

Minnesota Valley National Wildlife Refuge

**Bloomington, Minnesota
Fiscal Year 2002**

Centennial Edition



**Prairie Smoke
Jewel of the Rapids Lake Unit**

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Centennial Note: At the time of this writing, the National Wildlife Refuge System consists of 540 wildlife refuges, 38 wetland management districts (administering over 26,000 waterfowl production areas), and 50 coordination areas. Minnesota has 13 Refuges and six Wetland Management Districts.

National Wildlife Refuges account for more than 96 percent of the acreage in the National Wildlife Refuge System. Almost 83 percent of the land in the Refuge System is found in the 16 refuges in Alaska. More than 88 percent of the acreage in the National Wildlife Refuge System was withdrawn from the Public Domain. Lands purchased with Land and Water Conservation Fund appropriations and Migratory Bird Conservation Fund receipts account for 4.6 percent of acres in the National Wildlife Refuge System.



Introduction

The river, specifically, the Minnesota River, has a story to tell and because she has been part of the National Wildlife Refuge system since 1976, listeners will always abound. Her story meanders through time carving out a richly diverse cultural, social, economic, ecological and biological history. Luckily for her, a group of concerned and wizened citizens

were in tune to her prosaic rhythms and through their efforts preserved thousands of acres of the Lower Minnesota River Valley. Their energy, foresight, and hard work resulted in the creation of the Minnesota Valley National Wildlife Refuge (Refuge) in 1976.

For future generations, the citizenry left behind a myriad of diverse lands for the people to explore and enjoy in the Minneapolis and St. Paul metropolitan area. Its Visitor Center is located in Bloomington and is a short distance from the confluence of the Minnesota and Mississippi rivers. The Visitor Center is ideal for orienting oneself to the Refuge which is divided into eight noncontiguous units. The Refuge encompasses nearly 14,000 acres and currently extends in a linear direction for 34 miles along the Minnesota River from Bloomington to Jordan. In addition, the Refuge manages a fourteen-county Wetland Management District from Chisago County in the north to Blue Earth County in the south. Within this district are Waterfowl Production Areas and habitat easements as well as Farmers Home Administration easements.

The Minnesota River's flood plain includes marshes, wetlands, seeps, and lakes. Here one finds an array of wetland plants such as water lilies, duckweed, pond weed, sedges, cattail, bulrushes, all of which provide habitat for waterfowl, resident, and migrating songbirds. The river itself is often lined with cottonwood, silver maple, ash, and willow. Bur, white, and red oak, elm, and ash claim ownership to her hillsides with dogwood, chokecherry, and other shrubs lining her understory. The coveted morel mushroom lies in wait for those who seek its discovery.

The bluffs overlooking the river are rich in prairies and oak savanna which provide food and habitat for nesting ducks, wild turkeys, upland birds and a variety of songbirds. In spring and summer, the bluffs are carpeted in pasque flowers, blue-eyed grass, prairie larkspur, prairie smoke, beards tongue and blazing star, Indian grass, big bluestem, and prairie dropseed. Fall and early winter turn the grasses into a canvas of copper tones. In addition to the floral jewels of the Refuge, the diversity of birding opportunities adds to its richness. Eagles have made a big comeback to the Refuge and can be seen quite frequently along the river. White pelicans, tundra swans, and waterfowl flock to the flood plain lakes. The hillsides are dotted with migrating song birds and the sighting of its prothonotary and Tennessee warblers are coveted by the serious birders wanting to add them to their list.

The Refuge staff knows that continued stewardship of the river and surrounding lands is an unequivocal need. The river's story needs to be told again and again, for it is the intimacy of the experience which serves to create the stewardship. Refuge led canoe trips, birding trips, photo blinds, waterfowl hunting opportunities, stories of her culture and history as presented by Volunteer Duke Addicks in the visitor center hearth room, all bring the intimacy of the river to the people. It is this legacy of wisdom, started with a citizen group in the early 1970's, that the Refuge wishes to preserve into the next century.



