

FLINT HILLS NATIONAL WILDLIFE REFUGE

Hartford, Kansas

ANNUAL NARRATIVE REPORT

Calendar Year 2000

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

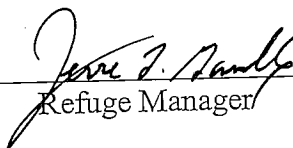
REVIEW AND APPROVALS

FLINT HILLS NATIONAL WILDLIFE REFUGE

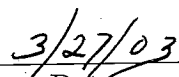
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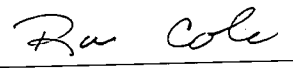
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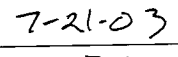
Refuge Manager



Date



Refuge Supervisor



Date

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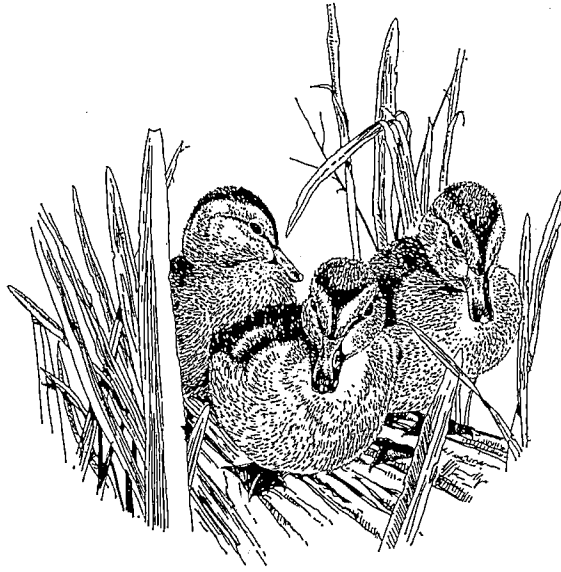
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INTRODUCTION

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 habitat consists of 4,572 acres of wetlands, 1,400 acres of open water, 599 acres on the Neosho River and associated creeks, 3,917 acres of cropland, 3,200 acres of grassland, 2,400 acres of woodlands, 2,255 acres of brushlands and 120 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

Tim Menard is hired as the first Refuge Biologist for the Complex.

The Flint Hills National Wildlife Refuge Comprehensive Conservation Plan completed.

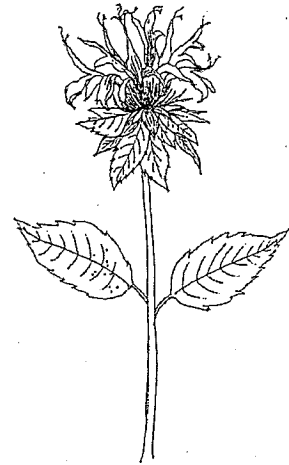
B. CLIMATIC CONDITIONS

The year was way below normal in terms of precipitation with 23.86 inches of moisture received, which is 12.15 inches below the yearly average of 36.01 inches. This was a year of wide extremes. August was the third hottest on record and the fifth driest. In contrast, December set numerous records and ended up the second coldest ever recorded. Table 1 shows the temperature data for the entire year.

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 2000

Month	Precip. Inches		Snow	Temp °F		Pool Elevations	
	Total	Norm		Max	Min	Max	Min
Jan	.24	0.90	2.5	62	6	1039.43	1038.93
Feb	2.98	1.04	0	68	12	1042.46	1038.92
March	2.77	2.30	2	75	27	1040.83	1038.97
April	1.12	3.02	0	85	31	1039.32	1039.01
May	2.64	4.31	0	92	42	1040.15	1038.83
June	2.99	5.71	0	89	48	1040.05	1038.96
July	1.23	4.31	0	100	55	1039.92	1038.97
Aug	.32	3.93	0	105	64	1039.02	1037.62
Sep	1.93	4.39	0	109	37	1037.62	1036.22
Oct	4.16	3.20	0	**	**	1037.22	1036.15
Nov	2.39	1.77	0	76	18	1039.00	1037.22
Dec	1.09	1.13	9.25		-10	1039.55	1038.95
Totals				Extremes		Extremes	
	23.86	36.01	17.75	109	-10	1042.46	1036.15

** data not available

C. LAND ACQUISITION

3. Other

Refuge staff worked with the COE staff on a request from the Coffey County Commission and the town of Jacobs Creek to expand the Strawn Cemetery on to the Refuge. The request is for .33 acres. The Commission and town were told that they would have to submit a formal request that would be reviewed by the COE Real Estate division.



D. PLANNING

1. Master Plan

Work continued on the Flint Hills Comprehensive Conservation Plan throughout the year. The staff worked on many revisions with the Contractor, attended several meetings, went through the internal review and public comment periods, and the project was finally signed off on September 27 by the Regional Director.

E. ADMINISTRATION

1. Personnel

- 1) Jerre L. Gamble, Project Leader/State Coordinator Partners for Wildlife Program, 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-0401-09, PFT
- 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) Matthew T. Freis, Range Technician, GS-0455-05, PFT
- 10) James M. Minnerath, Private Lands Wildlife Biologist, GS-0401-09, PFT
- 11) Paul G. Kramos, Private Lands Wildlife Biologist, GS-0401-09, PFT,
(operates out of Manhattan, KS. Ecological Services office)
- 12) Tony Ifland, Private Lands Biological Science Technician, GS-0404-07, PPT,
(operates out of Kirwin NWR, Phillipsburg, KS.)
- 13) Timothy J. Cooper, Range Technician, GS-0455-04
- 14) Jason C. Pankratz, Biological Science Technician, GS-0404-03
- 15) Jarrod Slead, Range Technician, GS-0455-03

Jerre Gamble, Project Leader, was upgraded to a GS-14 due to an accretion of duties.

Matt Fries, Range Technician, transferred to Boyer Chute NWR, NE due to a family hardship. Matt left us in May.

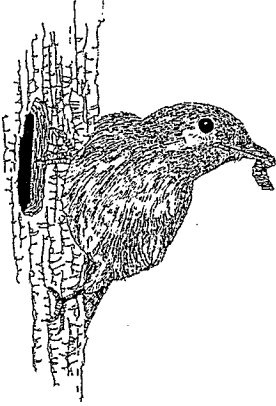
Tim Menard became the Refuge's first Biologist in July when he filled the new RONS position.

Jim Minnerath was converted from a Bio. Tech to a GS-9 Wildlife Biologist in the Private Lands program.

Tony Ifland was upgraded to a GS-7 for his work in the Private Lands program.

2. Youth Programs

Flint Hills Refuge has hosted a non-residential Youth Conservation Corps (YCC) program every summer since 1976. This year we hired 4 enrollees and one youth leader who worked June 6 through July 28. It was the first year in many that we did not have any kids from the Job Training Partnership Act (JTPA) program. Their budget was cut severely and were not able to use us as a job placement site.



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 Jason Pankratz also helped run the crew when needed. He has been involved with our YCC program since 1976. YCC enrollees were Ronald Peters, Kirk Manwaring, Vic Beckerman, and Rebecca Stueve. Heather Foster, an enrollee in 1999, was hired 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. Their big accomplishment was to pour the concrete landing and sidewalk at the Burgess Marsh boardwalk. By completing this project the Refuge staff was able to complete work on the boardwalk itself. 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 like taking a tour of the Great Plains Nature Center in Wichita.

4. Volunteer Programs

Dustin Arndt, Emporia, completed his Eagle Scout project of cleaning up the Burgess marsh trail. He and his troop cut downed trees, removed flood debris and prepared the trail for work planned for the summer.

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.

Five Year Station Funding Level (Amount \$K)

FY	Oper 1261	MMS 1262	8260	9100 9251	1120	Total Budget
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
96	286.85	65.0	74.08	99.73	180.0	705.66

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

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 managed 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.

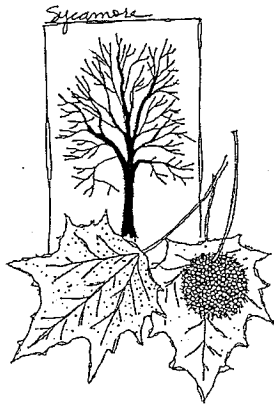
We continued constructing small shallow depressional wetlands (divots) in already existing marshes this year. These divots provide more micro habitats in the marshes, making them more productive and attractive to birds.

The new West Bench moist soil unit was dedicated on March 5. This wetland is a joint project with Ducks Unlimited. The total cost of the project was \$46,000 with FWS and DU each paying for half of the project.

