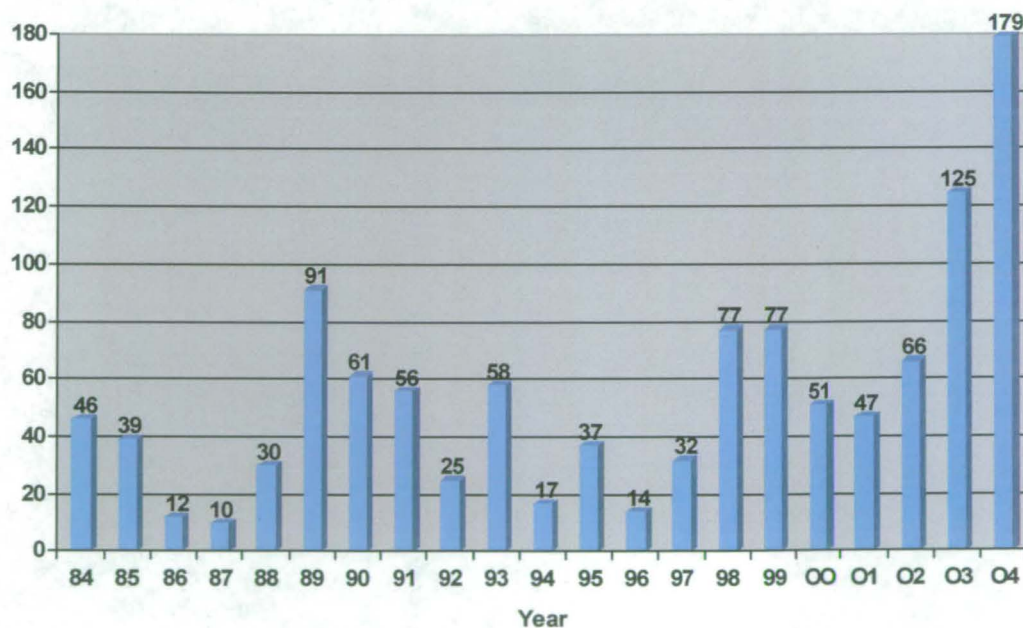
6a Law Enforcement

During the year one of DeSoto's two collateral duty officers turned in his commission. The refuge now has one full-time officer and one collateral duty officer.

A total of 179 Federal Violation Notices totaling \$13,025.00 in fines were issued by refuge officers on DeSoto in 2004.

Total crimes prosecuted in FY2004 were up 331% from the 10-year average of 54, and up 365% from the 20-year average of 49.

DeSoto NWR Cases Prosecuted



Two visitor fatalities occurred in DeSoto Lake. An individual drove his vehicle into the lake from Lakeview Drive and drowned in November. A fisherman fell out of his boat and drowned in April. Divers searched for the body from the time he fell in until dark and then again the next day. Refuge staff then used a body drag to recover his body within a few hours.

Full time Refuge Officer Rod Hansen served on the national User Acceptance Team. The team is working to reinvent the National Wildlife Refuge System case management system.

Rod Hansen also served as a Field Training Officer. Three trainees completed the program at DeSoto this year.

6b Permits and Economic Use Management

Two Special Use Permits (SUP) were issued during the year. One was issued to John P. McCarty, PHD with the UNO Department of Biology for research work on bird populations in grasslands and forests. The second SUP was to Douglas Bertelsen, also with UNO to collect vascular plants; including grasses, herbaceous plants and trees from the Refuge.

No commercial fishing permits were issued for the first time in 16 years. No hunting guide permits were issued.

6c Contaminant Investigation

During the summer of 2004, a petroleum spill of an unknown quantity was reported occurring on the refuge, just west of the Visitor Center along the road to the employee parking lot. The soil was discolored and once the top layer was disturbed, diesel could be smelled. The Refuge's Spill Prevention, Control and Countermeasure Plan was followed including the necessary contacts and documentation. The Iowa Department of Natural Resources (IDNR) sent a contaminant specialist to inspect the site and consult with Western Engineering Inc. who was responsible for the spill. Excavation and proper disposal of the contaminated soil was carried out and paperwork filed by Western Engineering Inc. Testing of the soil after clean up was completed by the IDNR, which indicated no remaining residue.

