

FLINT HILLS NATIONAL WILDLIFE REFUGE

Hartford, Kansas

ANNUAL NARRATIVE REPORT

Calendar Year 2001

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

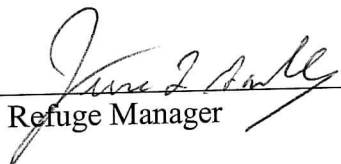
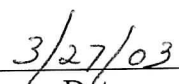
REVIEW AND APPROVALS

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Refuge Manager	Date

	
Refuge Supervisor	Date

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INTRODUCTION

The Flint Hills National Wildlife Refuge lies in the broad, flat Neosho River Valley, a native tallgrass prairie region of natural scenic beauty. The refuge is named for the gently rolling Flint Hills just to the west. These fossil studded limestone hills were laid down when seas washed across the region 250 million years ago.

The refuge, established in 1966, consists of 18,463 acres located at the upstream end of the John Redmond Reservoir. The land is owned by the U.S. Army Corps of Engineers and is managed under a cooperative agreement. Refuge habitats consist of 5,668 acres of wetlands; 1,400 acres of open water; 600 acres on the Neosho River and associated creeks; 3,875 acres of cropland; 2,567 acres of grassland; 1,944 acres of woodlands; 2,159 acres of brushlands; and 250 administrative, recreation and roadway acres.

The Flint Hills Refuge is managed primarily to benefit migrating and wintering waterfowl in the central flyway. Thousands of ducks and geese flock to the area during the spring and fall migrations and many often choose to spend the winters here. A variety of management practices are utilized on the refuge to meet the needs of wildlife. Feeding and resting areas for migratory birds are provided through aggressive moist soil and cropland management programs. In addition, mowing and prescribed burning are used to provide food and cover for waterfowl and resident species as well. Along with large numbers of migrating birds, the refuge is also a haven and often a permanent home for white-tailed deer, turkey, bobwhite quail, greater prairie chicken and an assortment of other mammals, birds, reptiles and insects.

Flint Hills Refuge is readily accessible by turnpike and interstate highways, lying just eight miles south of I-35 in eastern Kansas. Large cities such as Wichita, Kansas City and Topeka are within 100 miles of the refuge. Nearly 1.5 million people live within a 100-mile radius.

In addition to the lands managed by Flint Hills NWR, the Corps of Engineers has licensed the Kansas Department of Wildlife and Parks to manage 1,472 acres adjacent to the Refuge. This land is known as the Otter Creek Game Management Area and is managed primarily for bobwhite quail, mourning dove, greater prairie chicken, cottontail rabbit, squirrel, and white-tailed deer.

The 3.05 billion dollar Wolf Creek Nuclear Power Plant, located eight miles east of the Refuge, was put into commercial operation on September 3, 1985. The "nuke," which sends most of its electricity to Kansas Gas and Electric and Kansas City Power & Light, has a cooling reservoir of 5,500 acres, which has open water year-round. Wolf Creek has contracted with the Kansas Water Office for the majority of the storage capacity of John Redmond Reservoir. To transfer this water from John Redmond to Wolf Creek, two 36" pumps and pipelines are located below the base of the John Redmond Dam. Wolf Creek Lake is open to fishing but closed to hunting and is used extensively by waterfowl.

A. HIGHLIGHTS

Two water crossings subject to frequent flooding were rehabilitated (I.2.)
Flood money approved for road repairs (E.2)

B. CLIMATIC CONDITIONS

The year was almost normal in terms of precipitation with 35.48 inches of moisture received, which is just .53 inches below the annual average of 36.01 inches. Good rains in the spring and summer helped make up for the dry fall of 2000. Weather and pool elevation information is obtained from the official U.S. weather station operated by the Army Corps of Engineers at the John Redmond Reservoir, eight miles southeast of refuge headquarters. The rainfall amounts reported are measured in the headquarters area.

The U.S. Army Corps of Engineers (COE) records daily pool elevation and has records from 1964 to the present. This pool elevation data is helpful in analyzing both the extent and the frequency of flooding on the wildlife refuge. All planning decisions must be made within the context of past records on the extent of flooding, the duration of flooding, the time of year flooding occurs, and the frequency of floods for all portions of the refuge.

The Neosho-Cottonwood drainage basin provides the water supply for the Flint Hills NWR and John Redmond Reservoir. The conservation pool for John Redmond Reservoir is 1039 msl. At 1042 msl, 25% of the refuge is under water while 90% of the refuge land is flooded when the pool elevation reaches 1067 msl.

Monthly Precipitation, Temperatures and
Pool Elevations CY 2001

Month	Precip. Inches		Snow	Temp °F		Pool Elevations	
	Total	Norm		Max	Min	Max	Min
Jan	1.57	0.90	1	53	-7	1040.08	1039.55
Feb	3.92	1.04	1	59	4	1048.79	1039.10
March	1.61	2.30	0	71	16	1048.79	1038.74
April	1.54	3.02	0	84	30	1039.49	1038.69
May	4.35	4.31	0	89	45	1039.67	1038.81
June	8.29	5.71	0	89	47	1042.84	1038.65
July	3.12	4.31	0	103	62	1038.83	1037.15
Aug	4.02	3.93	0	100	57	1038.62	1036.96

Month	Precip. Inches		Snow	Temp °F		Pool Elevations	
	Total	Norm		Max	Min	Max	Min
Sep	4.44	4.39	0	**	**	1037.93	1036.89
Oct	1.69	3.20	0	82	30	1037.50	1036.98
Nov	.61	1.77	0	76	21	1037.41	1037.09
Dec	.32	1.13	0	68	8	1037.77	1037.22
Totals				Extremes		Extremes	
	35.48	36.01	2	103	-7	1048.79	1036.89

** No data available

E. ADMINISTRATION

1. Personnel



Back row, left to right: Thuma, Cooper, Pankratz, Laws, Hancock.
Front row, left to right: Burton, Menard, Hanley and Gamble.

1. Jerre L. Gamble, Project Leader, GS-0485-14, PFT
2. Alice M. Hanley, Supervisory Refuge Operations Specialist, GS-0485-12, PFT
3. Tim Menard, Refuge Biologist, GS-0486-GS-11, PFT
4. Rich Sterry, Fire Management Officer, GS-0401-11, PFT (not pictured)

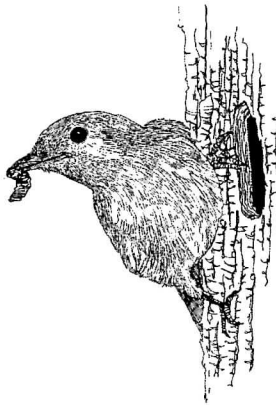
5. Evelyn M. Burton, Administrative Support Assistant, GS-0303-07, PFT
6. Lyle L. Hancock, Biological Science Technician, GS-0404-08, PFT
7. Gerald K. Laws, Engineering Equipment Operator, WG-5716-10, PFT
8. Ron E. Thuma, Maintenance Worker, WG-4749-09, PFT
9. Timothy J. Cooper, Range Technician, GS-0455-05
10. Jason C. Pankratz, Biological Science Technician, GS-0404-05
11. Aaron Ball, Biological Science Technician, GS-0404-03 (not pictured)
12. Travis Hancock, Range Technician, GS-0455-02 (not pictured)
13. James M. Minnerath, Private Lands Wildlife Biologist, GS-0401-11, PFT (not pictured)
14. Paul G. Kramos, Private Lands Wildlife Biologist, GS-0401-011, PFT, (not pictured - operates out of Manhattan, KS. Ecological Services office)
15. Tony Ifland, Private Lands Biological Science Technician, GS-0404-07, PPT (not pictured - operates out of Kirwin NWR)

2. Youth Programs

Flint Hills Refuge has hosted a non-residential Youth Conservation Corps program every summer since 1976. This year we hired 4 enrollees and one youth leader who worked June 5 through July 27.

Our crew works a 30-hour week from Tuesday through Friday. This provides Refuge staff preparation time and time to keep up with other responsibilities.

Ron Thuma, Maintenance mechanic, was in charge of the daily operations of the program. Seasonal Bio. Tech Aaron Ball also helped run the crew. YCC enrollees were Maddie Keys, Valerie St. Bonnet, Jake Gross, and Joe Cheeseman. Heather Foster, an enrollee in 1999, was hired back for the 2nd year as the youth leader.



Heat and humidity always make for a difficult summer, but the list of accomplishments is nevertheless impressive. The crew received CPR and First Aid training their first week on the job. The kids did a lot of work on the Dove Roost and Townsite trail. They also built bluebird and wren houses that are given away at the annual Hartford Harvest Day in September. The crew also completed general maintenance at the headquarters and painted entrance signs. They also spent several days doing environmental education activities.

5. Funding

In addition to the regular Operations and Maintenance, Flex Funds and Youth Conservation Corps, this station has an extra source of funds. A cooperative agreement

with the COE allows surplus crops to be sold with the monies reverting back to this station. The funds are processed through the "Bills for Collection" procedure and are placed in Sub-Activity 8260, Proceeds from Sales. For many years 8260 funds have been used to supplement base funding as salaries alone have usually been higher than regular Operations & Management funding. This situation was remedied in 1991 when the Refuge received base funding adequate to carry out Refuge functions. This left 8260 dollars available for their intended use, the development and enhancement of Refuge natural resources.

In 2000, we were approved for funding through the Federal Highway Administration's Emergency Relief for Federally Owned Roads (ERFO) Program. We are approved to receive \$145,947 to reimburse us for repairing roads flooded during the 1998 flood. We received \$40,964 in ERFO (8556) funding this year.

Five Year Station Funding Level (Amount \$K)

FY	Oper 1261	MMS 1262	8260	9100 9251	1120	8556 ERFO	Total Budget
01	448.39	188.78	303.6	211.8	289.3	40.96	1,482.83
00	487.65	97.75	96.51	73.1	280.0	--	1,035.0
99	320.61	86.0	86.69	104.0	230.0	--	827.30
98	301.23	70.0	122.57	49.80	216.3	--	759.9
97	302.25	25.0	286.49	70.58	207.0	--	891.32

6. Safety

Quarterly safety meetings are held during regular staff meetings. In addition, safety issues, tips, and new ideas are discussed at the beginning of each new project.

Fire extinguishers are checked monthly, and professionally inspected each April. Nearly forty extinguishers are required to properly cover our buildings and equipment.

Staff members receive CPR/First Aid training refresher courses each year. First Aid kits in buildings and equipment are checked quarterly and items with expiration dates are replaced.

Annual audiograms are given, and several versions of ear plugs are available for use. Bilsom Viking hearing protection muffs, assigned to every employee, have replaceable foam ear cushions which are changed yearly.

F. HABITAT MANAGEMENT

2. Wetlands

Refuge wetlands include numerous type I and III natural wetlands along with 32 manageable manmade marsh/moist soil units and John Redmond Reservoir. Wetland management on Flint Hills consists of timing the filling and draw down of our moist soil units to encourage plant communities and invertebrates most beneficial to migratory birds. Moist soil units, in most cases, are filled by natural runoff, however, several of our marshes are designed to facilitate pumping should the weather not cooperate with our plans.

We continued constructing small shallow depressional wetlands in already existing marshes this year. Biologist Menard received archaeological approval to construct depressional wetlands in eight other sites on the refuge, including several fields retired from farming, but not yet managed as moist soil units. These provide more micro habitats in the marshes, making them more productive and attractive to birds.

The non-pumped wetlands were mostly $\frac{1}{4}$ to $\frac{1}{2}$ full at the beginning of the year due to the dry fall of 2000, whereas those that were pumped remained full. Freezing soil followed by a series of rains in February produced enough runoff to fill most of the moist soil units by Feb. 15th. Eagle Creek flooded Sargent Marsh, but not Palin. Bench filled only to half capacity. Drawdown began in March for most of the wetlands. Troublesome, West Bench, Beschka, Lower Hammerton, Strawn Flats, Goose Bend, Monypenny, and Lairds marshes were allowed to fluctuate naturally.

As the water in Lower Hammerton and Half Mile evaporated naturally, mudflats were exposed in late July and August. Shorebird migration coincided with this habitat availability. Pectoral, semipalmated sandpiper, stilt, yellowlegs, solitary, and killdeer comprised the bulk of the migration which peaked from late July to early August.

Unfortunately, at the end of the year, we did not have sufficient runoff to fill any of the wetlands. The only wetlands with water were the ones that were pumped - Burgess, Coon Hamman, Indian Hill, Horseshoe, Upper and Lower Hammerton, Pintail, and the Hartford units. They were pumped to provide feeding and resting habitat for migrating waterfowl.