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 1999, whereas those that were pumped were all full. Draw down began in March for most of the wetlands. Troublesome, West Bench, Beschka, Lower Hammerton, Strawn Flats, Goose Bend, Monypenny, and Lairds Pond marshes were allowed to fluctuate naturally.

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.

3. Forests



There are 4,103 acres of woodlands on the refuge, 2,159 acres of which are brushlands. 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 3800.7 acres by 13 farmers under cooperative agreements this year. This acreage is approximately 700 acres more than 1999. This is because there was double cropping with winter wheat this year. In

1999 there wasn't any wheat due to flooding of all the cropfields.

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.

This year we cut down on the number of food plots planted on the Refuge. Wetland inventory data showed that several of the food plots were within the boundaries of wetlands so they were retired. Only 3 food plots remained. Instead of contracting someone to plant these fields, we did the work force account with our new Truax grass drill with the small grain box.

2000 Cooperative Farming Agreements

Standing Crop	# of Cooperators	Acres Planted	Govt Share	
			harvested	unharvested
Corn/Milo	10	1223.3	0	323.96
Legumes	2	101	0	0
Soybeans	10	1603.1	332.4	
Wheat	8	873.3	162.18	0
Total Acres		3800.7	494.58	323.96

5. Grasslands

There are approximately 2,107 acres of 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 annual weeds, such as Johnsongrass, which have proven difficult to control. Since Johnsongrass is a State and County listed noxious weed, many hours of staff time are spent mowing 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.



Sericea lespedeza has also become a problem on the Refuge. It is now a State listed noxious weed and we are controlling it several ways. Most of our control efforts involve

spraying with Remedy or mowing.

Retired farm fields are generally targeted for native grass restoration efforts. Several restoration sites were destroyed due to flood events since 1993. Only a few areas located on higher elevated sites will now be considered for native prairie restoration.

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 a mixture of switchgrass and reeds canarygrass 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.

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 5 and Coffey County. The refuge has initial attack authority within two miles of refuge boundary.

We had a good year of burning in 2000. Refuge staff completed 35 prescribed burns for a total of 1505.7 acres. The wheat stubble burning accounted for almost 511 acres of this total.

2000 Prescribed Burns

Fire	Acres
Horseshoe	156.8
Half Mile 1	40.0
Pipeline 3	132.0
Burgess 2	2.0
Wheat stubble	510.9
West Pintail 3	6.7
Pintail 1	5.7
Pipeline 1	27.5
Worm dig	4.8
Darby East	8.0
4 Corner 2	17.0
CH #35	2.0
Rummel	54.0
Burgess 1	77.6
CH #43-43	12.6
Pipeline 4	156.0
Hammerton 2	16.0
CH #44	1.0

Fire	Acres
CH #48-49	8.5
Kennedy 2	4.0
CH #40-41	15.7
CH #59	5.0
Mony NW	38.0
McKinney	34.4
G Bend NE1	16.0
Blackbird 6	5.1
Pipeline 6	1.0
Intermediate	15.5
Hooligan	10.0
CH #53	6.0
Seed Bed	33.0
Kennedy	8.8
Burgess 2	51.0
Hammerton 1	23.0
Burgess 3	0.1

This year was not as bad for wildfires on the Refuge as in the recent past. Wildfires consumed only 35.4 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. Refuge staff also helped out the National Park Service at the Tallgrass Prairie National Preserve on burning some blacklines and offering technical assistance.

Due to the extremely dry weather we issued a burning ban on the Refuge in September to go along with bans initiated by both Lyon and Coffey counties.

2000 was an extremely bad year for western wildfires. As the summer progressed the fire situation worsened. Sterry, Cooper, Slead, and Pankratz were all sent out on several assignments throughout the summer.

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 getting used to the Service's attempt at reducing/eliminating pesticide use in 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. Eleven 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 first year we 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

WATER UNIT	NO.	TYPE	DIVERSION TYPE	AC/FT
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
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 January 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 two weeks. White-fronted geese peaked in early March. Peak populations for the past five years are listed below.

Peak Waterfowl Populations

Year	Canada Geese	Snow Geese	White-fronted Geese	Ducks
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
1996	2,561	20,000	1,215	39,570

Canada geese utilized the new nesting islands on Troublesome and Lower Hammerton Marsh units. The islands were built when the marsh units were drawn down for dike/water control structure rehabilitation in 1996.

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.

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.

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. Boxes are checked in early winter to clean out and to determine use. Typically, about 75 percent of the boxes are utilized by bluebirds, warblers, 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 1990'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 2000. This number is up from 1999. The flooding that occurred in the fall of 1998 limited public access for more than half of 1999. In the past visitation was taken directly off of the data received from traffic counters placed throughout the Refuge. No consideration was made for through roads or one-way roads. No attempt was made to determine how many people were in the vehicle or how many traffic counters a vehicle tripped during a single visit to the Refuge. We are now using these counts along with other information for example, 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.

A Hunter Education Class was held at the office in August. Local instructor, Ed Bess, led

the class of approximately 20 kids and several adults.

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.

The Refuge hosted an event on Youth Waterfowl Hunt Day in October. This day is set aside for youths 15 and younger to hunt waterfowl before the regular season begins. The event is sponsored by Kansas Dept. of Wildlife and Parks, and the Emporia Chapters of Ducks Unlimited and Quail Unlimited. Approximately 25 kids attended with their parents. They were given talks on waterfowl identification, decoy placement, State and Federal regulations, and a retriever demonstration from a dog trainer. DU and QU provided lunch for all the participants.

3. Outdoor Classroom - Teachers

A teacher workshop was held June 23-24. We had 25 teachers at the Refuge for "Flint Hills Field Days". Suzanne Fellows from the Great Plains Nature Center and volunteer teacher Sandy Ullrich, Aberdeen, SD made the project possible. The Tallgrass Prairie National Preserve loaned us a tour bus and bus driver to help in the Refuge tour.

The Refuge hosted the teacher inservice for USD 252 on August 15 for approximately 60 local teachers. The teachers were introduced to refuge management and facilities. They were also told what types of environmental education opportunities we could provide to them.

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.

Headquarters 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 1980'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.

The new bridge (constructed in 1999) was the victim of vandalism in early January. Spray paint was used on the concrete and wood planking to write out some expressive language. A local witness gave the refuge information about the damage. We worked with the Lyon County Sheriff but did not have enough information to issue an NOV.

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 complete boardwalk.

As his Eagle Scout project, Dustin Arndt of Emporia worked on the trail with other members of his boy scout troop. He and his troop cut downed trees, removed flood debris and prepared the trail for work planned for the summer. The troop completed the work on May 20 and made the trail much more presentable to our visitors.

In July the YCC crew poured the concrete sidewalk leading up to the boardwalk. Refuge staff completed the boardwalk in August.

6. Interpretive Exhibits/Demonstrations

The Refuge hosted the annual Eagle Day on January 16. Staff from the Emporia KDWP Office and volunteers from the local Audubon chapter assisted in the event. Approximately 12 people attended the event which included a presentation on Eagles and a tour.

The Refuge hosted an Open House on March 5. Approximately 100 people attended the event. We also held the dedication for the West Bench moist soil unit in conjunction with this event.

The Kansas Junior Duck Stamp Exhibit was on exhibit at the Emporia Library for the month of July.

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.

Approximately 3000 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 200 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.

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 14th, one week 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.

In January we received a report from State Conservation Officer Hageman that a deer poaching case he was handling probably involved the refuge. Equip. Operator Laws found evidence a few days later indicating that the deer was indeed poached from the Mauck Lake area. Upon further interrogation, both defendants confessed to taking the deer off the refuge. Since State tickets had already been issued, no Federal NOV's were issued.

I. EQUIPMENT AND FACILITIES

1. New Construction

The YCC crew poured a concrete sidewalk leading to the Burgess Marsh boardwalk. The boardwalk was also completed this year.

2. Rehabilitation

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. The two crossings are extremely dangerous, especially during flooding. The plan is to tear out the old structures and put in 6' diameter culverts with a concrete deck at each location.

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. No ERFO funding was received this year, but we are hoping for reimbursement next year.

As a part of our ERFO project, a contract for road rock was awarded to Mike Skillman for \$35,196 to work on several roads throughout the Refuge.

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

To enhance our pumping program a new Duetz diesel engine was purchased as the power unit for our Gator pumps. The new unit cost just under \$20,000. Our 1984 Duetz engine was experiencing major problems so the decision was made to overhaul the engine. We had Cullum and Brown of Wichita overhaul the engine to the tune of \$6,000. At the end of the year the overhauled engine was using a lot of oil and it was brought back to the Wichita for more diagnostics.