Fiscal Year 2002 Highlights at MN Valley NWR

- ☆ The year's weather was the 4th wettest in 111 years and impacted the Refuge Visitation (1a)
- ☆ There was a rare occurrence of a cougar on the Refuge (1a)
- ☆ Fisher Lake experienced prime waterfowl habitat due to water control practice (3a)
- ☆ 3800 Refuge acres were inventoried for buckthorn and 500 acres were treated by either cutting or chemical control (3g)
- ☆ Eighteen prescribed burns were conducted on 398 acres (3f)
- ☆ The Refuge met its quota and banded more than 100 wood ducks (4a)
- ☆ A total of 783 acres of fee and 99 acres of easement were purchased and added to the Wildlife Management District (6g)
- ☆ Eighteen youth and sixteen mentors participated in the Youth Waterfowl Program (7a)
- ☆ Birders flocked to the Rapids Lake Unit to catch a glimpse of a whimbrel, a rare visitor to the Refuge (7a)
- ☆ Nearly 11,000 school children participate in the Refuge Environmental Education Program (7a)
- ☆ An update to the Environmental Education curriculum was initiated (7a)
- ☆ The Blufftop Bookshop experienced a significant increase in sales reaching more than \$13,000 in revenue (7a)
- ☆ The Refuge hosted a large celebration in honor of its 25th Anniversary. (8b)
- ☆ The Volunteers contributed 11,451 hours to the Refuge (8b)

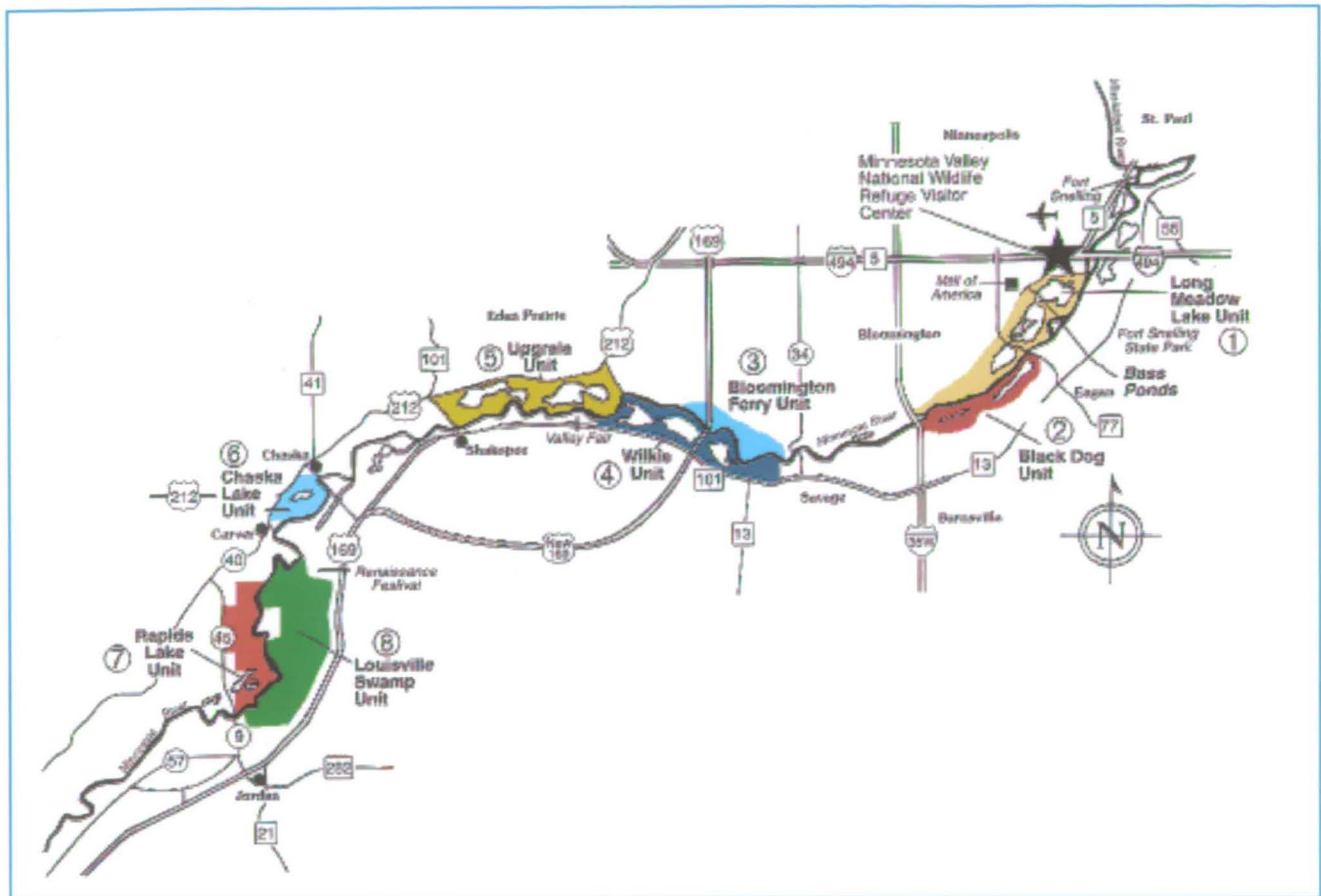
Minnesota

Extremes marked Minnesota's weather for 2002. The year was the fourth wettest year in the past 111, with 38.45 inches of precipitation. While much of the western, southern, and eastern states experienced a drought, Minnesota's precipitation was 9 inches above normal and less than 2 inches below the record set in 1911.