The Refuge continued with plans to develop a moist soil unit to the west of the West Bench Unit. Ducks Unlimited pledged \$10,000 to the project and this was matched with \$10,000 from the Region 6 Challenge Cost Share Program.

Refuge Manager Gamble reached an agreement with the Corps of Engineers and the Kansas Water Office for a two foot summer drawdown (to 1037 feet) on the John Redmond Reservoir, followed by a two foot fall/winter pool rise. Such action exposes

hundreds of acres for shorebird habitat and moist soil vegetation. We received enough inflows to trigger the summer drawdown, but not enough for the two foot fall pool rise. The Refuge manager will try to renew the agreement again next year.

3. Forests

There are 4,103 acres of woodlands on the refuge. These areas range from mature stands of hardwoods to retired croplands being invaded by woody species.

There has been little or no management of the timber resource aside from preventing woody vegetation from invading some of the grasslands and wetlands. The more predominant tree species present on the refuge include cottonwood, willow, ash, pecan, red oak, burr oak, pin oak, mulberry, American and Chinese elm, walnut, hackberry and sycamore.

Each year Refuge staff issues wood cutting permits to local citizens who are interested in cutting firewood. Wood cutting is restricted to those areas where trees need to be removed from roadsides or in areas with a lot of downed trees.

4. Croplands

Farming operations at Flint Hills NWR were conducted on 3,439.4 acres by 13 farmers under cooperative agreements this year.

A cooperative agreement between the COE and the Service allows the government share of crops in excess of wildlife needs to be sold. These monies are to be used at the station within five years of receipt. The refuge share of corn and milo crops is left standing in the field while the wheat and soybeans are usually harvested and sold. Legume crops like clover and alfalfa generally go to the cooperators.

2001 Cooperative Farming Agreements

Standing Crop	Acres Planted	Govt Share	
		harvested	unharvested
Corn/Milo	1153.2	0	260.26
Legumes	0	0	0
Soybeans	1918.5	412.54	0
Wheat	367.7	70.21	0
Total Acres	3439.4	482.75	260.26



5. Grasslands

There are approximately 700 acres of restored grasslands on the Flint Hills NWR. These areas were once tallgrass prairie dominated by big bluestem, indiangrass, switchgrass and prairie cordgrass. However, major flooding since 1993 has caused significant invasion of noxious weeds, such as sericea lespedeza (*Lespedeza cuneata*), which have proven difficult to control. Since sericea is a State and County listed noxious weed, many hours of staff time are spent spraying to prevent seed maturity. This activity is recognized as more of an appeasement measure than one of control. Wholesale chemical application within a floodplain has not been a viable option.

Native prairie wildflower seed was hand collected from several prairies at the refuge. Biologist Menard then germinated this seed in his greenhouse and provided the seedlings to Marais des Cygnes NWR for restoration work.

6. Other Habitats

Beginning in 1996, many acres of Refuge cropland have been retired from farming and reestablished as riparian buffer zones along the Neosho River and the larger drainages throughout the Refuge. These zones are a minimum of 200' feet wide along both sides of the river. When all the buffers are planted, approximately 460 acres of cropland will have been planted to switchgrass and trees will be allowed to invade the buffer zone. This will not only improve the wildlife habitat but stabilize the river channel and improve water quality for downstream users.

Although there was an initial opposition to the riparian buffers, our cooperators and neighbors are starting to understand the importance of this conservation practice.

Biologist Menard created a Geographic Information System (GIS) for refuge cover types using ESRI ArcView 3.2a software. The GIS consists of: cover types, soils, habitat management activities, black and white aerial photos (1990), etc.

9. Fire Management

Prescribed fire is utilized at Flint Hills NWR for: a) restoration of native grass species; b) reduction/control of nonnative species; c) control of woody invasions into grasslands and moist soil management units; d) assisting the refuge farming program by removing wheat stubble; e) maintaining/rejuvenating nesting cover for waterfowl and other native birds; and f) preservation and/or stimulation of endangered species habitat.

Flint Hills NWR has two cooperative agreements for wildfire suppression with local fire

protection districts Lyon County Fire Five and Coffey County District. The refuge has initial attack authority within two miles of refuge boundary.

We had a good year of burning in 2001. Refuge staff completed 26 prescribed burns for a total of 2,753.5 acres. The wheat stubble burning accounted for 7 of these and almost 377 acres of the total.

2001 Prescribed Burns

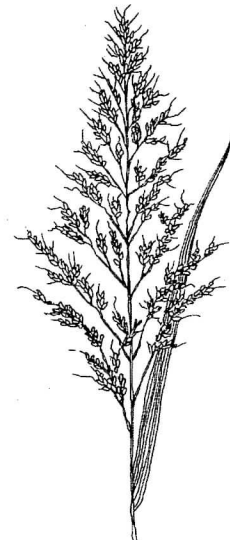
Fire	Acres
Pintail 2	125.0
Pipeline 1	29.0
CH 35 & 59	4.0
Office	3.0
Wheat stubble	376.8
Wellhouse	64.0
CH 48 & 49	8.5
Hooligan	20.0
Yellowlegs	142.0
W. Pintail 3	7.0

Fire	Acres
CH 53	8.0
New Strawn	295.0
S. Goosebend	1130.0
Pipeline 3-4W	295.0
Coon Hamman 4	33.0
W. Rummel 1	56.0
Rummel 2	51.0
Indian Hill Marsh	2.2.0
Low Hammerton	93.0
N. Pintail 2	11.0

This year was not as bad for wildfires on the Refuge as in the recent past. Wildfires consumed only 37 Refuge acres this year as compared to 190.3 acres in 1999. Refuge staff also responded to several fires close to the Refuge boundary. Joint efforts between the Refuge and local fire departments put the fire out before it reached the Refuge boundary.

10. Pest Control

The majority of the pest control on the refuge is limited to weeds in crop fields and along roadsides. The most prevalent problems on the refuge are the State listed noxious weed Johnsongrass and the County noxious weed *Sericea lespedeza*. Areas infested with Johnsongrass were mowed this year to keep the plants from going to seed.



Spraying for *Sericea lespedeza* has become a bigger priority in prairie remnants throughout the Refuge. Small patches were spot sprayed with Remedy while larger fields were broadcast sprayed. We also maintained a cooperative project with the Coffey County Extension Service to have test plots on the Refuge to research the effectiveness of new chemicals. Escort has been used on the test plots for the last several years and seems to be working well.

Engineering Equipment Operator Laws maintains a Commercial Pesticide Applicators license and is responsible for overseeing daily spraying operations. There have been no insecticides used on the refuge in the past eleven years.

The 13 cooperators farming the refuge are accustomed to reductions in pesticide use within our farming program. Pesticides approved for 2000 were Accent, Beacon, Blazer, 2,4-D, Exceed, Peak, Poast, Pursuit, Pinnacle, Resource, Roundup, Scepter, Select. Approval for the use of Poast is on a case by case basis, upon inspection of the field by the Refuge Manager or his designee. Chemicals actually used by cooperators were Roundup, Pursuit, Beacon, 2,4-D Amine, Peak and Scepter.

11. Water Rights

Flint Hills NWR is located along the Neosho River and Eagle Creek in the flood pool of John Redmond Reservoir which was constructed by the U.S. Army Corps of Engineers as a flood control project. When the reservoir is at normal conservation pool, very little refuge land is inundated. During extreme flooding, however, up to 95% of the area can be covered. Floods of this severity are not all that uncommon (1973, 1985, 1986, 1993, 1995 and 1998).

Two types of water rights are currently in effect at Flint Hills NWR. Eighteen permits are approved for the diversion of water from the natural flows of tributaries by low profile dikes. Ten additional permits cover pumping of water from the Neosho River or Eagle Creek into constructed and natural wetlands. Approved water rights applications, their type and acre feet authorized, are listed below.

This was the second year that we have operated under a commingled water permit. This allows us to use the total amount of water rights anywhere on the Refuge, instead of being limited to individual marshes.

Certificates of Appropriation have been received from the Kansas Department of Water Resources for the following Areas: Palin, Coon Hamman, Indian Hill, Goose Bend, Rummel, Burgess, Beschka, Strawn Flats, Hartford, Hammerton, Bench and Maxwell marsh units.

Water Rights Permits and Types - Flint Hills NWR

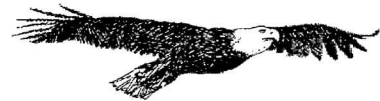
WATER UNIT	NO.	TYPE	DIVERSION TYPE	AC/FT
Commingle	43589	Recreational	Pump	1472
Hartford	39581	Recreational	Pump	500
Troublesome East	39582	Recreational	Pump	110
Pintail	39583	Recreational	Natural Flow	110
Lower Bench	39579	Recreational	Natural Flow	125
Boes	39580	Recreational	Natural Flow	60
Bench	38287	Recreational	Natural Flow	500
Hammerton	38286	Recreational	Pump	90
Hammerton	38285	Recreational	Natural Flow	180
Hartford	38283	Recreational	Natural Flow	300
Beschka	38280	Recreational	Pump	150
Beschka	38282	Recreational	Natural Flow	150
Burgess	38279	Recreational	Natural Flow	300
Burgess	38278	Recreational	Pump	206
Rummel	38284	Recreational	Pump	100
Rummel	38277	Recreational	Natural Flow	100
Strawn Flats	38281	Recreational	Natural Flow	110
Palin Slough	38273	Recreational	Pump	25
Palin Slough	38271	Recreational	Natural Flow	25
Laird's Pond	17608	Recreational	Natural Flow	70
Coon-Hamman	38274	Recreational	Natural Flow	80
Coon-Hamman	17606	Recreational	Pump	19
Money Penny Pond	17606	Recreational	Natural Flow	6
Troublesome	17597	Recreational	Natural Flow	30
Indian Hill	17601	Recreational	Natural Flow	330

WATER UNIT	NO.	TYPE	DIVERSION TYPE	AC/FT
Indian Hill	38275	Recreational	Pump	330
Goose Bend	38276	Recreational	Natural Flow	200
Goose Bend	17609	Recreational	Pump	200
Maxwell	39115	Recreational	Natural Flow	270

G. WILDLIFE

2. Endangered and/or Threatened Species

Two federally listed endangered birds are known to occur on the Refuge; the bald eagle and the peregrine falcon. Peregrines are observed passing through the area during spring and fall migrations and bald eagles generally arrive along with the waterfowl and spend the winter around the John Redmond Reservoir and surrounding areas. Eagle use is monitored as part of our weekly waterfowl surveys and the staff participates in the annual mid-winter eagle survey each January.



In addition to the above mentioned species the Neosho Madtom and the flat floater mussel are both listed as threatened and known to occur within the Neosho River drainage.

There was no eagle nesting activity observed this year.

3. Waterfowl

The primary objective of the Flint Hills NWR is to provide a quality feeding and resting area for migrating and wintering waterfowl. The main methods of achieving this goal are through agriculture and moist soil management practices.

Waterfowl counts are conducted biweekly throughout the use season. The surveys are coordinated with the State waterfowl surveys to reduce cost, increase coverage and maintain our excellent working relationship with the Kansas Department of Wildlife and Parks. We also participate in the statewide midwinter duck and goose surveys. The peak population for ducks came in November, with the peak for Canada geese occurring in late February. The peak numbers of snow geese were experienced in mid-November. The birds moved into the area in huge flocks and were here for about 2 weeks. Because of the warm Fall, waterfowl used the moist soil units all season without ice.

Peak Waterfowl Populations

Year	Canada Geese	Snow Geese	White-fronted Geese	Ducks
2001	1,112	33,900	250	15,128
2000	2,718	81,300	1,525	14,728
1999	2,200	27,600	500	9,898
1998	1,030	31,600	6,000	76,500
1997	1,400	21,305	2,800	33,535

4. Marsh and Water Birds

Moist soil water level management was tailored to accommodate the growing populations of egrets and herons. Common and snowy egrets, great blue, little blue and green-backed herons and American and Least Bitterns responded accordingly to the low water and high concentrations of invertebrates. White pelicans, double-crested cormorants and pied-billed grebes are also common and took advantage of the areas.

5. Shorebirds, Gulls, Terns and Allies

The Refuge enjoys good numbers of yellowlegs, dowitchers, killdeer and assorted peeps. These birds can generally be found whenever conditions are right. Numbers of gulls using the area continue to rise with peak populations of ring-billed gulls easily eclipsing 200,000 individuals. Franklin's gulls are also common during the migrations. Forster's and black terns are seen regularly at certain times of the year.