A new Truax grass drill and a Model 3615 Bush hog mower were purchased this year.

6. Computer Systems

A new computer was set up for Biologist Menard.

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 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 25,000 duck wings and goose tails were processed from the 1999/2000 hunting season.

The Refuge assisted the Corps of Engineers by cleaning the Hartford Boat Ramp throughout the year.

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 wrote the report, PL Gamble edited it and Rachel Roberts put it all together.

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

**MARAIS DES CYGNES NATIONAL WILDLIFE REFUGE
PLEASANTON, KANSAS**

2000 ANNUAL NARRATIVE



Bruce Freshe
Refuge Manager

5/29/02
Date

Jane J. Sandy
Project Leader

3/27/03
Date

Chief of Refuge Operations, Region 6

Date

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2000 Annual Narrative – Marais des Cygnes National Wildlife Refuge

INTRODUCTION

Marais des Cygnes National Wildlife Refuge (Refuge) is a 7,500 acre wildlife area located 45 minutes south of Overland Park, Kansas, and is complexed with the Flint Hills National Wildlife Refuge in Hartford, Kansas. Reference map is provided on page 2. The Refuge is named after the Marais des Cygnes River which runs through the middle of the Refuge and is the dominant natural feature of the region. 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.

A. HIGHLIGHTS

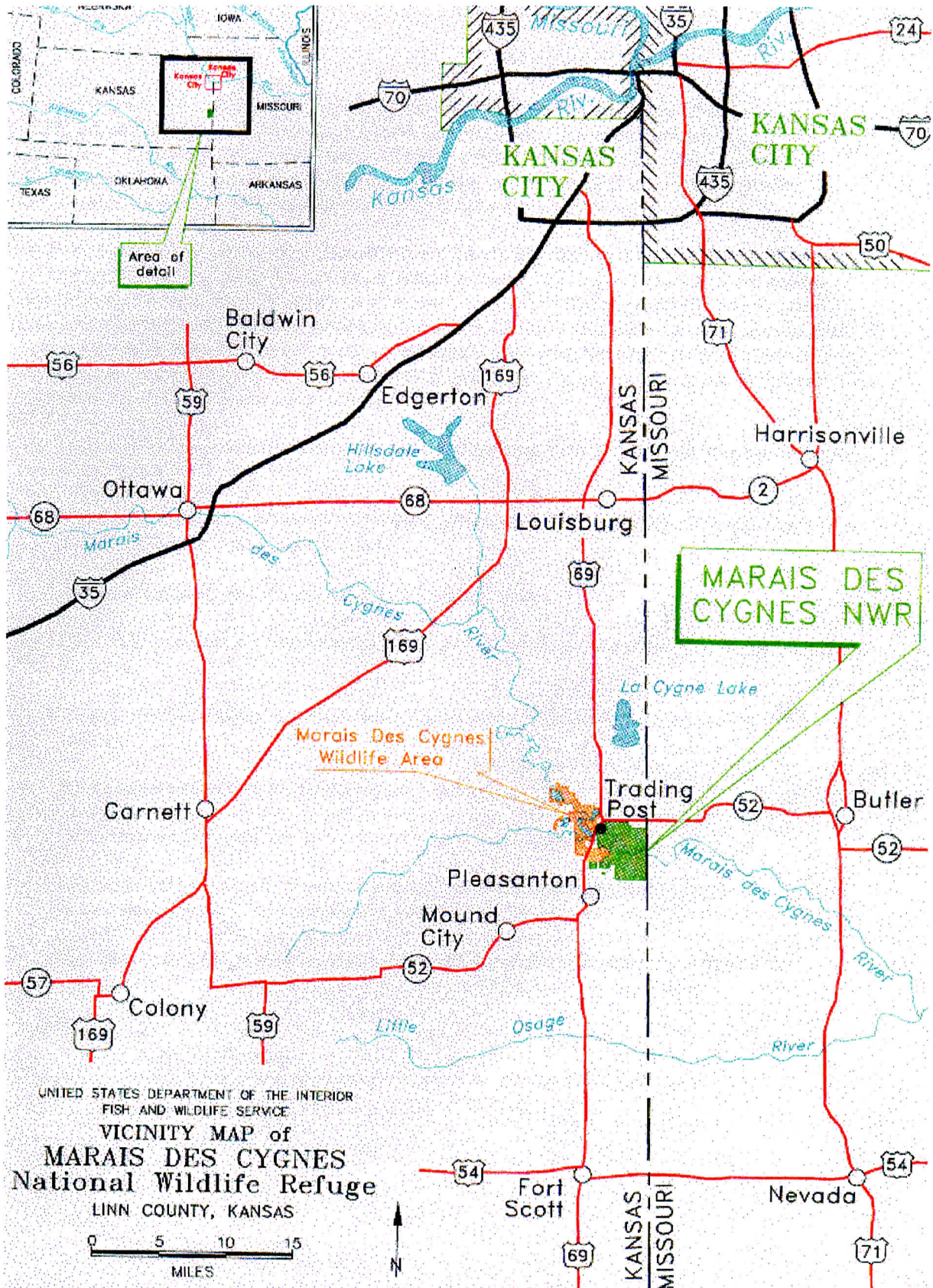
Wildlife Biologist Tim Menard entered on duty July 16, 2000. His office is at Flint Hills NWR but he divides his work time between Flint Hills NWR and Marais des Cygnes NWR and generally makes weekly trips to the refuge. Biological Technician Aaron Ball, temporary seasonal employee, worked for the Refuge from June 4 until August 11. Volunteer Nora Carver, a retired F&WS employee, began working one day a week at the Refuge in February.

Eight prescribed fires, totalling 224 acres, were completed this year to reinvigorate native prairie, enhance seed production, set back fescue, control woody vegetation, and prepare for seeding native grass.

Extremely low precipitation in August contributed to the KCP&L La Cygne Power Plant pumping water from the Marais des Cygnes River and bringing it down to dangerously low levels (<10 Cubic Feet per Second) - the lowest in 16 years, which caused concern for mussel beds and other wildlife, and for concentration of contaminants.

Regional Office Realty closed on the 160 acre Steele tract near the end of December. The site has a building the Refuge will use for housing volunteers and researchers.

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.

2000 La Cygne 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	0.35	1.52	44	22	33.0	28.3
February	2.19	1.30	53	28	40.5	34.6
March	2.09	3.12	58	37	47.5	44.5
April	1.04	3.70	66	40	53.0	54.6
May	3.48	4.81	77	56	66.5	64.3
June	7.76	5.91	80	61	70.5	73.5
July	2.08	3.44	86	68	77.0	78.9
August	0.10	3.95	95	70	82.5	77.1
September	1.71	4.68	85	55	70.0	68.6
October	2.24	3.66	71	50	60.5	57.6
November	1.30	2.56	49	28	38.5	43.9
December	0.76	1.65	31	9	20.0	33.0
	Annual 25.10	30 Year norm 40.3	MAX avg 66	MIN avg 43	Annual mean 54.5	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

The Refuge was purchased with approximately \$5 million in Land and Water Conservation Fund money. The initial purchase 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). Land was also purchased from the Midland Land and Cattle Company. The remainder of the acquisitions have been from individual landowners.

A letter was sent out in April to several landowners within the acquisition boundary requesting interest in selling land to the F&WS. The impetus for sending the letter was the possible availability of funds for Kansas and Oklahoma Refuges due to a legal settlement with the government and the Koch Corporation. Only landowners who owned tracts with wetland on them, and who might be willing to sell, were contacted. Landowners contacted were: Boyd, Brown, Logen, Steele, and Yeamans.

Kathy Steele contacted RM Freske on July 13th and expressed interest in selling her 160 acre tract on the east side of the Refuge. RO Realty was contacted to coordinate efforts to appraise and purchase the property. The Nature Conservancy signed a 90 day purchase offer on September 20th subject to an appraisal which they will facilitate. The Nature Conservancy was requested for assistance when the owner lost patience with the Service and listed the tract with a Realtor. Acquisition of the 160 acre Steele Tract neared completion in October. An appraisal of the property was found acceptable and a contaminants review of the site found no major contaminant problems. Realty closed on the 160 acre Steele tract near the end of December. A CIP was completed after contact was made with the grazing tenant and a copy of the legal paper indicating the eviction of the house tenants was received. The legal paper served to the tenants states that all items left by them are considered abandoned. The house will require a major clean-up effort but is structurally sound.