6d Contaminant Cleanup

For the petroleum (diesel) spill occurring near the Visitor Center during the summer of 2004, see above, clean up procedures were followed according to the Iowa Department of Natural Resources Contaminants Division. The contaminated soil was excavated and disposed off site, as required by the IDNR.

6f Cultural Resources Management

FY2004 was a typically busy and productive year for the Steamboat Bertrand Collection. The year also saw the departure of the Curator, Kim McLean, who left the position in late January for a position with a sister agency, the Bureau of Land Management in Nevada.

Research Requests / Access to Collections - Museum staff responded to 94 requests for information on the *Bertrand*, the cargo, artifact curation and general care of antiques. This year, as in past years, most research requests were answered electronically rather than through conventional mail, with most researchers/respondents preferring this method. Seventeen individuals were sent 110 jpeg images and 30 photographs, while an additional three individuals borrowed slides and slide programs for use with school presentations. Subjects included clothing, pipes, home lighting (match boxes, lamps and spermaceti candles), excavation of the *Bertrand*, and miscellaneous shipping container dimensions and stenciling. Five individuals were

assisted with on-site collections research. Museum staff presented nine tours, including a behind-the-scenes tour for a visiting textile conservator and curator from Tajikistan.

The Steamboat Bertrand Collection has a web page which is linked to the DeSoto NWR's web page (<http://refuges.fws.gov/generalinterest/steamBoatBertrand.html>). The webpage describes the steamboat *Bertrand*, the collection and its historical context. There is an email link for questions (r3bertrand@fws.gov), nineteen inquiries were answered

Conservation - Work continues on upgrading permanent storage conditions of the Steamboat Bertrand Collection with 9,714 objects handled this year. Types of objects treated include bottle fragments, textiles, ironstone, metal containers and miscellaneous tools and hardware.

- Dr. Larrie Stone performed his yearly examination of the foodstuffs, patent medicines and liquors in January-March, with 57 items treated this year. Nine pickle bottles were selected for a multi-year trial experiment to see if fluid loss, which is an on-going problem, could be slowed down or maybe even stopped (six bottles treated, with three serving as a control).
- Gasket Replacement Project: A comprehensive collection condition survey in 2003 by conservators with the Gerald R. Ford Conservation Center, Omaha, Nebraska, substantiated a known deficiency with the metal storage cabinets which house collection objects: grossly deteriorated polyurethane foam gaskets around the doors and internal bumpers. Replacement of the cabinets' gaskets is underway, but this time-consuming project entails many steps: temporarily removing the storage drawers from each cabinet, removing the foam gaskets and bumpers in an appropriate manner, thoroughly cleaning the cabinet interior to eliminate any foam residue, applying replacement silicone rubber gaskets and bumpers, then cleaning each drawer and the objects stored within before returning the drawers to the storage cabinet. This will be a multi-year endeavor, as there are over 100 cabinets, with the vast majority of these being double-wide cabinets.
- Metals Pilot Project: The collection metals are in generally poor condition because of lacquer coatings that were applied 25-30 years ago and have failed or are failing, resulting in active rusting and re-corrosion. The lacquer coatings applied three decades ago have actually lasted longer than average due to the care the U.S. Fish & Wildlife Service has tended to the collection through environmental controls in the HVAC systems. This year, a pilot group of 32 objects was treated by the Ford Center in an effort to determine an estimated treatment cost for objects in the Steamboat Bertrand Collection. The 32 objects treated represented types of objects which exist in the



collection in broad numbers. As expected, some objects will be simple to treat, while other objects will be more challenging (especially the tinned sheet metal foodstuff cans, containers, and lanterns). The conservation treatment for each object entails removing the old lacquer coating by either chemical and/or mechanical means, treating active corrosion if present, and applying a new protective lacquer coating. Before and after condition photographs are taken, along with written documentation for the permanent museum files. The estimated average time for treating the metal objects in the collection is three hours each; the number of objects in the Steamboat Bertrand Collection which are composed entirely of metal or for which metal components are the majority of the object, is estimated at 21,300 objects. This number does not include unconserved/uncataloged lots of metal fasteners, or lots of clock parts, straight pins, more fasteners, and metal bands attached to shipping crates in the collection. In addition to the above objects, there are 715 hob-nailed boots that have metal nails in their soles. The vast majority of metal objects in the collection cannot be treated in-house due to lack of equipment and staff.