Spring and fall shorebird surveys were conducted to International Shorebird Survey (ISS) Protocol. Marshes are being managed to provide feeding habitat and shelter for shorebirds. We held water into the summer at Lower Hammerton MSU.

6. Raptors

Red-tailed hawks, common nesters on the refuge, are present year-round. Northern harriers, kestrels, turkey vultures and barred and great horned owls are also known to nest on the refuge. Other species observed during the year include merlin, prairie falcon, Cooper's and Sharp-shinned hawks, Swainson's hawk and rough-legged hawk. Osprey are also sighted on the refuge several times a year.

One rough-legged hawk spent the winter at Palin Marsh.

7. Other Migratory Birds

Throughout the 1990's the refuge has utilized construction of nest boxes as a rainy day activity for YCC youths. Typically 100-150 bluebird nest boxes are made and given away to interested parties each year.

The 63 bluebird boxes were checked in February and March to clean out and to determine use. Typically, about 95 percent of the boxes are utilized by bluebirds, wrens or titmice each year.

8. Game Mammals

Game mammals on the refuge include cottontail rabbit, fox squirrel and white-tailed deer. All of the above animals are plentiful and easily found in suitable habitat. The most popular and visible game mammal on the refuge is the white-tailed deer.

10. Other Resident Wildlife

Otters were released in the early 90's on the Cottonwood River upstream from the Neosho river and the Refuge. Reports of river otter sightings on the Refuge occur about twice a year. Annual road kills on the highway just north of Hartford confirms the general consensus that the population is continuing to grow.

Beaver, always present in the river, moved into several marsh areas with the high water during the year. They continue to cause some problems with our dikes and water control structures.

Populations of northern bobwhite quail, Eastern and Rio-Grande cross turkeys, greater prairie chicken and ring-necked pheasant are all present on the Refuge, although pheasants and prairie chicken populations are extremely low. Other residents include coyote, raccoon, beaver, bobcat and opossum. Several sightings and road kills in the area have confirmed the presence of armadillos in this part of Kansas.

11. Fisheries Resources

Responsibility for fisheries management in the Neosho River and John Redmond Reservoir belongs to Kansas Department of Wildlife and Parks. Assistance is provided as needed for management of refuge landlocked fisheries.

Gamefish found in the area include channel catfish, white bass, crappie and flathead catfish.

White bass, which normally run in large numbers in the spring, made a half-hearted attempt this year. Fishing action was far below the legendary runs of past years.

H. PUBLIC USE

1. General

The entire Refuge is open to permitted public use activities throughout most of the year. The portion north of the Neosho River, except for the Burgess Marsh and Dove Roost area, is closed to all public access from November 1 to March 1 to provide sanctuary for migrating birds.

The Flint Hills NWR surrounds the city of Hartford on three sides and the headquarters is located on the northwest side of town. Because of this, and the fact that a majority of the staff members live in or near this town of 550, we are very much involved in the community. The refuge assists with, supports, and participates in many community functions and the YCC crew performs tasks as community service projects.

There were approximately 52,000 visitors to the refuge recorded in 2001. This number is almost the same as 2000. Visitor information is based on traffic counter readings as well as other information, such as the number of hunters observed by the Refuge Officers during their fall patrols, and the number of anglers actually seen throughout the year, to come up with visitation numbers.

The Refuge's southern boundary extends from one shore of John Redmond Reservoir to the other, with the north half of this line closed to hunting and the south half open. Each year we place a buoy line on the lake to define these areas in the fall, and attempt to retrieve them in the spring.

2. Outdoor Classrooms - Students

The Refuge staff is asked to conduct presentations to school groups and youth organizations year-round. These presentations are worked into staff schedules when feasible.

Several school groups from neighboring schools visited the Refuge this year and were given short tours of the Refuge. We try to emphasize the mission of refuges as well as explaining what makes Flint Hills NWR unique. We also had visits from the Hartford Library summer reading group and several scouting troops.



3. Outdoor Classrooms - Teachers

The Refuge hosted a teachers workshop July 13-14. Twenty-five educators attended “Wet, Wild, and Willets”, a workshop using Project WET, Aquatic Wild, and the Service’s Shorebird Sister Schools Program. Suzanne Fellows from the Regional Office and Diane Maddox, KS State Coordinator for Project WET helped SROS Hanley and Biologist Menard with the class.

4. Interpretive Foot Trails

Dove Roost Nature Trail.

This trail was originally developed in 1976 as a YCC project and continues to draw a steady flow of visitors despite its isolated location, approximately 8 miles east of the office. The 1.1 mile walking trail circles Dove Roost Pond, passing through native tallgrass prairie and heavily wooded habitats. An observation tower near the parking area provides a good view of migratory waterfowl resting on John Redmond Reservoir. Eagle Point, a rocky outcropping, provides a good observation area for eagle watchers in the winter. A boat ramp is also provided at the popular fishing pond.

Townsite Trail

This trail was developed as a YCC project in 1981 and is located ½ mile northeast of the office. This area was once part of Hartford, but when the John Redmond Reservoir was developed a protective levee cut this area off from the rest of the town. Originally developed to interpret the secession of Hartford’s original townsite and State highway back to nature, interpretive panels developed by YCC in the early 80’s were later removed since they were nonstandard panels. The trail receives considerable foot traffic from town via a turnstile on Mill Street and a walkway across the dike. Vehicular traffic arrives at either of two parking areas on Townsite Road (formerly Kansas 57 highway). A two-acre frog pond is a feature along the two-mile trail.

Burgess Marsh Trail

This is the newest trail and was completed in 1997. A large paved parking lot and concrete sidewalk are at the head of the trail. The trail is approximately one-eighth of a mile in length. At the end of the trail is a 100 foot boardwalk. The boardwalk was almost completed when the October 1998 flood hit. The flood caused extensive damage to the trail, but little damage to the partially completely boardwalk.

6. Interpretive Exhibits/Demonstrations

Hanley worked with Exhibit Design Group on developing 6 new interpretive panels for the headquarters kiosk and a new kiosk to be built at the Burgess Marsh overlook. The project was approximately 1/4 complete when the contractor pulled out of the project. The contract was re-bid at the end of the year and Interpretive Graphics was awarded the contract.

The Refuge hosted the annual Eagle Day on January 21. SROS Hanley and Biologist Menard gave presentations and a tour to approximately 60 visitors.

The Refuge hosted an Open House on March 4. Approximately 100 people attended the event.

As in the past, refuge staff joined staff from Kirwin and Quivira NWR's in operating a booth at the Kansas State Fair at Hutchinson in early September.

Some 3,000 visitors at Hartford's annual Harvest Day Festival in September viewed refuge displays and visited with Refuge staff in our large tent. Information regarding National Hunting and Fishing Day and National Wildlife Refuge Week was provided. Approximately 100 bluebird and wren nesting boxes built by YCC enrollees were given to successful participants in a short wildlife quiz.

8. Hunting

Approximately 7,900 acres of the refuge are open to public hunting year-round in conjunction with state seasons. An additional 2,100 acres are open for all hunting except waterfowl from March 1 - October 31. The rest of the year this area is closed to all public access. Permanent sanctuary status exists on 8,220 acres. In 1990 the refuge became a non-toxic shot zone for all shotgun hunting except for turkey and deer. Waterfowl hunting is normally the highest hunting use on the refuge.



The Refuge was open during the spring snow goose conservation order.

An above average hunter turnout occurred for the spring turkey hunt on the refuge.

The hunting units on the refuge were opened for the special Youth Duck Hunt on October 13-14, which was two weeks before the general waterfowl season opener.

Pintail and Hartford Marsh roads were closed to through traffic at the beginning of the waterfowl season in an effort to curtail traffic disturbance and improve waterfowl use in those areas.

9. Fishing

Fishing usually accounts for the majority of the consumptive use visits, just slightly above hunters. Anglers tried their luck at catching white bass, catfish, crappie, and saugeye.

11. Wildlife Observation

The Refuge offers visitors good wildlife viewing opportunities throughout the year, however, the spring and fall offer the best viewing for migratory birds. Bird watchers from all over the United States visit Flint Hills each year looking for such species as the greater prairie chicken, scissor-tailed flycatchers and many of the warblers.

12. Other Wildlife Oriented Recreation

Photography is becoming more popular on the refuge each year and many visitors capture the refuge and its wildlife on film. Campers also use the refuge to enjoy the outdoors in spite of the fact that there are no developed areas.

13. Camping

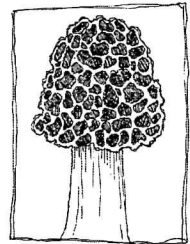
Although the Refuge does not have any permanent camping facilities, primitive camping is allowed on the Refuge. Campers are expected to pack out everything they pack in. Due to the summer heat, the insects, and poison ivy, we do not have a lot of camping taking place most years.

14. Picnicking

Picnicking visits usually occur in conjunction with other Refuge activities, but visitors occasionally come just to picnic.

16. Other Non-Wildlife Oriented Recreation

Wild food gathering is permitted on the refuge. Mushrooming for morels and pecan gathering are activities that are very much a part of local custom and culture.



17. Law Enforcement

Gamble and Hanley are the only two who currently have law enforcement authority. Gamble also serves as a Region 6 Firearms Instructor. For the majority of the year individuals and groups are contacted incidental to other duties. Patrols and coverage of the refuge are increased during the hunting season due to increased use and potential for violations. Local residents assist in the LE effort by keeping an eye on the refuge and reporting violations or suspicious activities to refuge officers. Additional coverage of the refuge is accomplished with the aid of two state game wardens assigned to the counties within which the refuge is located.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

In 2000 we began working with the RO and the Federal Highway Administration to get a contract awarded to rehabilitate the Troublesome Creek and Tadano water crossings. Both of these crossings were raised in elevation to prevent frequent flooding. Prior to this rehab work, the two Refuge roads were frequently closed due to flooding at these crossings. This flooding constituted a significant safety concern. The project started in February and was completed in April. Whitewing Construction from Newton, KS was the contractor and completed the project for \$180,322.

In February we found out that our proposal for Emergency Relief for Federally Owned Roads (ERFO) through the Federal Highway Administration was approved. We are approved to receive \$145,947 to reimburse us for repairing roads flooded during the 1998 flood. We received \$40,964 this year. This funding went towards a road rock contract so we could continue to repair flood damage on the roads.

We received \$110,000 of MMS funding for dike and water control structure rehabilitation this year. As a part of this project concrete wingwalls and riprap were added to Lower Bench, Bench, and West Bench water control structures. The extensions were needed to prevent erosion around the structures. A lot of time was also spent working on designing a new water control structure for the Troublesome marsh diversion. The project was bid out in the fall but no bids were received. Hopefully we will rebid it out in early 2002.

Annual road maintenance included trimming of over hanging limbs, clearing and cleaning of road ditches and replacing several culverts. Road shoulders were then graded and shaped before crushed limestone was spread.

4. Equipment Utilization and Replacement

Several new vehicles were received this year. A new Chevy ½ ton 4x4 extended cab was received for Biologist Menard. A Chevy Tahoe finally arrived after being ordered in the fall of 1999. A new Ford F-550 flat bed truck was received for the fire program. It was fitted with a 300 gallon model 52 pumper unit later in the year.

8. Other

The Refuge has a fairly extensive recycling program. We recycle aluminum, scrap metals, waste oil, antifreeze, cardboard, magazines, catalogs, junk mail and other office generated paper. Employees are allowed to bring sorted recyclables from home to add to our collection since the volume of this material doesn't seem to result in additional trips or sorting.

J. OTHER ITEMS

1. Cooperative Programs

The Refuge staff assists the Corps of Engineers by cleaning the Hartford Boat Ramp throughout the year and by mowing the Recreation Area when necessary.

Central Flyway Wingbee

The wing processing for the Central Flyway Wingbee program got started in September and was in full swing by October. Lyle Hancock is the lead on processing all the envelopes and data that comes in. Several other staff members offered some assistance in the speciation process. Approximately 40 people from 10 states participated in another successful Wingbee program held in February. Approximately 21,000 duck wings and goose tails were processed from the 2000/2001 hunting season.