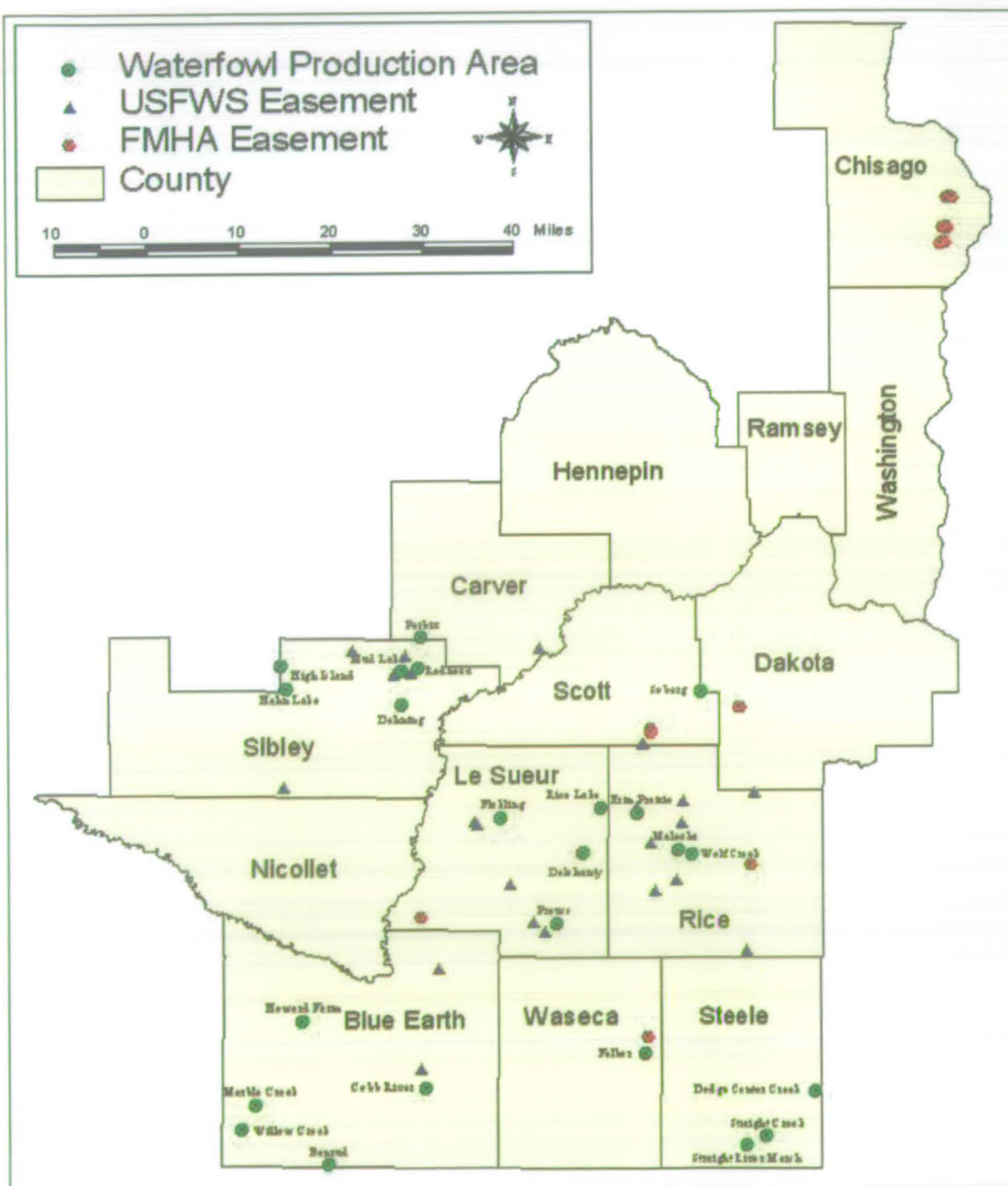
The records set in Minnesota in 2002	
January	4th wettest
February	5th warmest
April	2nd snowiest
June	5th wettest
July	8th warmest
August	3rd wettest
October	3rd coldest
November	4th driest

Average high temperature (f)	55.10	54.30
Average low temperature (f)	38.80	35.40
Highest temperature (6/30)	97.00	
Lowest temperature (3/3)	-03.00	
Precipitation for the year (in)	38.45	28.36
Snowfall for the year (in)	66.00	49.60