2. Easements

AT&T requested permission to expand their current easement another ten feet along the west side of the Refuge. After visiting in June with Karl Karrow, manager of the adjacent Wildlife Area, it was decided to propose a new easement along the east side of Gatlin Road. This route would not require the removal of forest on the State Wildlife Area and would not interfere as much with wetland and forest restoration on the Refuge. The old easement would remain but would likely be abandoned within the next 15 years.

A Section 7, Compatibility Determination, and Environmental Evaluation Checklist were completed in September to allow a contractor for AT&T to install a fiber optic line across Murray Bottom. The R-O-W will be 16 feet wide by 6,000 feet long.

3. Other

F&WS personnel from Region 3 visited the Refuge on May 15th and 16th to review the possibility of expanding the Refuge into Missouri. A current Preliminary Project Proposal (PPP) identifies 10,200 acres of land along the Marais des Cygnes River in Bates County, Missouri, for possible expansion of the Refuge. Purpose of the meeting was to discuss attributes of the area and conduct a site visit. Those in attendance were: Dan Stinnett, R3 GARD; Bob Bryant, R3 Realty; Mark Wilson, R3 ES-MO; Tom Bell, R3 Big Muddy NWR; Bruce Freske, R6 MDC NWR; Ron Dent, Fisheries -MO Dept. of Conservation, and Karl Karrow, MDC Wildlife Area - KS Wildlife and Parks. All members agreed the area would be a worthwhile addition to the Refuge. A proposal will be submitted to higher levels in R3 and a decision made whether or not to pursue expansion of the Refuge.

A proposal was developed in June to amend the Refuge boundary in KS. The amendment would include three tracts already owned by the government and managed as part of the Refuge. The tracts are 160, 20, and 76 acres in size and total 256 acres. Other tracts included in the proposed amendment would combine the outlying tracts with the current Refuge boundary and add another 565 acres for a total of 821 additional acres to the Refuge acquisition boundary. The current acquisition boundary is 9,300 acres. The amendment, if approved, would have an acquisition boundary of 10,121 acres.

RM Freske visited with KDOT officials on June 26th regarding mitigation for expansion of U.S. Highway 69. They indicated that once the actual number of acres lost is identified they will want to know what tract(s) the Service would want them to purchase for replacement.

A letter was sent to Linn County Zoning Office in November to support and recommend that the northeast portion of the Refuge be changed from "Heavy Industrial" to "Agricultural" uses.

Bruce met with surveyors in November to review marked corners on the Leff, Brown, Gagliardi, Boyd, Palmer, and Bucher tracts along the east side of the Refuge.

D. PLANNING

1. Research and Investigations

A letter of support was sent in September to David Edds at Emporia State University for a grant application to the National Science Foundation. The purpose of the grant is to survey aquatic fauna populations on the upper Osage River watershed, which includes the Marais des Cygnes River.

2. Other

RM Freske met with KDOT officials in Topeka in January 2000 to discuss the possibility of developing a Rest Area along U.S. HWY 69 and incorporating it with interpretation of the Refuge and adjacent Wildlife Area. The project could include situating the Rest Area to facilitate development of a future visitor center, incorporate hiking trails, and include interpretive displays. KDOT requested, and the request honored, that both FW&S and KS Wildlife & Parks send them a "Letter of Commitment" to the project.

E. ADMINISTRATION

1. Personnel

RM Freske attended IMPACT training at National Conservation and Training Center, Shepherdstown, West Virginia, on May 1-5. The main emphasis of the training was to teach the importance and value of working together with other groups and understanding each person's unique personality and the attributes they may provide to a group.

BT Aaron Ball entered on duty June 4th, 2000. Aaron is from Emporia and was hired off a Flint Hills NWR biological technician certificate. He will primarily assist BT Peterson with office construction projects as well as spraying *Sericea lespedezia* and routine projects such as cleaning the office and mowing lawn. BT Ball, temporary seasonal employee, ended employment on August 11th to return to school.

BT Ball completed certification on an all terrain vehicle (ATV) and tractor in June. ATV training was conducted by the Polaris dealership in Emporia and tractor training was conducted by Gerald Laws at Flint Hills NWR.

WB Tim Menard entered on duty July 16, 2000, as Wildlife Biologist for the Flint Hills/Marais des Cygnes Complex. Tim will divide his time between the two stations.

BT Peterson went on sick leave on August 7th to heal a broken bone in his foot which had resulted from an injury at home.

Work was initiated in September to create and advertise a WG-8 Maintenance Worker position. The main purposes of the position are to replace the biological technician position with a more applicable, better paying maintenance position and allow Bill Peterson, Bio Tech GS-6, to apply and hopefully acquire a promotion. Two position descriptions for a Maintenance Mechanic, WG-8 and WG-9, and a crediting plan were submitted in October to Flint Hills NWR to proceed in advertising for the position.

RM Freske and BT Peterson participated in LE firearm requalifications at Flint Hills NWR on September 29th.



Refuge Manager Bruce Freske and a large cottonwood north of Gleason's Bend



Biotechs Bill Peterson and Aaron Ball planning a base for an entrance sign

RM Freske attended Compatibility Training in Denver on November 1st and 2nd.

BT Peterson received an On-The-Spot Award for \$500.00 (net) in December for his extra efforts to make up for lost time during his extended sick leave for a broken foot. He cleaned up a homestead site, completed three parking lots, a gate entrance, and many other smaller projects, in addition to conducting Law Enforcement duties.

2. Volunteer Program

Nora Carver, a retired F&WS employee, began working at the Refuge in February. She generally worked one day per week. Nora worked on updating addresses for private in-holdings and Refuge neighbors. She also assisted Evelyn Burton, Flint Hills NWR Admin. Officer, with organizing and filing Refuge files.

Approximately 25 volunteers, mostly from Western Resources, worked on a Saturday during April to plant cordgrass plugs on the the 80 acre cordgrass restoration area north of Bill Gleason's house.

3. Funding

Office Fund Target (OFT) subactivity	FY 2000
64630 - 1261 Operations	\$ 130,600
64630 - 1262 Maintenance	
64630 - 9251 Firefighting Prep	\$ 6,000
TOTAL Allocated Funding	\$ 136,600
Non Allocated Funds 64630 - 8610 Quarters Maint	\$ 1,423
64630 - 9261 Fire Suppression	\$ 97
64630 - 9263 Haz Fuel Reduction	\$ 5,588

RM Freske updated and/or submitted ten new proposals for RONS funding in April. The three highest priority projects were for new positions were: 1) Assistant Manager, 2) Maintenance Worker, and 3) Administrative Officer.

New MMS projects for the Refuge were updated and submitted in May. Highest priority unfunded projects were for: 1) filling in domestic wells; 2) rehabilitation of Carpenter and Gatlin Roads; and 3) remove &/or construct three miles of fence.

A Legacy Plan was completed in November for the Refuge at the request of the Regional Office. The purpose of the plan is to inform the U.S. congress and senate about outstanding refuge funding needs. Formal requests are planned prior to the National Wildlife Refuge System centennial birthday in 2003.

4. Safety

RM Freske and BT Peterson attended the mandatory Fire Refresher at Flint Hills NWR on March 10, 2000.

BT's Peterson and Ball completed a Cardio Pulmonary Resuscitation training course at Flint Hills NWR on June 13th. BT Ball also viewed a chainsaw video and purchased steel toed boots in June.

The south heater/air conditioner unit at the office was replaced in July. A panel on the outside of the unit had been left partially open by the plumber who had hooked up the gas line. A starling later made a nest inside the unit which started a fire. The fire caused \$875.00 in damage and, based upon the blistered paint on the outside of the unit, likely came close to starting the office on fire.

Two more wells were discovered in November on the 160 acre tract west of Sammy Boyd's house. One well was near the creek the other was near the homestead in the middle of the tract. Both wells could easily be fallen into in the dark and were therefore surrounded with T-posts and orange plastic safety mesh.

5. Technical Assistance

RM Freske met with several other wildlife managers within the Osage River Basin on July 20th. Jay Bowmaster, Four Rivers CA (MO), Ken Davis, Schell-Osage CA (MO), Len Gilmore, Private Lands (MO), Monte McQuillen, Settles Ford CA (MO), Roger Wombell, Montrose CA (MO), and Karl Karrow, Marais des Cygnes WA (KS) met at a restaurant in Butler, MO. Each person gave a brief description of their area and mentioned some of the major projects that they are working on. The group agreed to meet at least twice a year and to name itself the "Osage Basin Wetland Management Work Group". Future meetings may discuss a joint NAWCA Grant application to enhance habitat on private lands or other areas where the group feels contributions could benefit the region as a whole for wetland wildlife.