Backlogged Cataloging / Records Maintenance - All

the objects in the Steamboat Bertrand Collection have been accessioned and assigned a catalog number. However, approximately 25% of the collection has not been cataloged (fully described or item-level counted). Incomplete cataloging was identified as a deficiency in the Inspector General's 1989 report. This year 120 numbers were fully cataloged. In addition to the above, 25 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 - Pat Jensen continued her work maintaining the research library, assisting with the annual random sample inventory of museum collections, completing data entry and providing support for other miscellaneous tasks. Michelle Widhalm provided valuable assistance with rehousing work in conjunction with the gasket-replacement project. Faith Meurrens continued her "long-distance" volunteering through typing-up and emailing of catalog record data. A number of students at West Side High School, Omaha, fulfilled their community service requirement by volunteering their time to the data conversion project as well.



Publicity and Publications - The Steamboat Bertrand Collection was publicized through text and photographs in a variety of sources, including a fourth grade Nebraska State History textbook, postings on the National Association of Watch and Clock Collectors (NAWCC) bulletin board, articles in the May/June issue of *RefugeUpdate*, *America's Best Kept Secrets* and *Civil War Times*. Steamboat Bertrand Collection objects were also on temporary loan to the Durham Western Heritage Museum, Omaha, Nebraska, and Mystic Seaport Museum, Connecticut, during this fiscal year.

Public Education and Recreation

7a Provide Visitor Services

Visitation - Refuge visitation totaled 362,427 up thirty percent from last years total of 276,729. The five-year average is 284,232 visitors per year. November is normally the busiest month of the year due to the draw of the fall snow goose migration. Visitation totaled 23,508 for the month of November, even with a poor showing by the geese. The Visitor Center hosted 83,959 people this fiscal year, which is down from 98,340 last year. Visitation was lower than five-year average of 90,105 visits, mainly due to low migration numbers of geese and parking lot construction at the visitor center during the months of July, August, and September.

Summer refuge visitation, Memorial Day through Labor Day, totaled 91,525 people. There were 2,306 people over Memorial Day weekend, 891 on the July Fourth holiday, and 628 on Labor Day Weekend.

Lewis and Clark Corp of Discovery - A highlight of 2004's visitor services revolved around the Lewis and Clark Bicentennial. Commemorating the Corps of Discovery's expedition up the Missouri in 1804, numerous programs and activities were available to the public at DeSoto NWR and Visitor Center.

The first important attraction was directed toward the Corps of Discovery campsite located on the eastern side of center island on DeSoto NWR. A large kiosk was constructed to display two panels. One depicts a map of the area showing the river and landforms as it was in 1804. This is superimposed over a current map and references the actual campsite that is in close vicinity of the kiosk. The second panel depicts the stark changes to the river environment over the last 200 years.

The Visitor Center hosted hundreds of visitors passing through on individual treks or organized groups following the trail of the Corps of Discovery. Special events, maps, activity guides, and specific Corps of Discovery daily progress interpretive and informational brochures were made available from all the states bordering the Missouri River for the public free of charge.

Special temporary exhibits were set up in the Visitor Center including a traveling display that consisted of 10 panels depicting the wildlife and plants the Corps of Discovery encountered on the expedition. The Visitor Center provided a viewing area for a table top display of the World War II, submarine USS Lewis and Clark.



From June 14th through August 13th, the Visitor Center hosted and participated in one segment of the Lewis and Clark Passport Program. This state wide program was held in conjunction with the Lewis and Clark Bicentennial Commemoration. Fifteen passport events were held in communities near the Missouri River in Iowa and Nebraska. The refuges contribution to the passport program was to show the video, "We Proceed On", to approximately 200 total visitors over the eight week time period. Visitors came to the Visitor Center for the video and many also drove down to the actual camp site. The Lewis and Clark Passport Program was sponsored by the Iowa Lewis and Clark Bicentennial Commission, National Park Service, Golden Hills Resource Conservation and Development office, Iowa West Foundation, and the Harrison County Historical Village and Welcome Center.



DeSoto hosted a two day seminar by Wayne State College on June 10th and 11th. The seminar was a teacher continuing education class about the connection of Lewis and Clarks Corps of Discovery to the Missouri River and steamboat era.