Partners for Fish and Wildlife Program

Private lands staff for the state includes three permanent biological technicians, one stationed at Flint Hills NWR, one stationed at Manhattan, Ecological Services office, and one at the Kirwin NWR in north central Kansas. Project Leader Gamble assumes the duties of State Private Lands Coordinator (stationed at Flint Hills). Activities and accomplishments are reported through the HABITS program.

4. Credits

SROS Hanley and Biologist Menard wrote the report and PL Gamble edited it.

DEPARTMENT OF THE INTERIOR
U. S. FISH AND WILDLIFE SERVICE

MARAIS DES CYGNES NATIONAL WILDLIFE REFUGE
PLEASANTON, KANSAS

2001 ANNUAL NARRATIVE



Pale purple coneflower and Mead's Milkweed, Federally Threatened Plant (inset)

Bruce Frasier
Refuge Manager

5/29/02
Date

Jane J. Gandy
Project Leader

3/27/03
Date

Chief of Refuge Operations, Region 6

Date

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INTRODUCTION

Marais des Cygnes National Wildlife Refuge (Refuge) is located 45 minutes south of Overland Park, Kansas, and four miles northeast of Pleasanton, Kansas, and is complexed with the Flint Hills National Wildlife Refuge in Hartford, Kansas. The Refuge Acquisition Boundary encompasses 9,300 acres of which 7,500 acres (80%) has been purchased. The Marais des Cygnes River runs through the middle of the Refuge and is the dominant natural feature of the region and the namesake for the Refuge. The name, "Marais des Cygnes", comes from the French language and means "Marsh of Swans". This name is actually a translation of an Osage Indian name for the region, "Mixa-ckau-tse", which means "where white swans are plentiful". The name is said to have been in reference to Trumpeter Swans, which were once common in the Midwest, and are believed to have used wetlands adjacent to the Marais des Cygnes River during spring and fall migration.

The Refuge was established in 1992 for the protection and restoration of bottomland hardwood forest. In combination with forest on the adjacent State Wildlife Area, one of the northwestern-most examples of bottomland hardwood forest in the United States as well as the largest and highest quality tract of bottomland hardwood forest in Kansas is now preserved. Much of the Refuge which lies above the floodplain is comprised of forest, grassland, and abandoned cropland. Tallgrass prairie, bottomland hardwood forest, and upland oak-hickory forest sites are found throughout the Refuge, though high quality sites are limited in size and number. (See reference map, page 2.)

A. HIGHLIGHTS

Terry Heiser EOD on 4/23/2001 as a seasonal biological technician and completed his 180 day assignment on 10/19/2001. Mike Bland was selected as a new full-time fire program technician with EOD on 5/20/2001. Terry Liddick EOD on 6/18/2001 as a seasonal biological technician and completed his 180 day assignment on 12/15/2001. Laura McNeil signed up as a volunteer on 6/21/2001.

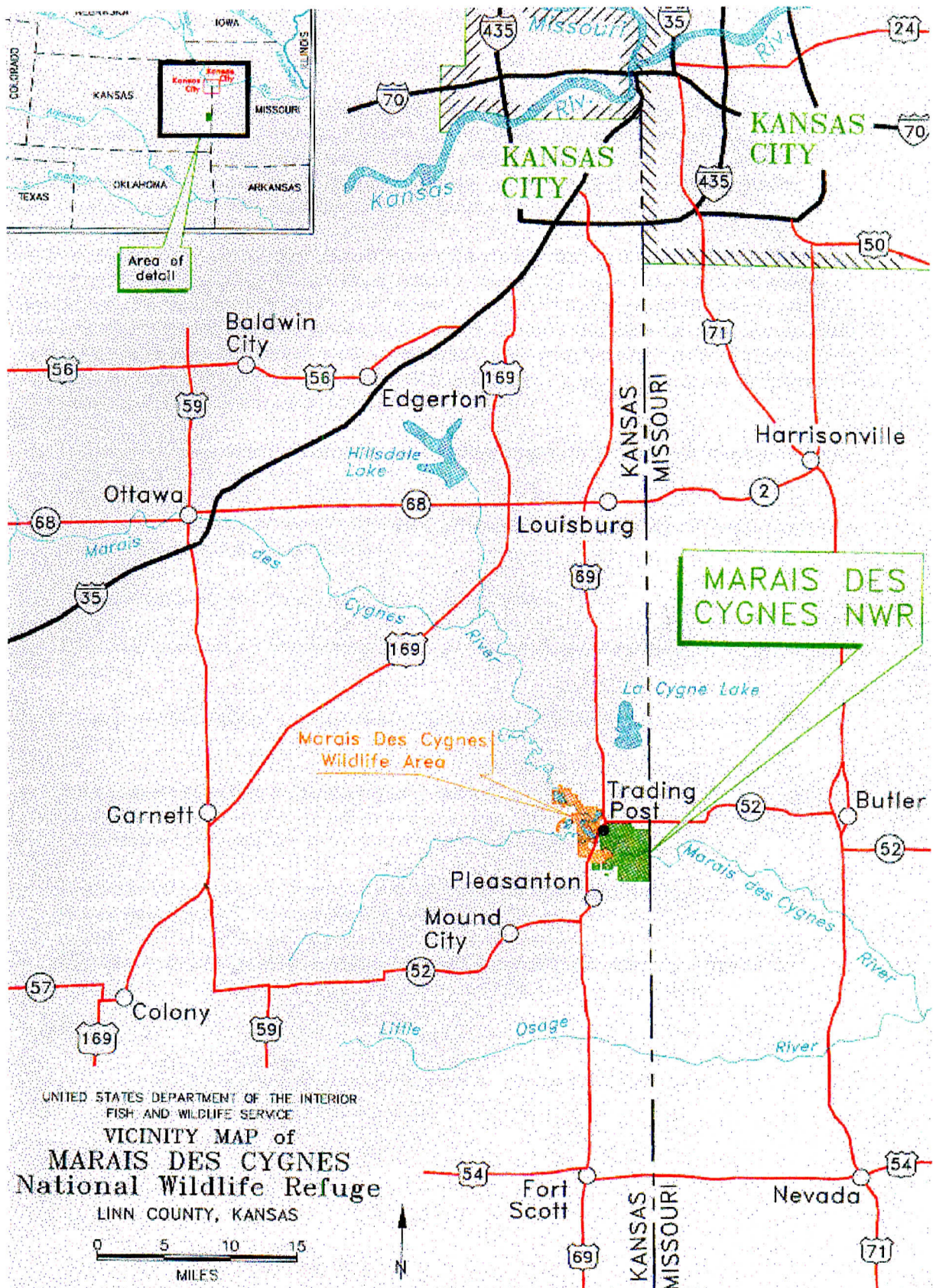
Region 3 initiated the NEPA process for a proposed 11,000 acre Missouri addition to the Refuge.

Many new infrastructure projects were completed including: information kiosk, entrance sign, rear office deck, fire storage loft, storage building water hydrant, gas/diesel fuel tank, and four service road gates.

A total of 15 prescribed fires totalling 913 acres were burned, 108 acres of cropland were planted to native grass/forbs, 400 acres of *Serecia lespedeza* were sprayed, and 37 acres of wetland restored.

Three volunteer work days were conducted with a total of 40 volunteers present.

MARAIS DES CYGNES NATIONAL WILDLIFE REFUGE REFERENCE MAP



B. CLIMATIC CONDITIONS

Temperatures at the Refuge range from highs around 104° F in July and August, to lows of -26° F in late December and January. Late May through September is the predominant period of heat and humidity. Temperatures during this period are usually in the mid 80's to upper 90's with humidity readings in the same range.

2001 Marais des Cygnes WEATHER INFORMATION 38° 21' North latitude, 94° 46' West longitude						
Month	Precipitation (inches)	Climate Normal	Max avg Temp	Min avg Temp	Mean Temp	1971-2000 Normal
January	1.60	1.52	40	17	28.3	28.3
February	3.93	1.30	43	22	32.4	34.6
March	2.15	3.12	52	28	40.2	44.5
April	1.84	3.70	71	49	60.0	54.6
May	6.62	4.81	76	77	76.5	64.3
June	4.56	5.91	82	63	72.2	73.5
July	4.07	3.44	90	72	80.7	78.9
August	2.67	3.95	89	65	76.9	77.1
September	3.69	4.68	78	54	65.8	68.6
October	3.10	3.66	68	44	56.2	57.6
November	0.55	2.56	61	38	49.2	43.9
December	0.76	1.65	48	24	36.1	33.0
	Annual 35.54	30 Year norm 40.3	MAX avg 66	MIN avg 46	Annual mean 56.2	30 year norm 54.9

From State Climatologist's Weather Data Library website "www.oznet.ksu.edu/wdl".

Precipitation from La Cygne, KS; temperatures from Mound City, KS, in degrees Fahrenheit.

The average yearly rainfall for the Refuge is 40 inches. Most of this rain falls during mid to late spring and again in mid fall, however, it can rain heavily anytime of the year. Once the ground is saturated even small rains of 1/4" can cause rivers and streams to flood.

The Marais des Cygnes River floodplain is generally 1 - 2 miles wide throughout the area. Flood events are most common in the spring and early summer and again in the fall, and generally last

anywhere from a few days to as long as three weeks. Flood depths may be several feet deep for large expanses of the floodplain.

C. LAND ACQUISITION

1. Fee Title

All Refuge lands have been purchased with Land and Water Conservation Fund money. The initial purchase of 5,800 acres was made from the Pittsburgh and Midway Coal Mining Company, a subsidiary of Chevron USA, Inc., by the Fish and Wildlife Service and The Nature Conservancy (whose land was later bought by the Service) for \$5 million. Several hundred acres were also purchased from the Midland Land and Cattle Company. The remainder of the acquisitions have been from individual landowners.

In February, RM Freske completed a Certificate of Inspection (CIP) on the Steel Tract for Realty.

2. Other

RM Freske and WB Menard attended the Lower Missouri Ecoteam Meeting at Swan Lake NWR on February 13th and 14th. RM Freske presented a Powerpoint slide presentation of the Refuge and an overview of the PPP for the proposed Missouri addition to the Refuge.

In July, RM Freske prepared a Powerpoint Presentation highlighting the Refuge and MO PPP Area. The presentation was given at the R3 Regional Office in Minneapolis on August 6th. The purpose of the presentation was to familiarize the director and other upper level management and realty staff with the values of the area. The Lower Missouri River Ecosystem team, and Ozarks Ecosystem team, formally requested that Marais des Cygnes Refuge be expanded into MO, thus the Regional Office must make a determination regarding the request. The Regional Director, Bill Hartwig (R3), later directed the Realty division to begin work on a Decision Document to expand the Refuge into Missouri.

RM Freske attended a Lower Missouri River Ecosystem Meeting at Desoto NWR on the 23rd and 24th of September. Bill Hartwig, Region 3 Regional Director, attended the meeting. One of the items announced was the decision to assign Region 3 Realty personnel to begin the NEPA process for expansion of Marais des Cygnes NWR into Missouri. R3 Realty personnel will visit the Refuge in late November or early December to discuss the project.

RM Freske completed a LAPS scoresheet for the Refuge in July. The Refuge received a score of 457, which gave it a rank of 82 out of 149 refuges which are requesting funding. Though only the top 40 Refuges are likely to receive funding, a new CARA initiative may dramatically increase LWCF funding for Refuges in the near future.

RM Freske met with representatives from the Sperry/Gallager Audubon Society, Pittsburg, KS,

on September 15th. The group wished to submit a formal request from their organization for land acquisition funding for the Refuge. They were also given a Refuge tour and a list of Refuge projects their group could adopt.

C. PLANNING

1. Management Plan

A Comprehensive Conservation Plan was completed in March of 1998. Additional step down plans were later initiated. However, no step down plans were completed in 2001.

2. Other

RM Freske attended the Kansas/Platte Ecosystem Meeting in Wichita in January. Issues discussed at the meeting included the possibility of acquiring military property near Parsons for a new refuge, Legacy Program (prairie grassland easements), and development of an Ecosystem Plan to help guide projects and acquisition.

RM Freske met with other managers of wildlife areas within the upper Osage River Basin in August. The group met at Four Rivers Wildlife Area where they toured new improvements and later discussed issues and projects at each respective wildlife area.

RM Freske gave Lance Hedges, a new Area Biologist with KS Wildlife and Parks, a tour of the Refuge. Habitat management efforts and plans were discussed as well as ideas for integrating adjacent private property into management plans.

E. ADMINISTRATION

1. Personnel

RM Freske attended a two day management course titled "The Essentials of Communicating with Diplomacy and Professionalism". The course was conducted by SkillPath Seminars in Kansas City on January 16th and 17th. The course provided some good tips on handling a number of employee/public situations.