6. Other Items

RM Freske met with Tom Welsh, KS Corporation Commission, in February regarding presence of two gas wells on the Refuge. Tom will explore records to determine who is responsible for closing the wells and money available.

RM Freske and Karl Karrow, MDC Wildlife Area Manager, attended a Marais des Cygnes River Watershed Meeting in Ottawa in March 2000. Most of the participants were interested in water quality issues related to human consumption. The meeting unfortunately proved to be a waste of time. In the future, we will contact a "wildlife and recreation" representative and inform them of our concerns, including importance of instream flows and desire of periodic flooding.

RM Freske attended a Linn County Board Meeting on May 8th. A Revenue Sharing check and an overview of Refuge activities was presented.

A seven month backlog of monthly activities reports was completed during July. An attempt will be made to complete an annual narrative for 1998 and 1999.

Several boxes full of Pittsburgh and Midway (P&M) Coal files were reviewed in July and reduced to one box of materials of value to the Refuge. Most of the discarded information was either duplicates of saved information or related to mining operations near Amsterdam, MO. Most of the saved information was reports and maps related to hydrology and geology on the Refuge and north of the Marais des Cygnes River. A three volume archaeological and historical investigation which was conducted just east of the Refuge in Missouri was also saved.

F. HABITAT MANAGEMENT

1. General

The Refuge is composed of six main habitat types: interspersed bottomland hardwood, the river and its adjacent streams and wetlands, introduced grasses, upland shrub and trees, cropland, and Savannah.

2. Wetlands

In January, two Murray Bottom wetland sites, Southeast (45 acres) and Southcentral (60 acres) fields were surveyed by RM Freske and Jim Minnerath, private lands, to restore to wetland. The Southcentral wetland restoration may require a portion of Gatlin road to be raised and possibly construction of a spillway. The southeast wetland restoration would only require a control structure and construction of a spillway.

Doug Wylie, RO Engineering, visited the Refuge on November 7th. He was shown the large culvert/flap valve in "Murray's" Levee which lies in the old ox bow channel. He was also given hydrological information as well as a description of the preferred structure style desired to replace the existing structure. Doug will send a copy of the project drawing as soon as possible. Kansas DWR requires that all permit applications for the type of project proposed have detailed drawings prepared by a certified engineer.

3. Forests

Funds from a SUP for pecan harvest in February on the residence hill provided \$1,900 for purchase of trees. A total of 1,950 pecan, 500 red oak, 250 cedar, 50 plum, and 50 chokecherry were ordered from the Kansas State nursery.

Trees and nuts were planted in April on the SW 90 acre tract in Murray Bottom, within the levee. Only the tops of the W-ditches were planted. Approximately 100 lbs of kingnut hickory nuts, 100 lbs of black walnut nuts, and 20 lbs of bur oak acorns were hand planted. Pecan (1,950) and northern red oak (500) seedlings were also planted. A tree planter was used to plant the seedlings.

4. Cropland

New SUP's for farming were developed in January 2000. Fred Shelton became a new cooperator to farm 300 acres of former Addleman ground. Larry Cook and Kirby Murray each took on approximately another 200 acres of Addleman ground. Mike Hilton replaced John Rees as a cooperator. Farming SUP's encompassed approximately 1,600 acres of cropland.

5. Grasslands

Jim Minnerath coordinated a cordgrass restoration effort on the 80 acre tract north of Gleason's. On March 23rd staff from the MDC Wildlife Area, used a KDW&P "cordgrass digger" to dig up sections of cordgrass from the Wildlife Area. A prison crew took the sections and broke them into "plugs" and cleaned off excesses soil. The roots were then stored on a trailer in the shade. They were planted in April by a group of volunteers from Western Resources. The planting culminated a two year cordgrass planting effort.

A total of 34 acres of native grass and forbs were planted on four different sites in April. Sites planted were: North Office (4.5 acres former fescue), NE Office (14.5 acres former fescue), SE Schoolhouse Prairie (2 and 4 acres of cropland), and West Island Prairie (9.2 acres of cropland). Sites were planted with the Truax drill at a rate of 8 lbs/acre. The mix contained five grass species (big - 1.5 PLS & little - .5 PLS bluestem, Indiangrass - 2 PLS, switchgrass - .5 PLS, and side oats gramma - .5 PLS) and four forb species (showy partridge pea - 1 PLS, purple prairie clover - .25 PLS, Illinois bundleflower - 1 PLS and yellow coneflower - .25 PLS).

Mike Hays began dozing hedge trees on the 160 acre fescue/hedge "savannah", west of John Ballou's house, in April. Then entire tract will be cleared of trees as grazing payment. Future plans are to restore the tract to native prairie.

Greg Christiansen, Parker, KS, was hired in June to shear trees on Coreopsis Prairie for \$35 per hour. Trees within three interior draws as well as along the perimeter will be sheared. Trees too large to shear will be girdled later with a chainsaw. Greg finished shearing/treating stumps on



Coreopsis Prairie Restoration



Cordgrass Prairie Restoration

ten acres of Coreopsis Prairie in July. Approximately \$2,500 were spent on the project which provided approximately 70 hours of work. Greg did an excellent job. Refuge staff girdled most of the remaining trees which bordered the prairie on all four sides and along two interior drainages. The prairie looks great!

In October, girdling of trees on Coreopsis Prairie was completed. With the exception of some brush around the perimeter of the prairie, all trees within and adjacent to the prairie have either been sheared and piled or girdled.

Larry Cook mowed the 15 acre Mosaic Prairie and 30 acre Ballou NW Prairie in lieu of cash rent in October. He mowed the 10 acre Boyd Prairie in November. Larry is part owner in a large hydro-ax which is capable of mowing trees up to 4"-6" in diameter.

Approximately 30 large brush piles were burned on Coreopsis Prairie in December. Most of the piles burned fairly well but still need to have outer branches repiled and burned.

Brush was mowed in December along the perimeter and waterways on Coreopsis Prairie.

A firelane was made in December from the northeast corner of Mosaic Prairie to the entrance road north of the prairie and just southwest of the old cabin site near the mine ponds. The lane makes it much easier to contain a fire to the prairie as well as provides another access/exit point into the prairie for fire equipment. It also happens to make a nice hiking trail.

6. Grazing

Special Use Permits (SUPs) were issued in January 2000 to Mike Hays (160 acres west of John Ballou's) and Kirby Murray (80 acre residence hill). Most of Mike Hays payment will be paid through dozing of hedge trees on the tract.

7. Haying

No haying SUP's were issued this year. Nearly all fescue field have been converted temporarily to cropland in preparation for native grass or tree plantings or burned late to hurt fescue and promote other native plants which are present.

8. Fire Management

Three prescribed fires were conducted on March 28th, 2000. The two western Boyd Prairies (3 and 1.5 acres) were burned to reinvigorate them and the Ballou NW grassland (50 acres) was burned to set back fescue.

Five prescribed fires were conducted during April: Mine Creek Fescue (50 acres), Coreopsis Prairie area (33 acres), SW Office grassland restoration (15 acres), Homestead Prairie (1.5 acres)

and CRP west of Gleason's (70 acres). A total of 169.5 acres were burned in April and 54.5 acres in March for a spring total of 224 acres.

R6 Fire Program personnel, Phil Street, Jim Kelton, Lou Ballard, and Rich Sterry (FLH NWR FMO) visited the Refuge on May 17th. A quick review was made regarding the availability of facilities and equipment to conduct prescribed fires. Training needs were also assessed.

A list of proposed prescribed fires for the fall through early spring was developed in July and sent to Rich Sterry, Flint Hills Fire Management Officer for development of fire plans. A total of 15 fires were proposed of which nine are desired to control woody vegetation, four for preparation of seeding native grass, and two for reinvigoration of prairie and seed production.

9. Pest Control

A PUP (Pesticide Use Proposal) was written in January for use of Remedy herbicide to control *Sericea lespedezia*. *Sericea* was listed in 2000 as a noxious weed throughout the state of Kansas.

In June, BT Ball sprayed *Sericea lespedezia* on Schoolhouse Prairie and west Boyd Prairie. Both sites had serious infestation problems and required approximately four days of spraying with Remedy herbicide. Follow up visits later in the year indicated that spraying may have been very effective and that the infestation is likely to be much easier to control in subsequent years.