The climax of Lewis and Clark activities was DeSoto's participation in the Lewis and Clark signature event held at Fort Atkinson near Fort Calhoun, Nebraska. Staff and volunteers from DeSoto and Boyer Chute

NWR operated a National Wildlife Refuge System booth with information about the national system and the local refuges and the connection to the Lewis and Clark Corps of Discovery. During this four day event a stamp cancellation was held at DeSoto's Visitor Center.

RefugeFest – DeSoto's fourth annual RefugeFest was held Saturday June 5th. The day started cold and rainy but improved and by noon the event was again a success. Approximately 1,200 visitors participated in a wide array of activities throughout the day. The event was held in conjunction with National Fishing and Boating Week and Iowa's Free Fishing Weekend. The refuge sponsored an adult and youth carp fishing contest which featured three major cash prizes for catching tagged carp plus numerous miscellaneous raffle prizes. In addition to the fishing contest there were family activities, including special Visitor Center programs that focused on a set of activities involving aquatic life at DeSoto. A simulated underwater habitat was created by refuge staff that brought visitors into the underwater world of aquatic plants and fish. A special DeSoto stamp cancellation was held at the Visitor Center on the event day commemorating the refuge.

At the South Gate Recreation area, concessions were operated by the Friends of Boyer Chute and DeSoto NWR. Events included: U.S. Army Corps of Engineers displays and motorized boat rides, free fried carp samples, games and contests for the kids, casting clinics, nature walks, and a Lewis and Clark keel boat replica with interpreters.

The first five tagged carp caught between RefugeFest and October 14th were worth \$100 each and one tagged carp was caught this year. The success of this event was a team effort by the Refuge staff, the Friends Group and volunteers, contributors and the local communities. The following sponsors provided generous support; American Family Insurance, Joe Tess Fish Market, Omaha Public Power District, Friends of Boyer Chute and DeSoto Refuges, Blair Chamber of Commerce, Scheels All Sports, Wal-Mart, and Cabela's.

Interpretation

Beginning with the new fiscal year, events at the refuge began with the celebration of "National Wildlife Refuge Week". DeSoto hosted an "Open House" and free entry to the refuge over the October 11th and 12th weekend. In addition to regular exhibits about the refuge's wildlife and the steamboat Bertrand excavation, the Visitor Center had a special exhibit during the month of October featuring the color photography of Gary Caldwell. His photography is taken locally and many photos are of DeSoto wildlife and scenery.

DeSoto hosted its annual Wildlife Art and Photography Sale, Saturday and Sunday, November 15th and 16th at the Visitor Center. Thirteen outstanding artists and photographers were on hand to sell their works. Wood-carving, photography and artworks in oil, metal, acrylic, pen and ink, watercolor and mixed media were all available. All work exhibited and sold focused primarily on the regional wildlife of the Missouri River Basin and Great Plains.



The twenty first Annual Student Wildlife Art Contest and Exhibit was held at DeSoto National Wildlife Refuge through March. This year's theme was "Wildlife of the Missouri Valley and Great Plains". Eighteen classes from twelve schools participated and judging was held in January. Visitors viewed 100 selected works by Iowa and Nebraska school students. An awards ceremony took place on January 31, 2004 where the winners were given prizes and recognition.

New educational programs and activities in conjunction with the new exhibits that were installed in FY 2003 were implemented into fall programs for visiting schools. Targeting all grade levels of school children, the new programs will teach about bird migration, habitats, the Lewis and Clark expedition and will provide insight to the mission of the Fish and Wildlife Service and the National Wildlife Refuge system as well as teach about the restoration and management of the natural resources of DeSoto. Other new environmental education programs include a new

program that engages students in learning about the natural history of the lesser snow goose, one of the major attractions to DeSoto.



New exhibits that focus on Wildfire and Prescribed Fire Management of Prairies were installed in the Visitor Center that feature a life sized mannequin and a touch screen interactive DVD. This new exhibit has attracted the attention of many visitors and provides valuable information to the public. Also new temporary exhibits include volunteer contributions to the Bertrand Cargo museum. Set up in the Bertrand Cargo viewing area, these table top exhibits help visitors understand the ongoing work with keeping the exhibit and materials preserved.