RM Freske visited with a college student in March regarding a career in wildlife management.

Terry Heiser EOD on 4/23 as a seasonal biological technician.

Mike Bland was selected as a new, permanent, full-time fire program range technician and entered on duty May 29th.

RT Bland and BT Heiser attended CPR Training at Flint Hills NWR on May 30th.



Left to Right - BT Peterson and RM Freske



Volunteer Laura McNeil

Terry Liddick EOD on June 18th as a seasonal biological technician.

BT Heiser attended S130/S190, Basic Fire Training, the first week of June.

RT Bland attended tractor training at Flint Hills Refuge on July 18th.

BT Heiser attended backhoe training at Flint Hills Refuge on July 19th.

BT Liddick completed tractor and backhoe training on July 18th and 19th at Flint Hills Refuge. The instructor for both courses was Gerald Laws.

BT Peterson attended a Maintenance Workshop at Alamosa NWR on the week of August 6th.

RT Bland was gone for much of the month of August on a fire detail in Nevada.

RM Freske and BT Peterson did firearm Requalifications at Flint Hills NWR in September.

BT Heiser, seasonal Bio-tech, completed his 180 day assignment and was thus terminated on October 19th.

BT Liddick, seasonal Bio-tech, completed his 180 day assignment and was thus terminated on December 15th.

2. Volunteer Program

A "Volunteer Request" letter was sent in March to 250 archery and antlerless deer hunters and spring turkey hunters as well as several area newspaper for an April 7 volunteer work day.

A volunteer work day was conducted on April 7th. A total of 20 volunteers attended. Approximately 1/4 mile of brush and trees were removed and piled along a fence-line within a grassland in the Mine Creek bottom area. In addition, 3/4 mile of old fence was removed. The event was a definite success and was a lot of fun in addition to getting an important job completed.

Another volunteer work day was conducted on May 19th. A total of seven volunteers from the River City Community Church, Kansas City, MO, attended. The group piled branches from 1/4 mile of brush and trees which were cut along a fence line and parking lot near the office.

Laura McNeil, Lenexa, KS, signed up as a volunteer on June 21st. She will be working primarily on office projects including budget tracking, annual narratives, GIS/ArcView data entry, and property data management. Laura previously worked at Oahu NWR Complex, Hawaii, as an Administrative Assistant.

Volunteer Nora Carver typed up plant and animal lists in April for the Refuge and/or Linn County to prepare them for listing on the Refuge Website.

Letters regarding a Volunteer Work Day on Saturday, October 13th, were sent out to all past volunteers, '01 Archery Deer Permit holders, Sperry/Gallager Audubon, Burrough's Audubon, and two local sportsmen clubs.

A Volunteer Work Day was conducted on Saturday, October 13th. A total of 13 volunteers helped out. Five were from Sperry/Gallager Audubon, six were archery deer hunters, and two were regular Refuge volunteers. The volunteers piled approximately 1/4 mile of felled/pieced trees along fencelines within the Mine Creek prairie restoration area.

3. Funding

Office Fund Target (OFT) subactivity		FY 2001
64630 - 1261 Operations		\$ 129,430
64630 - 1262 Maintenance		\$ 103,805
64630 - 9251 Firefighting Prep		\$ 6,600
TOTAL Allocated Funding		\$ 239,835
Non Allocated Funds 64630 - 8610 Quarters Maint		\$ 3,093

RM Freske updated the MMS database for the Refuge in May. All equipment over \$5,000 in value was added.

In July, RM Freske updated the RPI (Real Property Information) for the Refuge. Real property at the new Steele Addition, a new fuel tank, and several service roads and pond dams were added.

RM Freske completed the MMS Accomplishment Report for the Refuge in October.

4. Technical Assistance

RM Freske and Karl Karrow attended a KDOT Meeting on May 2nd in Topeka. Most of the discussion involved design considerations to minimize the impacts to wildlife regarding the expansion of U.S. Hwy 69 into a freeway.

5. Other Items

RM Freske attended a Linn County Board Meeting on June 11th to provide a Refuge Revenue

Sharing Check as well as an update on Refuge activities.

RM Freske submitted Refuge Comprehensive Accomplishment Report (RCAR) information for the Refuge in September.

The new version of Lotus Notes and Norton Anti-Virus Software were installed on all of the office computers in November.

The yearly property inventory report was submitted.

F. HABITAT MANAGEMENT

1. General

The Refuge is composed of six main habitat types: bottomland hardwood forest, upland oak-hickory forest, upland prairie/grasslands, bottomland prairie/grasslands, river streams and wetlands, and cropland.

Kelly Kindcher and Dean Kettle, Kansas Biological Survey, visited the area in May and proposed to conduct a historical vegetation analysis of MDC NWR and the WA. The analysis would use old original (1840's) survey notes to plot a detailed map of the area and would include tree species noted in the original surveys. The analysis would cost approximately \$5,000.

Roger Wells, National Director of Quail Unlimited, visited the Refuge in May. Roger seemed very supportive of ongoing projects such as fescue eradication, native grass/forb plantings, and removal of fence rows with mature trees.

Rob Penner, The Nature Conservancy, Jerry Horac (retired KDW&P Biologist) and Jim Minnerath visited the Refuge in May to look at a native prairie site with Mead's Milkweed as well as other prairies and a wet prairie restoration project.

In June, WB Menard created GIS layers for the Refuge: bottomland hardwoods, topo maps, grassland restoration, etc. He also began training RT Bland in GIS use and reviewed Kansas State University GIS layers for completion. WB Menard established 20 permanent photopoints representing primary Refuge habitats and began documenting these locations.

WB Menard continued to work on the development of cover type layers for Arc-View Gis in December. Once cover typing is done we will know exactly how many acres of each habitat type are present and be better able to visualize how all the habitat types relate to each other. This should also be helpful in planning future restoration and management efforts.

2. Wetlands

RM Freske, Jim Minnerath, and WB Menard surveyed the 101 acre field south of Murray Pond in April to determine potential for wetland development. Excellent potential exists to flood most of the ground, however, a much more detailed survey was needed to adequately plan the project. Jim Minnerath visited with NRCS personnel who agreed to conduct the survey. In addition they agreed to survey two other restoration sites as well as prepare the DWR Permits.

Rod Bolinger, District Technician, and Harley Heskett, Area Engineer, both with NRCS, completed a total station survey of two Murray Bottom wetland restoration sites in May. One site is drained by the easternmost culvert and encompasses 30 acres. The other site is drained by the central culvert and totals 62 acres. NRCS, at the request of Jim Minnerath, will also design the projects and prepare the DWR Permits.

RM Freske completed Kansas Department of Water Resources Permits for the Murray Bottom Wetland Restoration Project in June. The permits were first prepared by the NRCS and after completion were forwarded to the Regional Office, Water Resources Division, for final approval and submission to the KS DWR.

RM Freske, WB Menard, Jim Minnerath and Todd Pesch, McPherson Valley Wetlands Area, visited the cordgrass prairie restoration area in July to view restoration progress.

RM Freske and Jim Minnerath surveyed the southwestern most field (90 acres) in Murray bottom to facilitate wetland restoration. Four separate dikes at the end of W-ditches will allow 37 acres to be flooded.

BT Peterson completed most of the wetland restoration earthwork for the 37 acre southwestern field in October. A screw gate and 80' of 24" culvert were placed in one of the four dikes to allow drainage of the deepest part of the wetland for events such as dike repairs or fish kills. Routine dewatering of the site is not anticipated due to limited recharge potential. Wheat was also drilled on the dikes.

3. Forests

Two dozen pecan seedlings were planted in March in the fields along the Mine Creek entrance road. Four pecan and a dozen wild plum trees were planted around the office. In addition, several red cedar trees were planted in the office wind break to replace those which had died, and a dozen and a half red cedar trees were planted on the west side of the residence on the hill to replace those in the wind break which had died.

WB Menard established protocol in June for permanent plots to monitor bottomland hardwood forests. He also submitted a grant for National Wild Turkey Federation funding of hardwood restoration on the Refuge - the request was later denied. WB Menard searched for Forest

Inventory Analysis (FIA) data near the Refuge and determined the level of resolution to be too coarse for our purposes. In eastern Kansas, only one plot exists for every 6,000 acres.

WB Menard provided a bottomland hardwood tour for Brandon Houck, National Wild Turkey Federation, in July. The Federation is considering further funding for forest restoration work on the Refuge.

WB Mendard coordinated and conducted the establishment of permanent vegetation monitoring plots in the bottomland hardwood forest at the end of Carpenter Road. The plots will be used to monitor long term changes in forest composition. Five plots were established in September and another five in October for a total of 10 plots.

BT Peterson and BT Liddick collected and spread out a pickup load of black walnuts around State Line Pond in December to add to the diversity of species already planted in the area.

4. Cropland

Special Use Permits (SUPs) for 2001 were issued in January to Mike Hilton and Larry Cook. Mike gained 20 acres of fescue which will be farmed for at least two years. Larry lost 97 acres of which 69 acres were converted fescue meadows (farmed two years) near Mine Creek. The remaining 28 acres are from fields or portions of fields along the upper portion of Murray bottom which have very thin soil and should probably have been taken out of production much earlier.

In February, special use permits for 2001 were issued to Kirby Murray and Fred Shelton. Special use permits for 2001 were issued to David Cook (Steele Pasture) and Harold Rittenhouse (Fescue) in March.

A total of 1,578 acres were farmed in 2001.

5. Grasslands

Two SUPs were issued in January for harvest of hedge on the grassland restoration area west of John Ballou's house.

A total of 108 acres were planted in April and May with 5 species of native grasses and 5 species of forbs. Sites/acres planted were E. Gatlin Road (2.2 -go back, 24 cropland, 10 cropland), SW Murray Field (15 cropland), NW Office (4.5 former fescue), SE Office Plantings (7 - reseed bare spots), Schoolhouse Prairie far east (12 go back, 8 go back), South Mine Creek center (10 former fescue), SE Cook (4 east edge of cropfield), and West Mosaic Prairie (11.5 go back).

The fields were either former fescue hay meadow, cropland which had been abandoned within the last 5 years and was not revegetating very rapidly, or unproductive cropland which a cooperator did not wish to farm any longer.

Stumps were cut and brush piles burned along a 1/4 mile fenceline near the Mine Creek Cordgrass Prairie in May.

Trees were girdled within Mosaic and Boyd prairies to help open them up and release the native prairie plants in May.

WB Menard continued to visit native prairies burned last spring and compiled a list of wildflowers on these sites in June. He also assembled a list of equipment necessary for fire monitoring and submitted an order. The Refuge was awarded \$1,500 for native grass restoration from Quail Unlimited and will seek Challenge Cost Share money.

BT Heiser high-mowed all of the 2001 native grass plantings (108 acres) in June to help them become established more quickly.

A vigorous effort to eradicate *Sericea lespedeza* was initiated in June and continued through July. Spot spraying with four-wheelers was targeted at, and adjacent to, all native prairies and new prairie restoration areas. Large patches and bottomland/woodland openings were not sprayed. If a broadcast sprayer can be obtained some of the larger patches will also be sprayed. The vigorous effort to eradicate *Sericea lespedeza* continued throughout August. Spot spraying was conducted with 2 four-wheelers across nearly 400 acres.

WB Menard and Refuge staff established a permanent fire effects plot (NPS FMH) on Coreopsis Prairie in July. The plot will be useful in evaluating vegetation changes as active management is returned to the site.

Approximately 40 acres of former fescue fields south of Mine Creek were disced a second time in September to prepare for planting of native grasses in 2002. The fields were farmed the previous year but the tenants didn't wish to farm them again and all of the fescue was not eradicated.

Small cottonwoods in the 80 acre cordgrass restoration area were wicked with Roundup in September to help keep the area a grassland.

Volunteer Laura McNeil assisted with the collection of native prairie forbs on the Refuge in September and October. Some species of forbs collected were: pale purple coneflower, gray-headed coneflower, compassplant, leadplant, cylindrical blazing star, and mountain mint. The forbs will later be planted in the prairie restoration areas in front of the office.

In December, brush along the west side of the Cordgrass prairie at Mine Creek was mowed and trees along the north side were felled and pieced. Some existing brush piles were also burned. A volunteer work day will be held in April 2002 to pile the felled trees.

6. Grazing

The Murrays grazed the 80 acre hilltop pasture.