A wick applicator was purchased in July to selectively apply herbicide to cottonwoods and *Sericea lespedeza*. The applicator will be mounted on the front loader of the tractor so chemical can be selectively applied to individual patches and to vary the height.

10. Water Rights

Extremely low water levels were observed on the Marais des Cygnes River on August 25th. Later that day an E-mail from KDHE informed the Refuge that the KCP&L La Cygne Power Plant was pumping water from the river and had brought the river to dangerously low levels (<10 Cubic Feet per Second (CFS)). The power plant was contacted immediately and asked to turn off at least one of their pumps. They turned off one of their pumps within hours of the request which brought the river up to 12 CFS within a day and 25 CFS in three days. A few days later they turned off the other pump which brought the river up to 50 CFS.

The power plant and a downstream water district are members of an assurance district. All members own water in upstream reservoirs. The power plant is supposed to make sure there is always 50 CFS or more water immediately below the power plant when they are pumping. This stipulation was put into effect by KDHE to insure that the water district downstream would receive water without too high a load of contaminants. According to Steve Spaulding, COE -KS City, and Earl Lewis, KS Water Office, guidance regarding the minimum flows and how to request water from upstream reservoirs was not understood by either the assurance district

members or COE dam managers. This was largely because no extreme drought event had occurred since establishment of the assurance districts. Similar events should be rare in the future.

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.

On August 25th RM Freske and Brian Obermeyer visited a mussel bed immediately downstream of Gleason's Bend. Water levels were found to be extremely low, exposing a large portion of a mussel bed. One live Purple Pimpleback mussel, *Cyclonaias tuberculata*, in addition to two recently dead ones were discovered. This was the first documentation of the species in Kansas.

2. Waterfowl

Corn was mowed in January after dark goose season closed. An 80 acre field SE of the office and 35 acres in Murray Bottom were mowed. Dark goose and Mallard responded immediately with several thousands birds using the 80 acre field. Mallard use was greatest at first then dark geese became more frequent.

The mowed corn fields attracted a peak population of 30-50 thousand snow geese during the last half of February 2000. The geese mainly flew directly from the fields (food) to the wetland northwest of the Wildlife Area office (roosting area). Both areas are closed to hunting and thus no baiting issues came up.

3. Other Resident Wildlife

RM Freske attended a meeting in Pittsburg, Kansas, on February 16, 2000, regarding the alarming drop in quail populations. A list of likely problems including maturation of forests, cleaner fields, fescue, etc. were listed. A task force was recommended which would further look into potential problems and solutions.

A meeting and field visit were coordinated by Christiane Roy, KDW&P-Emporia, on March 13th to review the status of river otters on MDC NWR and Wildlife Area. Formal surveys would be necessary to accurately estimate population levels but it appears a viable population of otter occurs on the Refuge.

4. Fisheries Resources

In August, RM Freske and WB Menard attended a two day mussel workshop in Independence, MO. A number of topics including life history info of spectacle case mussels and paddlefish (species of concern on the Marais des Cygnes River) were discussed the first day. The second day was spent on a mussel bed on the Verdegris River. A wide diversity of mussels and small fish were collected and studied.

Extremely low water conditions, less than ten CFS, and the lowest August levels in 16 years prompted a number of mussel investigations. A mussel survey was conducted on the Marais des Cygnes River on September 13th. Ed Miller, Brian Obermeyer, Dan Mulhern, WB Tim Menard, and RM Bruce Freske participated in the survey. A large mussel bed immediately upstream of "Gleason's Bend" was randomly surveyed with one meter square quadrants. A total of 351 mussels were observed with an average of 7.02 mussels per quadrant. The total population of the mussel bed was conservatively estimated at 10,000. A total of 12 different species were encountered.

The site where two spectacle case mussel shells, *Cumberlandia monodonta*, were previously found - rocky portion of river below Gleason's Bend - was surveyed for live *Cumberlandia* mussels by Bruce Freske, Ed Miller, and Brian Obermeyer. No live mussels were found but two more dead mussels were found indicating that the site is indeed a historic *Cumberlandia* mussel bed. The spectacle case mussel is listed as extirpated in Kansas and is a species of national concern due to widespread decline over much of its historic range.

One live and two recently dead purple pimpleback mussels, *Cyclonaias tuberculata*, were found in a small mussel bed immediately south of the *Cumberlandia* site. The species has never before been documented to occur in Kansas.

A total of 27 species of mussels have thus far been documented to occur in the Marais des Cygnes River and adjacent floodplain wetlands. The fat pocketbook mussel likely occurs on the Refuge as well but its specific habitat, silt covered sections of river, have not yet been surveyed. Other possible species are the elk toe and spectacle case mussel. Future, more extensive surveys will quite likely find a number of additional species.

RM Freske and WB Menard floated the Marais des Cygnes River in September from the Hwy 69 bridge to the Oxbow pond northeast of Sammy Boyd's river property. A total of five rock riffle sections were encountered, all of which had mussel beds associated with them. In addition, two other mussel beds located on gravel bars on the inside of river bends were discovered. One of these beds was approximately 75' long and quite deep, 0 - 6', and had a very dense population of mussels. The bed is relatively easy to access and would be a good area to search in the future.



Gleason's Bend - East - $< 10\text{CFS}$



Gleason's Bend - North - $< 10\text{CFS}$

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 wildlife sanctuary encompasses the remaining 2,500 acres of the Refuge and is normally closed to public use.

Candy Reckling, Private Lands in the RO, developed a Website for the Refuge in February 2000. Text and photos were provided by Refuge staff. The web site contains Refuge regulations, map, and other interpretive information. Updates to the Refuge Website were made in October through Candy Reckling. The updates included amendments to the Refuge Regulations, a new picture of the Refuge, and a link to aerial photos and topographical maps of the Refuge.

A draft general refuge brochure was completed in June and sent to Melvie Uhland, RO Public Use. The brochure will be a joint project between the Refuge and the adjacent State Wildlife Area. The draft included a proposed map and text. In July, RM Freske and Karl Karrow, Manager MDC Wildlife Area, sorted through slides and photos to select the pictures which will be used in the new joint general brochure. A revised draft brochure was mailed later in July to Melvie Uhland in the RO to prepare for bidding out to contractors. In September and again in November, a second and third draft of the new Refuge/Wildlife Area brochure was reviewed by Melvie Uhland, Bruce Freske, and Karl Karrow and submitted to the contractor. The next draft to review will come from the contractor.

The fall issue of the Marais des Cygnes joint newsletter (Refuge/Wildlife Area), *Marsh News*, was drafted in August and included one page devoted to Refuge issues. The mailing list was also updated to include 300 new Refuge visitors.