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. A total of 16,378 people viewed these introductory films, in addition to all school groups. Weekend wildlife films are shown each weekend in the Visitor Center. A total of 1,443 people enjoyed the films this year.

DeSoto Visitor Center hosted a variety of temporary special exhibits and interesting programs:

- ▶ In late January and through to mid March, renowned photographer Karen Hollingsworth exhibited her 34-framed photographs of the natural variety and incredible beauty that exists on National Wildlife Refuge lands.
- ▶ In April a major refuge clean up and thistle eradication day was planned with Girls and Boys Town. Van loads of eager helpers arrived before 9 a.m. to help with the planned activities. Due to torrential rains and cold temperatures the morning was given over to special wildlife and DeSoto Refuge management programs in the visitor center for the 500 + attendees.
- ▶ May brought in the Plein Air Art Exhibit of local Harrison County area artists. Their work consists of landscape paintings that are created in the natural outdoor setting rather than a studio. Several of the Plein Air Artists spent a Saturday during the exhibit, painting and interacting with visitors and talking about their work.
- ▶ 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.

- ▶ Twenty-five Saturday girl and boy scout programs were conducted throughout the year. Programs varied and were based on badge earning activities. Some scout troops are continuing a long term commitment to the refuge by becoming volunteers in our Adopt a Prairie program.
- ▶ During the month of September, photographer Gary Caldwell exhibited his photographs of fauna and flora, totaling 36 framed color images, all taken at DeSoto National Wildlife Refuge.
- ▶ On September 20 in recognition of National Public Lands Day (NPLD) entry fees were waived. As part of the 11th annual NPLD, DeSoto sponsored a cleanup day and prairie seed harvest. Volunteers from Girls and Boys Town as well as several girl and boys scouts troops participated.

Other Interpretive Programs - The refuge continues to attract an impressive variety of foreign visitors. Our registration book at the Visitor Center also recorded visitors from all 50 states, and Puerto Rico.

Staff presented talks and programs to a variety of groups other than students. A total of 93 organized groups and bus tours, containing 2,596 persons, visited the refuge. Programs on endangered species, wetlands, migration, grassland management, wildlife management, volunteerism, careers in the FWS, and the steamboat Bertrand were all subjects for programs given by staff. Groups coming to the refuge are as varied as the requested talks. Groups ranged from Boys and Girls Scouts, cancer survivors, Motorcycle Clubs of Iowa, to Farmers National.

In late August, a group of 186 tourists arrived at DeSoto via a 778 foot long floating hotel on the Missouri River. The first-class hotel barge, River Explorer, docked in the early morning on August 23rd at DeSoto's Missouri River Overlook. Passengers then boarded busses for tours of the refuge with ranger led programs on the busses and in the Visitor Center.



Entrance Fees - This was the 17th year of entrance fee collection. Self-registration stations are at both entrances to the refuge, and visitors can also pay in the Visitor Center.

Public Information - The staff responded to 8,602 public inquiries. Thirty-five 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 250 television and radio stations, and

newspapers. 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. Fourteen interviews were granted to newspapers and TV/radio representatives. Topics included goose migration, art show, fishing, auto-tour, the Bertrand Collection, and our special exhibits. In addition, 50 requests for technical assistance were provided throughout the year. A monthly radio talk is done with KNOD radio out of Harlan, Iowa.

Students - The refuge is active with students and classes especially in spring and fall. A total of 5,288 students (176 classes) visited the refuge and were involved in environmental education programs. Our busiest months were May and November with a total of 2,661 students. In the fall, most students come to learn about "Birds in Migration" as well as the new programs, "The Habitats of DeSoto" and "The Natural History of the Lesser Snow Goose". Most of our classes work on the "Artifacts and Lifestyles" cultural resources packet provided by the refuge during their spring visits.



Forty-three college classes representing 14 schools, visited the refuge this year, including Creighton University, Clarkson College, Drake University, Dordt College, Dana College, 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 54,366 visitors. Volunteers performed "trail patrol", picking up litter and pruning overhanging branches. Guided tours of the trails were provided to 250 visitors.

Mushroom Hunting - 25,266 people visited the refuge in search of the highly sought after morel mushrooms during April and May.