7. Haying

RM Freske met in February with David Cook, current grazing tenant on the Steele property. David was given the opportunity to graze or hay the property provided cattle would not be allowed into streams and woodlands (62 acres), would not have cattle on the property from November 1 through February 15, and would recognize the right of the public to enter the property. David later decided to hay the area.

8. Fire Management

Eight prescribed fires totaling 583 acres were conducted during the latter half of March. The largest fire was 200 acres and the smallest 6 acres. Areas burned were: Island Prairie (3/20), North Steele Grassland (3/20), Homestead Prairie Area (3/23), Mine Creek North Grassland (3/23), Murray Pond Fescue (3/26), Cordgrass Prairie Area (3/26), Hilltop Prairie (3/27), and Allium Prairie Area (3/27).

Two prescribed fires totaling 175 acres were conducted during April. The areas burned were: Headquarters Area (4/17) and Coreopsis CRP (4/17). A total of ten prescribed fires totaling 718 acres were conducted in the spring.

RT Bland set up his office, conducted a fire equipment inventory, and prepared Acquisition Request Forms 2109 for purchase of fire equipment in June.

RT Bland conducted a pack test on September 12th. BT Heiser and BT Liddick took the pack test and Heather Bland took the field test - all successfully completed the tests.

Approximately 30 brush piles at four different sites were burned in September as a continuing effort to restore grassland sites on the Refuge.

Three prescribed burns were conducted late in October. The areas burned were Schoolhouse Prairie (30 acres), Mosaic Prairie (25 acres), and the Cordgrass Restoration Area (80 acres). Purpose of the burns was to set back invading brush.

Approximately 15 brush piles at three different sites were burned in October as part of a continuing effort to restore grassland sites on the Refuge.

Two prescribed fires were conducted early in November. The areas burned were Mine Creek wet prairie (25 acres) and Coreopsis Prairie area (35 acres). A total of five fall prescribed fires were conducted burning a total of 195 acres.

A wildfire was put out on the evening of November 8th. A standing dead tree adjacent to a previous prescribed fire (11 days earlier) burned through the trunk and fell into unburned leaves. The area burned was on the east side of the cordgrass restoration area and NE corner of Bill Gleason's property. Approximately 20 acres were burned.

In December, RT Bland began writing burn plans for portions of the Refuge which have not been burned since Refuge establishment. The maps for the plans were put into an Arc-view format so they can easily be copied and used to document annual prescribed fire activity and acreages as well as future burn plans.

9. Pest Control

BT Heiser and BT Liddick sprayed Serecia throughout June mainly targeting native prairies and areas near them. A vigorous effort to eradicate Sericea lespedeza continued throughout the month of August. Spot spraying was conducted with 2 four-wheelers across nearly 400 acres.

G. WILDLIFE

1. Wildlife Diversity

There are 27 species of mollusks, 59 species of fish, 15 species of amphibians, 42 species of reptiles, 41 species of mammals, and 317 species of birds (109 of which nest on the refuge).

Birding is especially good in late spring when over 30 species of warblers migrate through the area and in early summer when breeding birds are defending territories. The large diversity of plant communities on the refuge provides for an equally diverse bird population.

WB Menard conducted the monthly bird survey and the monthly amphibian calling route in June. The Refuge obtained a list of herps collected by Joe Collins (Center for North American Amphibians and Reptiles).

In July, WB Menard conducted the monthly bird survey and submitted the 2001 amphibian survey data to the Kansas Amphibian Monitoring Program.

Sarah McCoy, a graduate student at Kansas State University - Pittsburg, visited the Refuge in September regarding her interest in conducting an amphibian and reptile survey on the Refuge. She will prepare and submit a formal study proposal in early 2002.

In October, a bobcat was observed walking in the grassland behind the office. White-crowned and Harris sparrows returned to the office brush pile and white-fronted geese were heard flying over the office late in the month.

2. Waterfowl

Eighty acres of corn and 20 acres of milo were mowed on February 2. Fields were used by some Canada geese and mallards, however, most use was by snow geese. At one point an estimated 100,000 snow geese were using the grain and winter wheat fields.

Ten acres of milo were mowed late in March. The milo could not be mowed earlier due to wet weather.

RM Freske, WB Menard, and BT Heiser floated the Marais des Cygnes River on the morning of May 23rd. WB Menard surveyed birds observed and heard along the route. Two hooded mergansers, probably nesting in the area, were observed.

3. Raptors

An adult barn owl was seen near the end of January. The owl was observed late in the afternoon when it suddenly flew out of a large hole in the side of a pecan tree. The tree was located approximately 50 feet south of the barn on the Steele Tract. A barn owl nest box is located in the north end of the barn. The previous owner of the barn stated that a number of young owls have fledged from the nest box in past years.

4. Other Migratory Birds

WB Menard checked a spring-burned Conservation Reserve Program site in June for late season nesting of Henslow's sparrows. Males were heard singing adjacent to the site, but not on the Refuge. WB Menard also conducted a neotropical migrant survey through the bottomland hardwoods, along the Carpenter Road.

WB Menard located late nesting Henslow's sparrows in the field surrounding State Line Pond in July.

5. Other Resident Wildlife

An armadillo was observed feeding in a field on March 21st. Closer observation revealed a den near the feeding site. The field is located along the south side of the Mine Creek road, just southwest of the Mine Creek bridge. The den is located south of the eastern 1/3 of the field, between the field and the creek.

RM Freske, WB Menard, and Bill Busby, KS Biological Survey, visited wetland areas on the Refuge and Wildlife Area on March 20th to listen for frog calls. Spring peeper sites were identified on a map. Chorus frogs and leopard frogs were the only other species encountered.

6. Fisheries Resources

Chris Guy, Cooperative Fish and Wildlife Research Unit, Manhattan Kansas, visited the Refuge on February 2nd to consider the feasibility of studying the extent of paddlefish reproduction on the Refuge. After visiting the Refuge he prepared and submitted a proposal for Reverted DJ funding. The funding request was later denied.

Refuge staff conducted a mussel survey on the mussel bed north of Turkey Foot Lake in August. Many washboards and three-ridge were found. A live mucket, a first for the Refuge, was also found as well as other less common species including butterfly and spike mussels.

A shell from a recently dead, purple wartyback mussel was found in August in the mussel bed below the metal stairs, north of John Ballou's house. This mussel was first discovered alive on the Refuge in 2000 and is the only known location for the mussel in Kansas.

H. PUBLIC USE

1. General

Approximately 5,000 acres of the 7,500 acre Refuge are available for wildlife oriented recreation, including hunting, fishing, birding, and nut and berry collecting. Hunting, fishing, and other outdoor activities generally follow statewide regulations including seasons and bag limits established by Kansas Department of Wildlife and Parks. A "Closed Area" encompasses the remaining 2,500 acres of the Refuge and is generally not available for public use. The purpose of the Closed Area is to provide a resting area for waterfowl and an area where the public can drive through and see wildlife undisturbed by hunters.

A final review of the General Brochure draft was completed in March and additional photos for use on Kiosk Panels were obtained and mailed to the contractor. In June, RM Freske reviewed the final version of the map for the new Refuge Brochure and a few minor corrections were made.

Judy Houtman, editor for Linn County News, and her sister visited the Refuge on March 21st. She was given a tour of the Refuge. She also brought a copy of a news article which she had recently written for the upcoming Volunteer Work Day. In addition, she indicated that she would try to have a photographer cover the event. Judy also collected information for an upcoming article which will highlight Refuge activities which are available to the public.

In March, a mussel article highlighting the August 2000 mussel kill was written and submitted to Brian Obermeyer for inclusion in the Kansas Pearly Mussel Newsletter.

The Steele tract boundary was posted in April. A ten acre area around the house was posted as "Closed" and a 15 acre pecan grove adjacent to the house was posted as a "No Hunting" zone to

prevent duck and squirrel hunters from shooting near the house. The remaining portion of the property was posted as open to Public Hunting.

A new reception area was created in the main lobby of the office in July. A new desk and the refuge manager's old computer were placed in the southeast corner of the lobby area.

A new Information Kiosk was built at the entrance to the office in August.

RM Freske wrote a one-page article in August highlighting the Refuge for a Kansas City author who is writing a book about day trips in the Kansas City area.

WB Menard discovered a perfectly intact 3" arrowhead on a gravel bed below the metal stairs on the Marais des Cygnes River in August.

BT Heiser helped man the Fish and Wildlife Service booth at the Kansas State Fair in Hutchinson on September 9th and 10th.

Several miles of service roads and five parking lots were mowed in preparation for fall visitor use.

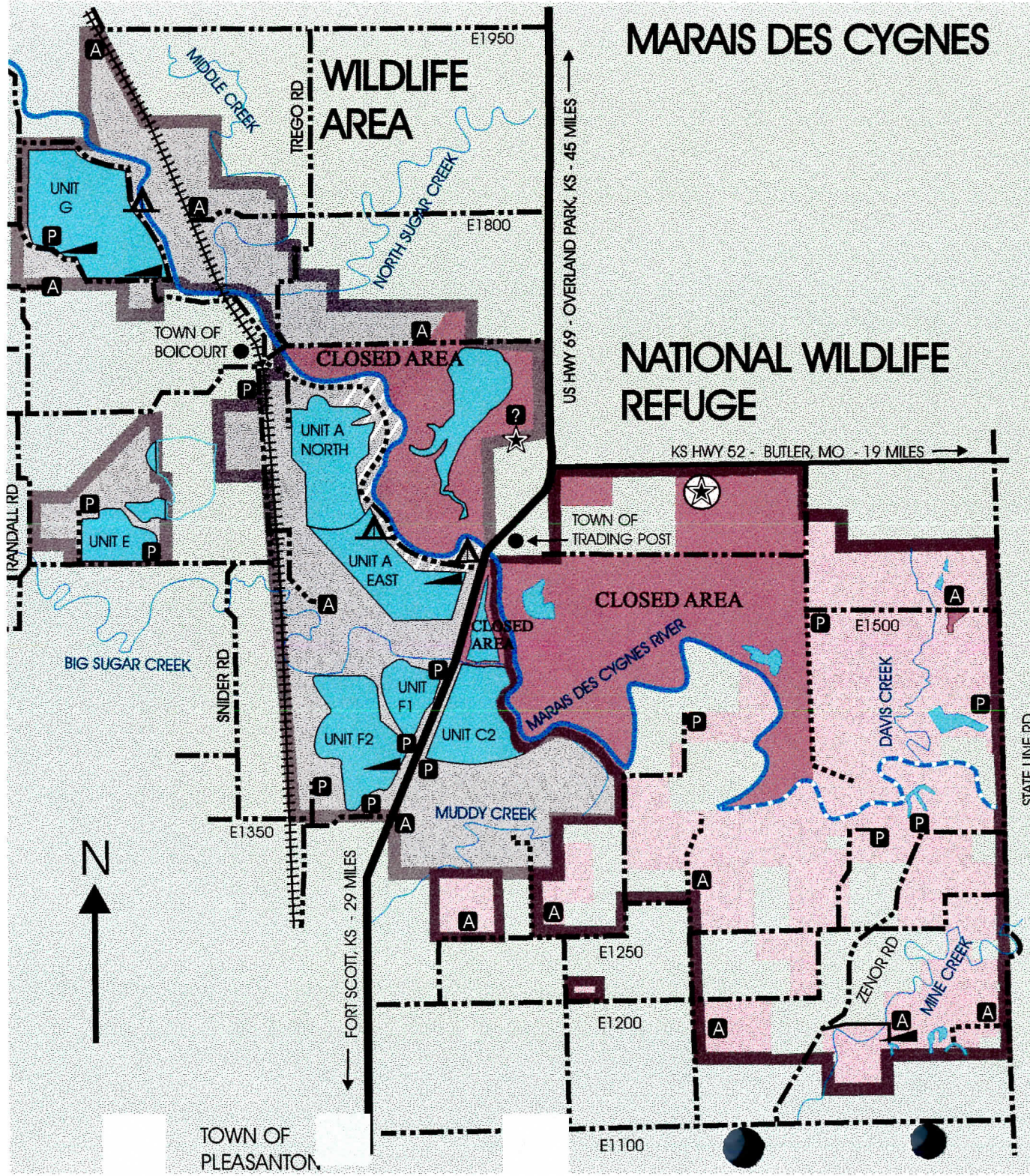
RM Freske presented a Powerpoint Presentation about the Refuge to the Kiwanis Club in Butler, MO in October. Approximately 30 members composed largely of local business professionals attended the presentation.