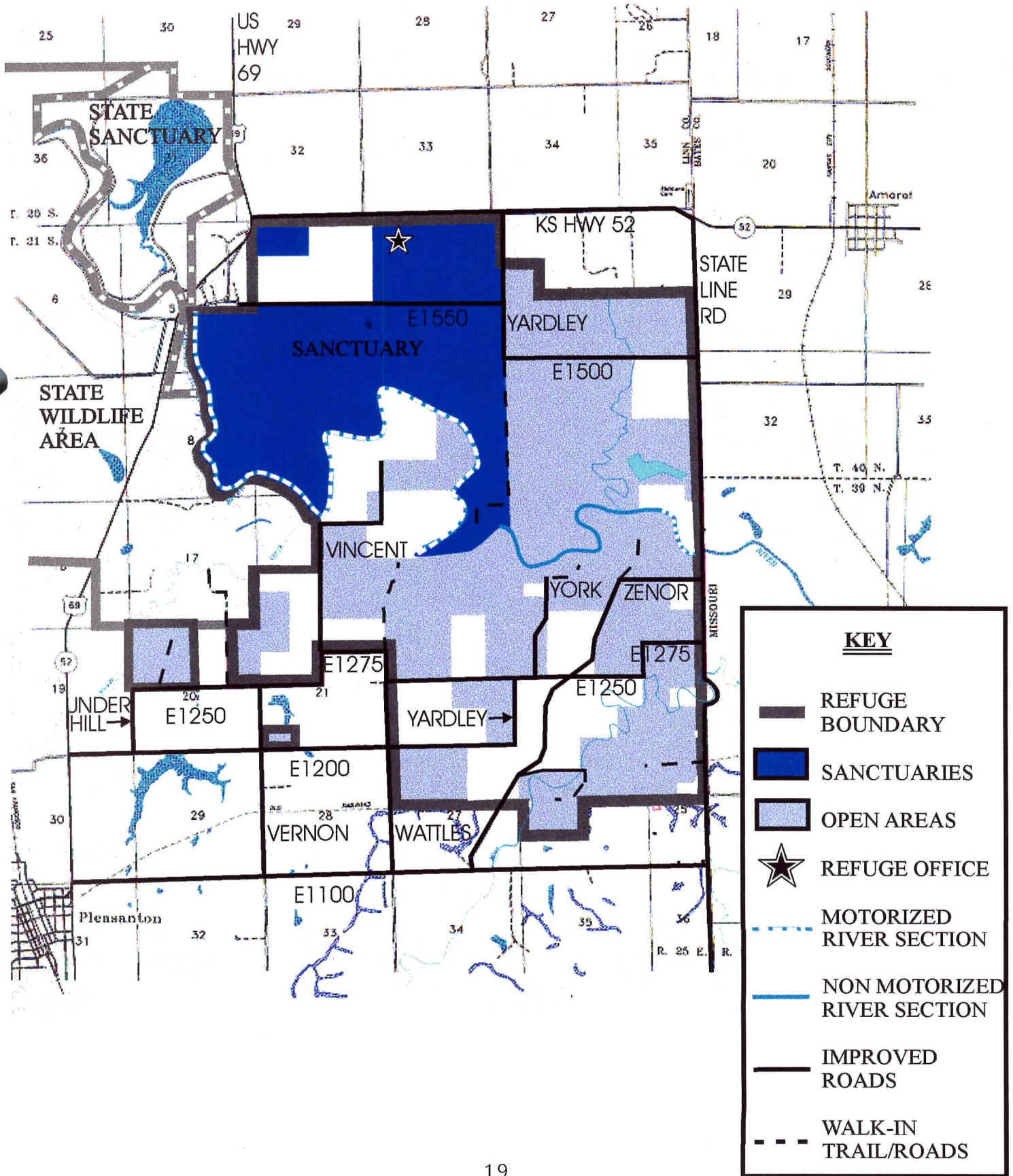
RM Freske and Karl Karrow attended the Wildlife and Park's Commissioner meeting in Emporia, KS, on August 24th. A slide presentation providing an overview of the area was presented by Karl while Bruce discussed current hunting programs and hunting issues on the Refuge.

New entrance signs, 5' x 10', were received near the end of October. A concrete base for the signs is in place, but an iron frame and stonework remain to be completed before the signs can be installed.

Boundary signs were posted in October on the newly surveyed corners of three tracts: Rhonda Gagliarda, E. Brown, and George Leff.

MARAIS DES CYGNES NATIONAL WILDLIFE REFUGE

Public Use Map and Regulations



2. 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 mile to one and a quarter mile long.

3. Interpretive Exhibits/Demonstrations

In February, RM Freske met with KDOT officials in Topeka to discuss development of a Rest Area along U.S. HWY 69 and incorporating it with interpretation of the Refuge and adjacent Wildlife Area. A preferred alternative drawing was displayed. After much discussion, it was decided that a new drawing be developed which would overlay proposed rest area, visitor center, and trails on a topographic map and have actual location of the new freeway so a more accurate picture of the site layout would be possible.

RM Freske and Karl attended a meeting with KDOT in Topeka on August 29th. A final layout for the combined KDOT Rest Area/F&WS-KDWP Visitor Center was presented and approved. A final report will be available early in the fall. The report will provide a detailed site layout drawing and show cost estimates for separate versus combined utilities (water, sewer, electric). Actual architectural drawings will be started one year later. The Service and KDWP will be asked to review these drawings once they are available.

Melvie Uhland, RO Public Use, transferred \$6,000 of RO "end-of-year money" to the Refuge in August for development of an information kiosk. A bid for design and production of two new information kiosk panels was awarded to Exhibit Design Group for \$5,200.00 in September. One of the panels will feature a map of the Refuge and adjacent Wildlife Area. The other panel will feature a picture of a flooded bottomland hardwood forest. Draft text for both panels was developed shortly after the bid was awarded. In November, draft text was reviewed once again for the new kiosk panels before being sent to the contractor. The next draft to review will come from the contractor.

A new mussel display was set up on a table in the main lobby of the office in October. The display features shells of 26 different species which are found on the Refuge. Each species example consists of one shell displaying the outside of the shell and the other the inside of the shell. A typed card below each species gives the common and scientific name and a brief description about habitat and population status. A more formal display enclosed in a display case will be undertaken sometime in the future.

4. 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.

A summary of 1999/2000 deer hunt surveys was completed during February 2000. The 1999 Archery Deer Hunt had 121 applicants for 75 permits. A total of 55 permits (74%) were used. Total number of hunter days was 557. Ten adult male deer, 5 fawn males, 5 adult females, and 1 fawn female were taken which is a total of 21 deer harvested. Most hunters, 75%, rated hunt quality as good. Forty two hunters (57%) came from the Kansas City Metro Area and 15 hunters (20%) came from Linn County.

The 2000 Antlerless Deer Hunt had 33 applicants for 100 permits. A total of 21 permits (68%) were used. Total number of hunter days was 52. One fawn male, 10 adult females, and 3 fawn female were taken which is a total of 14 deer harvested. Most hunters, 52%, rated hunt quality as good. Twenty seven hunters (82%) came from the Kansas City Metro Area and 5 hunters (15%) came from Linn County.

A proposal was prepared in February to make some amendments to the Refuge hunting program. The proposed changes were: 1) allow picking up of shed deer antlers, 2) change wording regarding tree stands to make it a violation to hunt from an illegal stand, 3) change wording of regulation which prevents hunting with firearms within 150 yards of all private property to read: "No discharge of firearms within 150 yards of any residence or other occupied building", and 4) allow use of .22 rimfire firearms.

Letters requesting comments were sent to over 600 people in February. In addition, news releases were sent to 11 area newspapers. Among those who received letters were landowners within the Refuge acquisition boundary (28), hunters who applied for Refuge hunting permits (340), hunters who hunted waterfowl at MDC Wildlife Area, several conservation groups (Ducks Unlimited, The Nature Conservancy, Audubon, Quail Unlimited), and others who have requested information about the Refuge such as birders and fishermen.

An "Open House" was conducted on Saturday, March 25, at the Refuge Office from 8:00 a.m. to 4:30 p.m. for anyone interested in commenting on the proposal to amend some of the public use hunting regulations. Only two people, Kirby and L.D. Murray, refuge neighbors and farming cooperators, stopped by the office to provide comments.

Evaluation of all the comments was conducted in June. A total of 65 people provided comments,

seven of which own land within the Refuge acquisition boundary, 13 of which applied for both archery deer and turkey permits, and eight which applied only for turkey permits.

After review, the following amendments to the Refuge hunting program were made (changes from original proposal are italicized):

- Allow picking up of shed antlers *for non-commercial use*.
- Change wording of regulation regarding use of hunting stands to make it clear that not only is it illegal to build permanent stands but also to hunt from them. *Wording as follows: Blinds, tree stands, and steps may not be fastened with any device which is inserted into trees, except screws. Construction and hunting from illegal blinds is a violation.*
- Change wording of regulation which prevents hunting with firearms within 150 yards of all private property to read: "No discharge of firearms within 150 yards of any residence or other occupied building ~~or livestock~~".
- ~~Allow use of .22 rim-fire firearms.~~

In July, an evaluation of the turkey hunting survey cards was completed. A total of 120 people applied for 50 spring turkey permits. Survey results reveal that 39 (78%) of the permits were used. Average number of hunting days per hunter was 3.85. A total of 28 turkeys were taken of which 24 were adults and 4 were jakes. Average adult beard length was 9.75" and the longest beard length was 12.25". The majority of hunters, 66%, came from the Kansas City Metro Area, while 14% came from Linn County.

Hunter requests for Archery Deer Hunting Permits were accepted throughout August. A total of 118 people applied for the 75 available permits, of which approximately ½ were out-of-state hunters. A drawing for the Refuge Archery Deer Hunt was conducted on September 2nd and 75 permits were issued. Hunting pressure for archery deer was steady in October with an average of five to 15 vehicles on the Refuge on weekends. Two large bucks were observed to be taken by hunters.

A total of 35 antlerless deer hunting permits were issued in December for the January Antlerless Hunt.

5. 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.

6. Trapping

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

7. 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.

8. 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.

9. Camping

Overnight camping and building of fires is prohibited.

10. 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.

11. Other Non-Wildlife Oriented Recreation

Outboard motor boating is restricted to the westernmost 5 1/2 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.

12. Law Enforcement

LE was conducted during the first weekend of the antlerless deer hunt in January. Most hunting pressure was in the "Closed Area", as it was the previous year. No citations were issued.