Fishing - Ice fishing in January and February provided many anglers an opportunity to harvest from the large crappie population at DeSoto. Crappies harvested were ranging in size from 8-11" with smaller bluegill also observed. The spring opener on the 15th of April started strong for walleye but was initially slower for crappie, with the cooler spring weather and water temperatures. Once the water warmed up the last week of April, crappies started hitting and anglers lined the shoreline. This was the tenth year running that crappies were harvested in sizeable numbers, 10-25 per stringer, during the two to three week peak of the spring fishing period. The average sized crappie was 8-10" in length and occasionally a 12" female was harvested.

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 cool spring temperatures provided many anglers successful crappie fishing well into June. When the warmer water temperatures did occur in late June and early July, the crappie spawn stopped and forced the larger females to find deeper cooler water.

During the summer months, the anglers that know flathead cat fishing have caught fish from 10-50 pounds in size.

Six fishing clinics were held at the Marquardt Pond Environmental Learning Site. A total of 116 youth and 46 adults participated in the all-day events which included, casting clinics, knot tying, fish identification, catch and release practices, and outdoor conservation practices. Groups participating this year included the New ERA State Laymen's Association of Omaha, the Omaha Indian Tribe, and Cub and Boy Scouts. More than 332 fish were caught and all but the roughfish were released back into Marquardt Pond.

No commercial fishing operators were interested in fishing for roughfish this year. This is the first time in 16 years and only the fourth time in the last twenty three years that commercial fishing wasn't undertaken on DeSoto Lake. Commercial fishing was first started in DeSoto Lake in 1982 as a means to control roughfish.

Stocking of game fish continued in DeSoto Lake to improve recreational fishing opportunities and to keep a balance between predator and prey species. Only largemouth bass and channel catfish were available this year. White bass and walleye were not available for stocking this year. Marquardt Pond was not stocked this year, but continues to provide an excellent fishery resource for environmental education purposes.

Fish stocking (Table 7a.6) for DeSoto Lake is provided in the table below.

Table 7a.6. 2003/04 Fish Stocking in DeSoto Lake				
<i>Date</i>	<i>Species</i>	<i># of Fish Stocked</i>	<i>Size</i>	<i>Location</i>
10/10/03	Largemouth Bass	2,175	3.9"	DeSoto Lake
10/13/03	Channel Catfish	5,000	7"	DeSoto Lake
09/15/04	Largemouth Bass	2,381	4.7"	DeSoto Lake

From June 1st through the 3rd, the Columbia Fishery Resource Office and the Iowa Department of Natural Resources conducted a fishery survey of DeSoto Lake using fyke nets for two days and electro shocking. Information collected for each species were; weight and length. Scales and otoliths were removed from representative samples of black crappie, white crappie and bluegill. Scales were removed from largemouth bass, with scales and spines collected from common carp. Age and growth data will be processed by the IDNR fisheries office located in Spirit Lake, Iowa. Complete results are not in as yet, however, preliminary results indicate that the crappie population continues to maintain a large population base, with a good size distribution, the common carp are abundant and are slowly growing in size and numbers, the largemouth bass

size and numbers are still far from ideal as is the bluegill population. The walleye population continues to improve in number and relative size. The snapping turtle population continues to thrive in DeSoto Lake.

White-tailed Deer Hunting – After more than a years worth of effort reciprocity was obtained from both Iowa and Nebraska in 2003. Conducting diversity hunting programs was difficult with the state lines crossing the refuge. Reciprocity was a much needed addition to our hunting programs. With this in place 700 acres of Iowa ground and 35 Iowa hunters were added to the annual muzzleloader deer hunts. Both the October and December hunts had 135 hunters.

The two day October antlerless hunt harvested 63 deer. Work began with this hunt to start increasing the deer harvest. The Nebraska Game and Parks Commission could not change the harvest total they had set for this year, but Iowa Department of Natural Resources was able to allow the refuge to let the Iowa hunter to take two antlerless deer.

The either sex hunt was held on December 13 & 14. Due to the climbing deer population hunters were encouraged to take does. A total of 69 deer were harvested, 21 of which were does, a high amount for the sought after trophy buck hunt. The success rate was 57 percent.