Refuge staff attended a Wetland Dedication at Four Rivers Conservation Area, which is 30 miles downstream from the Refuge, in October. The Fish and Wildlife Service provided a NAWCA grant for the project. Bill Hartwig, R3 Regional Director, spoke at the presentation. He also visited with Refuge staff and seemed pleased to see F&WS uniformed employees at the dedication, even if the presence was from R6.

RM Freske attended a National Visitor Services and Communication Workshop at NCTC the 3rd thru the 7th of December. Issues discussed included planning special events, starting Friends Groups, managing volunteer programs, evaluating hunting programs, and planning for the Refuge System Centennial.

New Refuge General Brochures (15,000) were received late in December. Copies were distributed to various locations in Kansas.

RM Freske presented a powerpoint presentation on the Refuge to the Butler Lions Club on December 14th.



LEGEND

- REFUGE PUBLIC USE AREA
- WILDLIFE AREA PUBLIC USE AREA
- CLOSED AREAS
- NO SHOOTING DURING DARK GOOSE SEASON
- REFUGE BOUNDARY
- WILDLIFE AREA BOUNDARY
- PAVED ROADS
- GRAVEL ROADS
- WALK-IN TRAIL/ROADS
- RAILROAD
- MOTORIZED RIVER SECTIONS
- NON-MOTORIZED RIVER SECTION
- REFUGE OFFICE
- WILDLIFE AREA OFFICE
- INFORMATION KIOSK
- BOAT ACCESS
- PARKING AREA
- ACCESS POINT
- PRIMITIVE CAMPING

0 1 2
MILES

2. Outdoor Classrooms - Students

A junior high school group of 10 students from Fort Scott, KS, visited the Refuge on September 27th. The group was interested in Refuge plants and ecosystems and was therefore shown good examples of bottomland hardwood forest and native prairie.

3. Interpretive Foot Trails

There currently are no hiking trails available, however there are several Refuge service roads which are available for public hiking. These roads traverse a wide variety of habitats and vary in length from 1/4 to 1 1/4 mile long.

4. Interpretive Exhibits/Demonstrations

Drafts for two kiosk panels (Titled: "Bottomland Hardwoods" and "Diversity Abounds (includes map of refuge)") were received from the contractor in January. Additional photos and text were acquired/prepared and sent back to the contractor in February.

In December, a new display case was set up in the office. The case displays 26 species of mussels found on the Refuge, archaeological and geological items, and mammal skulls. Several different kinds of mammal skins were also received and displayed on a table.

5. Other Interpretive Programs

The Kansas Herpetological Society visited the Refuge on May 12th. Approximately 40 people attended the event. The group visited various upland and wetland sites of which a number are annually visited by Joe Collins, a noted KS herpetologist.

6. Hunting

Predominant species hunted are quail, turkey, and white-tailed deer. Squirrel and rabbits are hunted to a lesser extent. Waterfowl hunting is generally limited to small farm ponds, mine ponds, and the Marais des Cygnes River. However, during flood events, as much as 2,000 additional acres of flooded timber and old fields may become available for hunting.

Deer and spring turkey hunting are open only to those possessing a valid Refuge Access Permit. These permits are limited in number and are distributed through an application and drawing process. Applications are taken by phone or in writing to the Refuge office any day in February for spring turkey, August for archery deer, and November for antlerless deer. A drawing is conducted the first week after the application period closes, and all applicants are notified in writing as to whether or not they are selected for a permit.

An antlerless deer hunt occurred during the first two weeks of January. Several deer were known

to be harvested including at least one nice buck which had dropped it's antlers.

A Turkey Drawing was conducted the first week of March. A total of 50 permits were issued from an applicant list of 138 people.

Hunter surveys were compiled in March for the Archery and Antlerless Deer Hunts which were conducted during the 2000-2001 season. A total of 8 bucks, 21 does, 2 males fawn/yearlings, and 7 female fawn/yearlings were harvested, for a total of 38 deer. In addition, 1 buck and 4 does were injured and lost. Three of the bucks harvested, and one injured/lost buck (previously video taped), were reported to score over 130. The largest buck taken had a net score of 188. Copies of the summary were mailed to Refuge landowners and neighbors and '00-'01 Archery and Antlerless deer hunters.

A letter requesting input about the quality of the Archery Deer Hunt Program was sent to past recipients of Refuge Archery Hunting Permits (200 hunters). Only about 30 people responded to the request. Most respondents didn't wish to see any changes in the program.

Responses to the Turkey Hunt survey in June showed that a total of 15 Gobblers and seven Jakes were taken during the spring hunting season. Of the 50 permits issued, 41 (82%) were used. Most of the hunters (68%) came from the Kansas City Metro Area, while only 12% were local (Linn County).

In September, a drawing for the Archery Deer Hunt was conducted the first week of the month. A total of 127 people applied for the hunt of which 75 received a permit.

Antlerless deer permits were sent out to 47 applicants in December.

7. Fishing

Fishing is allowed in accordance with statewide seasons and creel limits. Many of the farm and mine ponds provide fishing opportunities for bass, crappie, and sunfish. The Marais des Cygnes River and floodplain ponds provide additional fishing opportunities for flathead and channel catfish, crappie, and walleye. Non-motorized boats, and boats with electric motors, are allowed but getting boats in and out is generally an arduous venture.

8. Trapping

Hunting, running dogs, and trapping for furbearers and coyotes is prohibited.

9. Wildlife Observation

Birding and wildlife observation are allowed along several Refuge service roads, which are also available for public hiking. These roads traverse a wide variety of habitats and vary in length

from 1/4 mile to one and a quarter mile long.

10. Other Wildlife Oriented Recreation

Wild food harvest of berries, nuts, and mushrooms, and the collecting of shed deer antlers is allowed for non-commercial use. Picking berries, mushrooms and nuts is a popular outdoor activity on the Refuge. Wild strawberries and blackberries (early summer) and persimmons (late fall) are abundant on many portions of the Refuge. Morel (spring) and oyster mushrooms (summer) as well as many other kinds of mushrooms are found throughout the Refuge. Pecan and black walnut trees are very common on the Refuge, especially in the floodplains of the Marais des Cygnes River and other streams, and at abandoned farm sites. Some years (most years) will produce “bumper” crops of nuts while on other years only a few trees will produce well. Nuts are generally harvested in late fall.

11. Camping

Overnight camping and building of fires is prohibited.

12. Off-Road Vehicling

Motor vehicles, including ATV’s, are restricted to public roads and parking lots. Parking is not allowed in front of gates or access roads.

13. Other Non-Wildlife Oriented Recreation

Outboard motor boating is restricted to the westernmost 5 ½ mile section of the Marais des Cygnes River. Non-motorized boats and electric trolling motors may be used on all open portions of the Refuge including the eastern 4 mile section of the Marais des Cygnes River. Property boundaries are located at the center of the river, therefore, where sections of the river border private property, only the half of the river adjacent to public property is open to public use.

14. Law Enforcement

RM Freske and BT Peterson obtained physicals for Law Enforcement (LE) in January.

RM Freske attended LE Inservice training in Marana, AZ, near the end of January.

Tracks and neighbor sightings indicated that a number of people entered the “Closed Area” during February. Most likely, they were searching for progeny antlers of the reputed “World Record” buck which was supposed to have been shot and lost near Trading Post.

BT Peterson attended LE Inservice training in Marana, AZ, near the end of February.

Two wildfires occurred during March. The first occurred on Sunday, March 11. Approximately 135 acres burned. Location is the fescue field west of John Ballou's house. The area is bordered by roads on the south and east. The fire was likely started along one of the roads. The second fire occurred Wednesday, March 14. The Linn Co. Sheriff's dispatcher notified the Refuge about the wildfire late in the afternoon. RM Freske immediately visited the site, the westernmost lone 160 (west of the Lowrey West fire site), and assisted fire personnel in putting out the fire. Approximately 50 acres burned. The cause of the fire was a trespassing pickup which became stuck and started the grass on fire. The occupant, Douglas Bradley, Pleasanton, admitted to trespassing and starting the fire. A citation was not issued as damage to the vehicle and the humiliation of having everyone on the fire crew confirm his ignorance seemed sufficient punishment.

In June, RM Freske contacted David Mulles, Fort Scott, KS regarding trespass cattle SW of the MDC River/State Line Bridge. Approximately 30 head of cattle had been feeding in area fields. David said they would address the problem immediately and gave a local contact, Gary Hall, for future problems,.

BT Liddick had his camper broken into over the weekend of October 20th and 21st. The camper was on the Refuge at the former Steele Residence. The gate had one of the contractor's locks missing from it. The contractors were working on the Steele house. The contractor said he didn't remove the lock, which means it was cut by the trespassers. Virtually everything which could be carried away was stolen from the camper including, batteries, propane tanks, TV, food, clothing, and dishes. Even underwear and sheets/pillow case on the bed were taken. Approximately \$6,000 in losses were incurred by the theft of items and damage to the camper door.

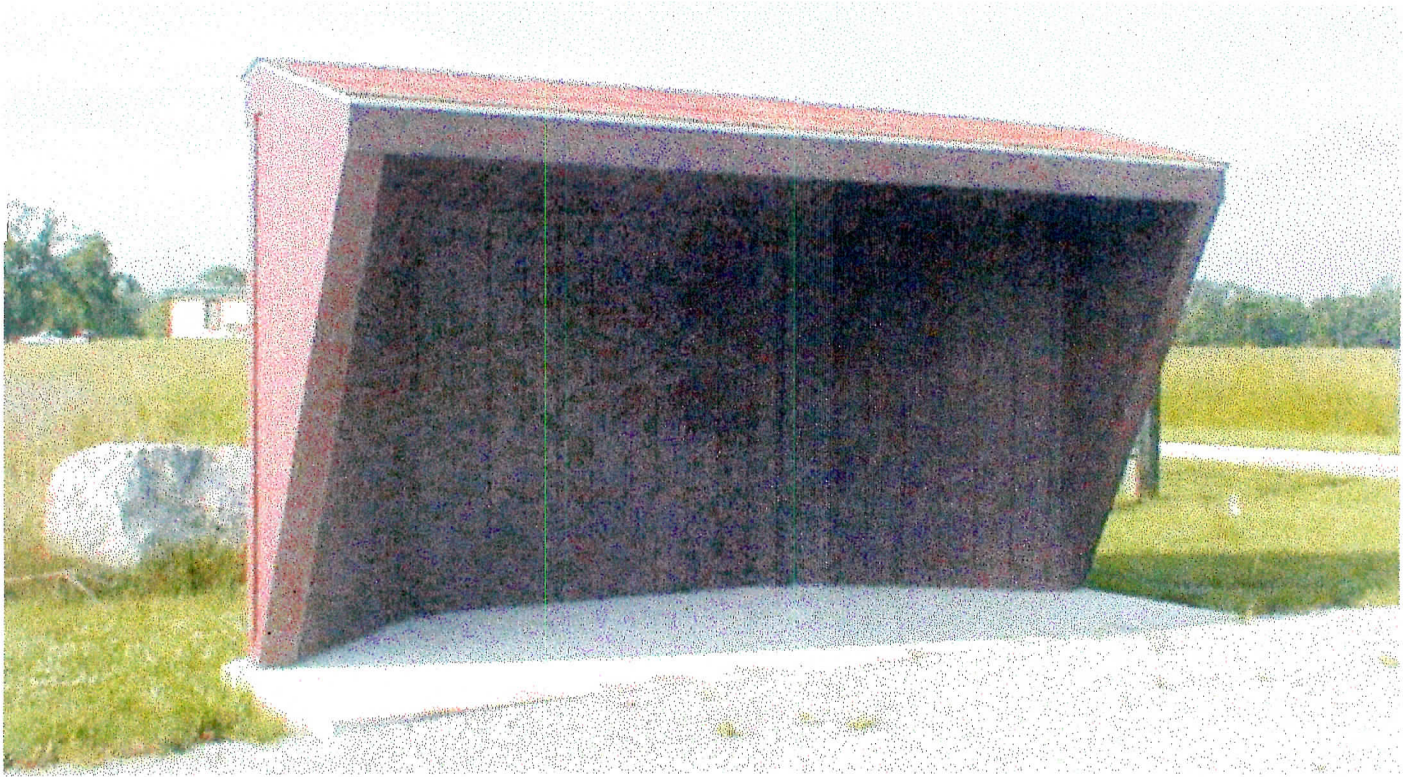
The county Sheriff Deputy reviewed the scene. The county would not take fingerprints as they said they had no access to a person who could interpret them for anything but "serious" crimes. Refuge Officer Peterson attempted to take fingerprints but was not successful. It appeared the thieves may have been wearing gloves.