RM Freske and BT Peterson attended the LE Inservice refresher training at Marana, Arizona, in January.

One wildfire occurred during March. Five acres west of Eureka Cemetery and along the north side of the gravel road were burned. Two wildfires occurred during the middle of April. The 20 Acre Prairie tract and the 80 acre field SE of Eureka Cemetery as well as the 10 acre Gama Grass Prairie west of the field were burned. A group of teenagers were suspected of lighting these fires as well as several others in the area.

Tickets were issued to two hunters who rifle hunted for deer near Turkey Foot Lake in December. The hunters were cited for possession of illegal firearms and illegally injuring/killing wildlife (they shot a button buck).

13. Cooperating Associations

RM Freske responded in writing in January 2000 to a letter from James Addleman's lawyer requesting payment for ground disced prior to termination of their Special Use Permit. The reply denied responsibility for compensation and informed the lawyer of procedures to file a TORT Claim. No tort claims were filed during the year.

I. EQUIPMENT AND FACILITIES

1. New Construction

A cattle fence water crossing for the fence along the Ellis boundary was built in June, across the small tributary to Mine Creek. All of the boundary between Ellis's NW corner and the large mine pond have the Refuge half of the fence in place.

BT Peterson constructed a welding bench in April for the shop portion of the storage building and sideboard braces for the three ton truck while at Flint Hills NWR. Bill also completed work on a bench/shelving for storing tools and working on projects.

A new sidewalk was constructed in July from the visitor parking lot to the office entrance of the Refuge by refuge staff.

Three different concrete footing projects were completed early in August by refuge staff. The projects were for: 1) new back office deck; 2) new stone entrance sign holder; and 3) new office

information kiosk. Unfortunately, work on these projects came to a halt when BT Ball returned to school and BT Peterson broke his foot.

Two new parking lots were completed in October by BT Peterson. One lot is located at the entrance to Carpenter Road and the other is at the northwest corner of the 80 acre tract south of Stony Brook Farm. In November, another new parking lot/gate and a new gated entrance were completed. The parking lot/gate is located along State Line road at the entrance road to the homestead just north of State Line Pond.

A gate was installed in October at the entrance to Turkey Foot Pond. Posts and an earthen berm were placed on each side of the gate to prevent vehicle trespass. The road was traveled frequently during the summer and had tires, household garbage, and fisherman debris (bait containers, beer cans, etc.) along the roads leading to the pond.

2. Rehabilitation

Terraces in the field south of Eureka Cemetery were repaired in February with the Refuge dozer as they had a number of breaches in them and were no longer working properly.

The turn-around south of the Root Cemetery was widened with the Refuge dozer in February so cars could turn around without pulling into the cemetery.

The Truax drill was bent and welded as needed in March to prepare it for planting of native grass in April.

The office was reorganized in May to make more space in the main lobby for future displays. The shop was also organized with the installation of new shelving and cabinets which allowed tools and supplies stored at the residence to be moved down to the new office site.

A camper trailer was moved in May next to the office for use by a temporary employee during the summer. Sewer and water were hooked up, and an air conditioner installed. In the office, part of the counter was removed and a stove installed for use by BT Ball.

An estimate was received in September to upgrade the electrical system of the hilltop residence by Rives Electric. The total cost for upgrading the system is \$661.00. One aspect of the upgrade is in question, however. The basement is a two wire system. The only way to make it a three wire system is to run a wire from the outlet ground and tie it into the two wire ground. The electrician did not know if this would meet Federal Code. The only other option would be to remove most of the sheet rock in the basement and add a third wire.

3. Equipment Utilization and Replacement

A new 3 ton IH Stake Bed truck was received during March with MMS funds. The truck will be

extremely beneficial in hauling rock for roads and parking lots and for hauling in material to fill in old wells.

Several thousand dollars in tools were purchased in June for the Refuge as well as a Grasshopper riding lawn mower. The purchases have greatly increased the ability to maintain the refuge efficiently and aesthetically.

Also in June, a new electronic weather station was installed at the office. Digital readouts of temperature, rainfall, wind speed, etc. are now available at the touch of a button.

A new Honda ATV was purchased for the refuge in July. The ATV was ½ funded with fire money and will primarily be used on prescribed fires and for spraying of Sericea.

Also in July, the south heater/air conditioner unit at the office was replaced due to a fire, and a new cutting torch was purchased, enabling most types of metal work to now be completed by refuge staff.

A new FAX machine and postage meter were purchased for the Refuge in October. The FAX machine replaced an older model which was not printing properly. The postage meter will greatly aid the task of sending multiple mailings.

In November a new battery backup was purchased for the refuge which will eliminate problems caused by the frequent, daily power interruptions which are inherent with REA power transmission.

A new Lennox heater was installed in the shop by Bates County Heating and Cooling in November. The heater makes the shop a much more pleasant place to maintain equipment and work on carpentry and welding projects.

BT Peterson built a stand in December for the tractor-powered post hole digger. It is now possible for one person to easily attach/unhook the digger.

All the vehicles and tractors were checked for fluids and other maintenance in December. A new seat belt was placed in the jeep as well as recalled brakes repaired.

4. Computer Systems

RM Freske met with Kristen Rundquist in January 2000 and took GPS readings of refuge wells, roads, and dikes for use in the new GIS database for the Refuge. GIS draft information was reviewed and revised for the contractor in July. In addition, GIS management maps prepared by Kristen Klimstra, Manhattan State University, were updated with locations of prescribed/wild fires, tree plantings, and grass plantings for 1999 and 2000, and returned with the drafts.

5. Other

In March, mulch was placed around the approximately two dozen trees which were planted around the office the previous fall. Purpose of the mulch is to keep down weeds, hold in moisture, and prevent accidental mowing.

A shelterbelt was planted around the west and north sides of the office in April. The outside of the belt contained a row of plum and a row of chokecherry to "fireproof" the inside three rows of cedar from the nearby prairie restoration area. The main purpose of the shelterbelt is to protect the office from winter winds and to make the office look less like a trailer house. In November wood chips were placed around the five-row shelterbelt adjacent to the office. Over twenty loads of chips were received from a utility crew working in Amoret. The purpose of the chips is to hold moisture in the ground and eliminate the need to mow around approximately 250 trees.

Grass and weeds along the sloped entrance to the office were sprayed with Roundup in April and later planted with a mix of western wheat grass, side oats gramma, and buffalo grass.

The Real Property Inventory was updated in August. A number of buildings, fences, roads, and water structures, most of which predated Refuge establishment, were added to the list.

Two more wells were discovered in November on the 160 tract west of Sammy Boyd's house. One well was near the creek the other was near the homestead in the middle of the tract. Both could easily be fallen into in the dark and were therefore surrounded with T-posts and orange plastic safety mesh.

J. OTHER ITEMS

1. Cooperative Programs

Boy Scouts from La Cygne and Mound City visited the Refuge the second Saturday of April to pick up nuts. Approximately 150 lbs of kingnut hickory nuts were picked up in Carpenter Bottom. They were payed \$3.00/lb by FLH NWR which used the nuts for a reforestation project.

A short article providing a general overview of the Refuge was sent in May to an editor for Kansas Wildlife and Parks. The article will be included in a future edition of KDW&P Magazize which will feature National Wildlife Refuges in Kansas.

RM Freske reviewed a grant proposal in May at the request of Tom Swan, Kansas Department of Wildlife & Parks Private Lands Biologist. Tom is representing a quail initiative group interested in educating and providing incentives to landowners to improve habitat for quail in southeast Kansas. Tom called in September to thank refuge staff for the support letter to fund the Southeast Kansas Bobwhite Quail Initiative. The organization had requested a grant from the National Fish and Wildlife Foundation which was recently approved.

RM Freske assisted Bill Busby, Kansas Biological Survey, and Ed Miller, non-game biologist KDW&P, on June 1st with the annual breeding bird survey on the Marais des Cygnes River. The survey started at Unit G of the Wildlife Area and ended at State Line bridge. Several warblers believed to be Cerulean were heard on the Refuge. Later review by Bill Busby expressed confusion as to whether the songs heard were actually Cerulean or an uncommon call made by Northern Parula warblers.

2. Items of Interest

In June, RM Freske edited a draft article which will highlight the Refuge. The article will be included in a book which will showcase all National Wildlife Refuges in the system.

3. Credits

Refuge Manager Bruce Freske wrote this annual narrative in May 2001, with assistance from volunteer Laura McNeil who compiled the monthly narratives and weather data.