Youth and Disabled Hunters Spring

Turkey Hunt – The turkey population has exploded on the refuge since the stocking of 14 wild turkeys by the Iowa Department of Natural Resources in 1986. The current population is estimated at over 1,000 birds. With a huntable population a youth and disabled hunters turkey hunt was held on April 17th and 18th. Many of the thirty-five youth hunters bagged a turkey. For most of them it was their first. Twelve disabled hunters used handicapped accessible blinds provided by the refuge or chose to set up their own. The appreciation that these remarkable hunters showed the refuge was overwhelming. In working on this hunt the staff became very aware of the lack of hunting opportunities that are offered to disabled hunters. The refuge now offers handicapped accessible blinds and/or accessibility for their vehicles for archery and gun deer hunts along with the turkey hunting. We will continue to expand hunting opportunities to disabled hunters wherever possible.



Youth Pheasant Hunt – The refuge continued to expand hunting opportunities with a youth pheasant hunt. Twenty-five youth hunters were drawn for a November 8th or 9th hunt date. The refuge received a tremendous amount of interest in this hunt. Mentors were made available to the youth hunters for both this hunt and the turkey hunt. All youth hunters were required to be accompanied by an adult.

7b Outreach

Staff responded to 14 speaker requests by civic groups for DeSoto programs and provided 50 technical information requests. The requests mainly centered around the Bertrand Collection, wildlife and plant information and teacher requests. A total of 8,602 public inquiries were processed including written information requests, email, phone calls and onsite requests.

In January, a "Birding at DeSoto" program was presented to Audubon members attending an evening talk and slide show at Fontenelle Forest in Bellevue, Nebraska.

In March, Visitor Center staff went on the road to a one day Environmental Education Expo where our refuge environmental education programs were highlighted and information provided to "Home Schoolers". Several hundred contacts were made and ten bookings for refuge visits were attributed to this outreach.

In July, Iowa Public Television filmed a Living in Iowa Side Roads segment about the Lewis and Clark expedition and the Iowa connection. A portion of the tape focused on the Lewis and Clark campsite located at DeSoto NWR.

In April, refuge staff helped Boy Scouts earn wildlife management and threatened and endangered species badges at Dodge Park, Omaha, NE. Approximately 500 scouts attended and learned about natural resource management from DeSoto and other agencies that gave demonstrations and provided programs about wildlife management and threatened and endangered species.

Refuge staff gave five in school and scout programs during the fiscal year.

DeSoto staff prepared a float for the Harrison County Fair parade in Missouri Valley. With special guest Puddles as the main attraction and with public uses highlighted, the float depicted; hunting; wildlife observation; fishing; nature trails; auto tours; boating; and photography. The float won the Best Overall Entry trophy.



Planning and Administration

8a Comprehensive Conservation Planning

The refuge's Comprehensive Conservation Plan (CCP) was completed in January 2001. The CCP process is now focusing on implementation and preparing the step-down management plans. During the year, the Fisheries Management Plan was submitted for approval and the Habitat Management Plan draft was completed and will be submitted for approval early in 2005. While a few activities have changed, in the three years since the CCP was approved, the document is proving to be a useful tool for management on the refuge.

8b General Administration

DeSoto National Wildlife Refuge Budget for Fiscal Year 2004 (33510)	
Subactivity 1121-03HR Private Land – Habitat Restoration	\$20,000.00
Subactivity 1121-03TA Technical Assistance – Administrative Support	\$5,000.00
Subactivity 1261-0000 Base Salaries, Operating Expenses, Challenge Cost Share on Service Lands & Volunteers	\$1,315,312.00
Subactivity 1262-3305 Upgrade Security & Fire Alarm System	\$59,700.00
Subactivity 1262-A3DE Annual Maintenance	\$100,000.00
Subactivity 1262-B3DE Replace Ford Ranger Cargo Truck	\$22,000.00
Subactivity 1262-D3DE Parking Lot Rehabilitation – Modifications	\$14,924.00
Subactivity 8555-34DS Refuge Roads, Main Entrance Road Rehabilitation	\$1,125,956.42
Subactivity 1262-Y3DE Youth Conservation Corp (YCC)	\$10,586.00
Subactivity 9263-C928 Prescribed Fire Operations	\$5,000.00
Subactivity 1234-0000 Landscape patterns of predation on grassland birds	\$10,200.00
Subactivity 1262-S3RO Information Technology Supplies for new Server	\$6,800.00
Subactivity 1262-A3WG Maintenance Workshop	\$1,587.00



Youth Conservation Corps enrollees were back at DeSoto after a ten year absence. Three boys and three girls were hired from the surrounding area. They worked on a wide range of projects; from litter pick up to building a Lewis and Clark Kiosk. The enrollees were a big help with the work load on the refuge and were greatly enjoyed by the staff.