A large bodied deer with no head was found on private property within the Refuge boundary near Mine Creek in November. Terry Mills investigated the scene and began conducting a deer decoy operation a few days later.

RM Freske and BT Peterson submitted pictures for new LE Credentials in December.

15. Cooperating Associations

A 4.9 year Special Use Permit was issued in February to Steve Alspach, Soil Scientist, NRCS, to establish two soil temperature monitors on the Refuge. One will be placed in a wetland site and the other in an upland site.



New Information Kiosk at Office Entrance



New Entrance Sign

I. EQUIPMENT AND FACILITIES

1. New Construction

A gate was built on the Steele property entrance road in February.

A deck was built onto the back of the office in June to provide a more safe rear exit and also serve as a lunch area.

Construction was started in June on a new stone entrance sign holder in front of the office. The holder is made of native limestone. The new entrance sign was completed in July. BT Peterson did an excellent job on the stonework. The new 5' x 10' sign is much more visible and professional looking than the old sign.

Construction on a new information kiosk at the office entrance was initiated and neared completion by the end of July.

A 1 ½" water line was installed from the office to the new storage building and a ¾" and 1 ½" hydrant were placed near the northwest corner of the storage building with fire funds.

A gate was installed in August at the entrance road to the fields south of Mine Creek.

Gates were installed at the entrance of two roads: the lone 160 road and the Marvin Thomey road in September.

The following projects were completed in October: Concrete fueling pad, Steele house/garage roofing, Steele house septic system installation, and fire storage loft.

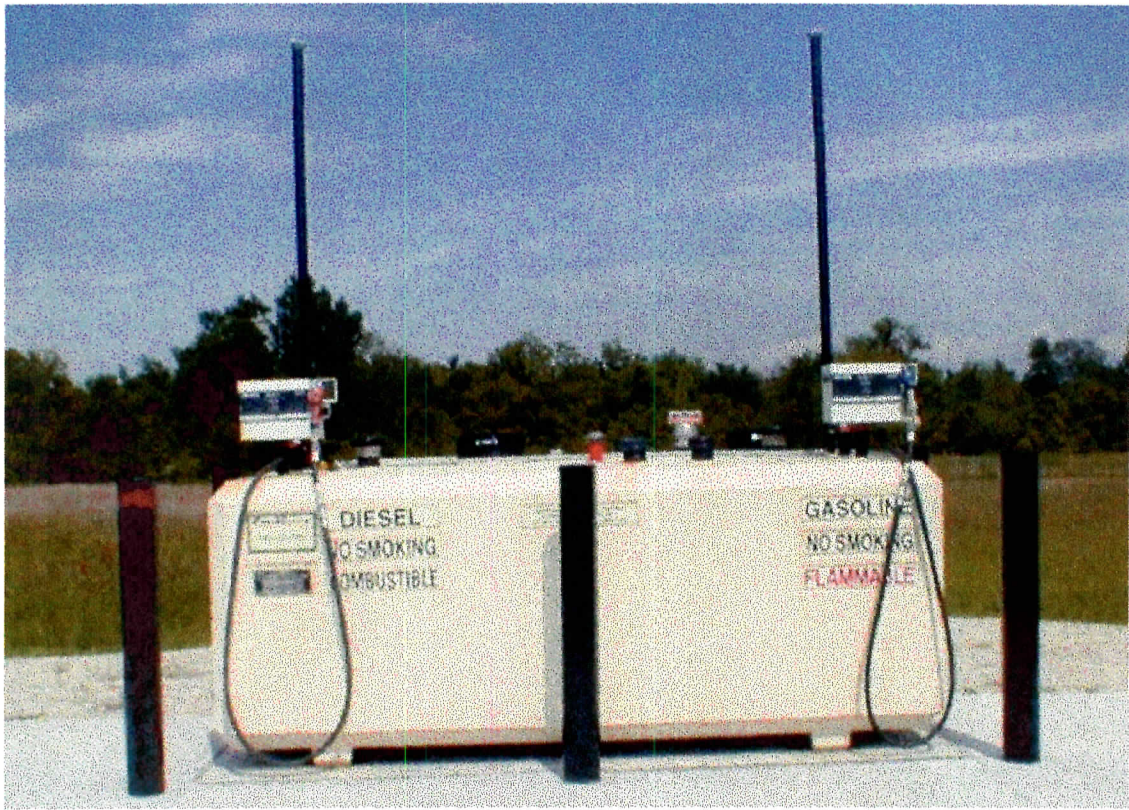
A contractor installed new guttering on the Steele house early in November.

BT Peterson finished painting the new information kiosk. It is now ready for interpretive panels, brochure holder, and an enclosed bulletin board.

BT Peterson moved cabinets up to the new fire loft and built shelving to better organize the shop and provide more floor space for equipment.

2. Rehabilitation

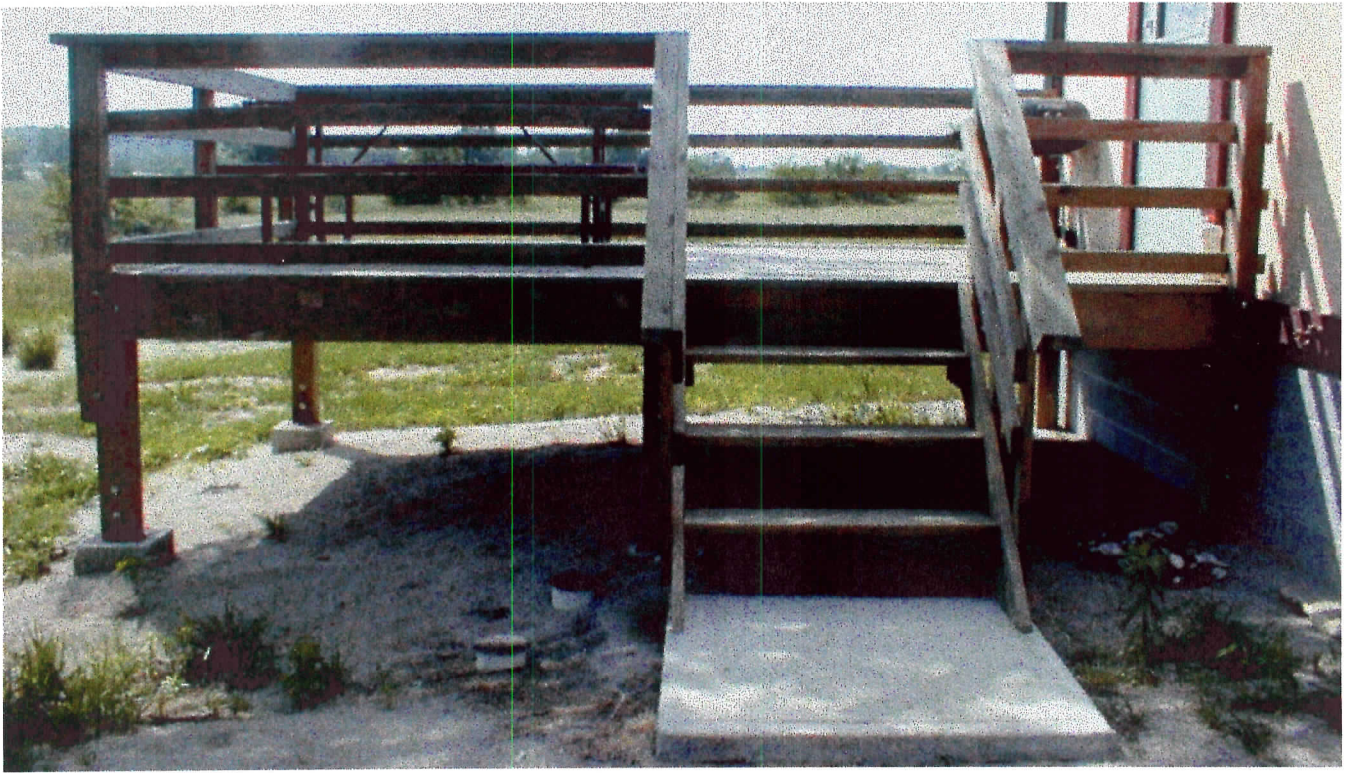
Contractor repairs on the hilltop residence were completed by mid summer. Work conducted included: sealing of the storm shelter, replacement of all the picture windows, replacement of rotten floor joist ends in the living room, and laying of carpet and linoleum in living room and kitchen.



New Diesel/Unleaded Fuel Tank



New 3/4" and 1 1/2" Water Hydrants



New Rear Office Deck



New Fire Equipment Storage Loft

Approximately four feet of water was pumped out of the Steele house basement and guttering was repaired as much as possible in April. A sump pump was later installed in the basement and seems to have solved the basement water problem. A 160' sump pump line was installed in November to carry water away from the Steele house.

In May: crushed rock was hauled in to expand the parking lot and to facilitate a new fuel tank/fueling area; a new 650 diesel/350 unleaded fuel tank was delivered; two 220V and one 110V electrical outlet were installed on the power pole at the Steele Residence (the purpose of the outlets is to provide power to a camping trailer which will be used by a seasonal hire and for energizing an electric fence which will be used to keep cattle out of the woods) and an asbestos inspection was conducted by APEX Environmental Consultants of Overland Park on the Steele house and garage (they found asbestos particles in the roof of the original part of the house and in the drywall of the original house and in the kitchen).

The ATV trailer was extended in June so that it could carry the Grasshopper Mower to the Steele house.

Parts were ordered in July to service the dozer and replace worn blade bits.

Rat guard was installed around the perimeter of the storage building in July to stop rodents from entering the building and fouling the wall insulation.

A Special Use Permit was issued in October for destruction of the old barn and cabin in the southeast part of the Refuge. The permit holder will harvest materials they desire and pile materials not taken to facilitate burning.

A total of 280 ton of "road" rock and 264 ton of "rip-rap" were stockpiled on the Refuge in October for work on three MMS projects: filling in of 35 wells and repairs to the Gatlin and Carpenter Roads.

In September, a culvert was installed at the mine pond crossing to the old barn, southeast of Mine Creek, rock was placed around the large culvert on Gatlin Road to prevent it from washing out again, and a gate which had been destroyed by a vehicle which left the road was replaced. The gate is near the Carpenter Road gate and leads to the rock storage area.

Replacement of faded signs was also initiated in November.

BT Peterson repaired the spillway on the pond on the big hill in December. The spillway was beginning to downcut due to cattle disturbance.

BT Peterson conducted repairs on the JD 2755 tractor and the dozer in December. The tractor needed repairs to leaking hydraulic lines and the dozer needed new batteries.

3. Equipment Utilization and Replacement

The MMS Main Water Control Structure project was changed into three small projects in February. Two of the projects are smaller water control structures along the main levee and another is for a 1,000 gallon fuel tank (750 diesel, 350 unleaded). The project was later dropped do to the inability to acquire necessary permits from the KS Dept. of Water Resources.

In March, the front tires on the JD 2755 were replaced, the ATV carriage rack was welded, and the wick applicator holder completed.

A Ford pickup was transferred from Flint Hills NWR, a new chainsaw (Stihl 036) was purchased, and the camper and old fax machine were sent back to Flint Hills NWR for a small lot sale in April.

The copier machine was repaired in May.

A new 8 foot Bush Hog mower was purchased to replace the old Woods mower in May.

A new "fan" sprayer was purchased in September to help control the large patches of Serecia.

New tires were placed on the Expedition and the front end aligned in October.

4. Computer Systems

Lotus Notes was installed on RM Freske's computer in April. A new phone line switch box and line protection unit were purchased/installed to replace the old ones which were destroyed by lightning.

RT Bland's computer had Lotus Notes installed as well as a hookup to the two printers in May.

A new computer was purchased in August to replace the manager's old computer.

5. Other

BT Peterson built stands to hold shop equipment, continued maintenance on tractors, mowers, and other equipment.

Routine maintenance on vehicles and ATVs, and steel fabrication to build a mount for wick applicator was also done.

The outside residence area of the Steele property was cleaned up in March. A total of 144 tires wire collected and piled as well as two dozen bags of loose garbage. Scattered tree branches and limbs from several aging Siberian elms were also removed from the yard.

J. OTHER ITEMS

Credits

Refuge Manager Bruce Freske wrote this annual narrative in May 2002 with assistance from volunteer Laura McNeil who compiled the monthly narratives and weather data.