Two Student Temporary Employment Program (STEP) employees, Cody Thompson and Deborah Skourup were hired this year. Cody's duties included numerous maintenance and biological duties and running the Youth Conservation Corps program. Cody worked from 5/17/04 through 8/14/04. Deborah performs public service duties at the Visitor Center. She was hired on 7/11/04 and her tour of duty runs through 7/11/05

James D. Murcia (Dave) was hired as a permanent employee through the Student Career Employment Program (SCEP) in June. As a SCEP student Dave worked at Port Louisa NWR and then at the Rock Island Ecological Services Field Office. Dave was hired as a Refuge Operations Specialist.

8c. General Maintenance

- Installed total water testing equipment, required by the State of Iowa, at the Visitor Center.
- Finished re-construction of the entrance to the Visitor Center.
- A new security and fire alarm system contract was awarded to Cable Tech. Work began in January of 2004 and is still underway.
- Built Lewis & Clark Kiosk with joint effort of maintenance staff and Youth Conservation Corps enrollees.
- Repaired four of the fishing jetties by adding new rip rap.

- Installed a bench on the Prairie Loop Trail.
- Built six PVC handicapped accessible hunting blinds and converted six waterfowl wooden hunting blinds in accessible blinds for the turkey hunt.
- Built two handicapped accessible photo blinds and converted six waterfowl hunt blinds into photography blinds
- Installed the new cooling unit at Visitor Center for Bertrand artifacts. The unit was purchased from Microclimate Technologies International.
- Installed a new full bathroom in Residence 82.
- Installed three over-head doors in the new equipment shed.
- Griffin Dewatering installed three wells to flood wetlands. Refuge staff poured 3 electrical transformer pads, ran over 900 feet of PVC pipe, and wired all wells with 480 electric.

8d Safety

Monthly staff and Quarterly Safety Committee meetings were held throughout the year. The intent of these meetings are 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. Some of the topics included; defensive driving, combating stress, tornado procedures, Hepatitis B concerns, and Fort Calhoun Nuclear Power Plant evacuation procedures.

Quarterly safety committee meetings and inspections were held with concerns presented to the Refuge Manager. The annual Station Safety Inspection was conducted and the Environmental Compliance Audit is currently being updated. Defensive Driving training was provided to the entire staff during the year. AED (automatic external defibrillator) refresher training (online) was encouraged for each of the staff members with the initial training to keep current with all of the proper steps and procedures.

During the year, fire extinguishers and first aid kits in all buildings were checked and updated, required physicals for fire and law enforcement personnel were completed, water samples taken and analyzed from the headquarters and Visitor Center wells to ensure safety of the drinking water, volunteers took the defensive driving video training required.

8e. Compliance

- As a result of the April 2004 Environmental Management System (EMS) audit, the refuge had complied with the following findings as of the end of FY04.

Finding #	Action taken
33510.04.02	All containers are identified and labeled appropriately
33510.04.05	All compress gas containers are secured and properly stored
33510.04.07	Bleach is stored appropriately
33510.04.08	Portable diesel tank has been removed, appropriate spill containment kit is provided
33510.04.09	Fuel tanks have spill containment kits in readily accessible locations
33510.04.10	Used oil collection container is labeled appropriately
33510.04.11	Open dump is closed
33510.04.12	Bulky waste is recycled and/or disposed of properly
33510.04.13	Procurement personnel are trained in new greening regulation EO 13148, Sec. 701
33510.04.15	Flammables, batteries are stored appropriately, cardboard is removed

- Forty-two Private Lands projects including seven Iowa counties on private and public lands were covered by categorical exclusions regarding Section 7, NEPA, and SHPO.
- One Intra-section 7 consultation was completed for herbicide use on the refuge.
- A Categorical Exclusion was written and signed for the resurfacing of refuge paved road.
- DeSoto NWR Spill Prevention, Control and Countermeasure Plan was implemented due to a contractor petroleum spill on an onsite refuge construction site. Required notification, documentation, cleanup, and proper disposal has been coordinated with the Iowa DNR's Contaminants Office.