Minnesota Valley National Wildlife Refuge as of March, 2003



Minnesota Valley Wetland Management District Waterfowl Production Areas and Easements



1 Monitoring and Studies

1.a. Surveys and Censuses

Significant Wildlife Occurrences

Raptors

Bald eagles continue to nest on the Long Meadow Lake, Louisville Swamp and Wilkie Units of the Refuge. The Long Meadow Lake pair constructed a new nest this year which brought it closer to the Visitor Center and further away from the hiking trail. They fledged two young. The Louisville Swamp Unit nesting pair was regularly monitored, and although visibility was poor, volunteers confirmed the presence of one eaglet. The Wilkie Unit nesting pair was also active this year and produced two eaglets. Other raptors of significance that have been documented on the Refuge this year include osprey on the Wilkie Unit and a nesting pair of broad-winged hawks near the Black Dog Unit. Peregrine falcons continue to utilize the hacking box located on the smoke stack of the Black Dog Power Plant, and successfully fledged three young this year.



Photo by Scott Sharkey

Colonial Nesting Birds



Photo by Scott Sharkey

The Wilkie Unit colonial bird rookery at Blue Lake has recently been going through many changes. Data is available back to 1986, and in the past, only the production of great blue herons was reported since they made up over 98% of the colony until the late 1990's. In 1997 it became obvious that the colony was becoming home to great egrets, double-crested cormorants and black-crowned night-herons (Figure 1). Therefore, the data from 1997-2002 was reanalyzed to include all colonial bird species using the rookery.

The total estimated production of colonial birds on the Wilkie Unit was 203 nestlings in 2002. This value was less than one half of the total production observed in both 1999 and 2000 (Table 1). In addition, only 32% of the available nests were used, which is lowest percentage observed since the colony has been surveyed. It is important to note that we were unable to collect nestling data in 2001 due to flooding that inundated the area throughout the spring and summer. During this year's survey the colony was eerily quiet, and although hundreds of egg fragments were found on the forest floor (that appeared a product of a successful hatch), few young were noted.

In addition, several adults were alone in nests and there appeared to be few birds tending to nests and nestlings. The estimated production of great blue herons was 106 nestlings, great egrets

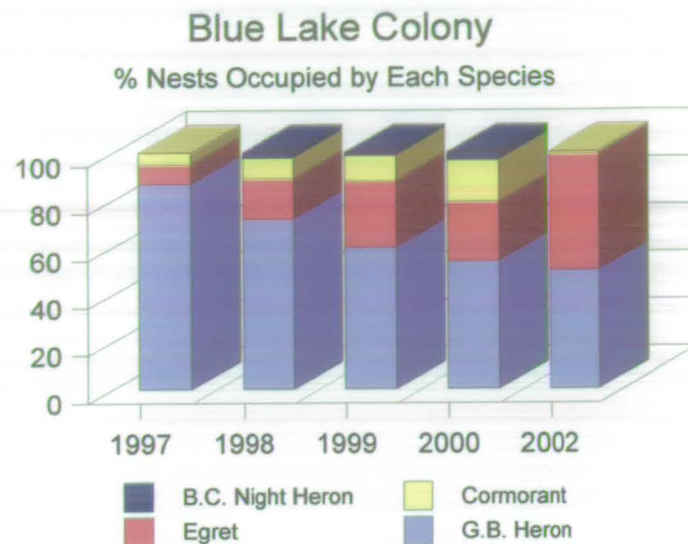


Figure 1

Percentage of Occupied Nests Used by Each Colonial Bird Species, Blue Lake, 1997-2002

Table 1: Estimated Nestling Production of All Species of Colonial Birds Using the Blue Lake (Wilkie Unit) Rookery, 1997-2002.

Survey Year	Number of Available Nests	Estimated Number of Nests Used	Percentage of Nests Used	Estimated Number of Nestlings per Nest	Estimated Production
1997	654	275	42%	1.36	374
1998	776	Unable to calculate**	51%	1.47	277***
1999	610	336	55%	1.47	494
2000	800	360	45%	1.20	432
2001	1017	No data*	No data*	No data*	No data*
2002	552	177	32%	1.15	203

*No Access to colony due to prolonged flooding

**A wind storm in May caused the loss of many nests making it inappropriate to estimate nests used

***High winds caused the death of more than 500 nestlings thereby making it difficult to estimate the population. The production value listed is from a thorough count of actual nestlings observed in the colony.

produced 91 nestlings and double-crested cormorants produced six nestlings. Although some adult birds were observed, there were no black-crowned night-heron nestlings visible during the survey (Figure 2). Preliminary field data was collected in 2002 and the actual research project will begin in spring 2003.

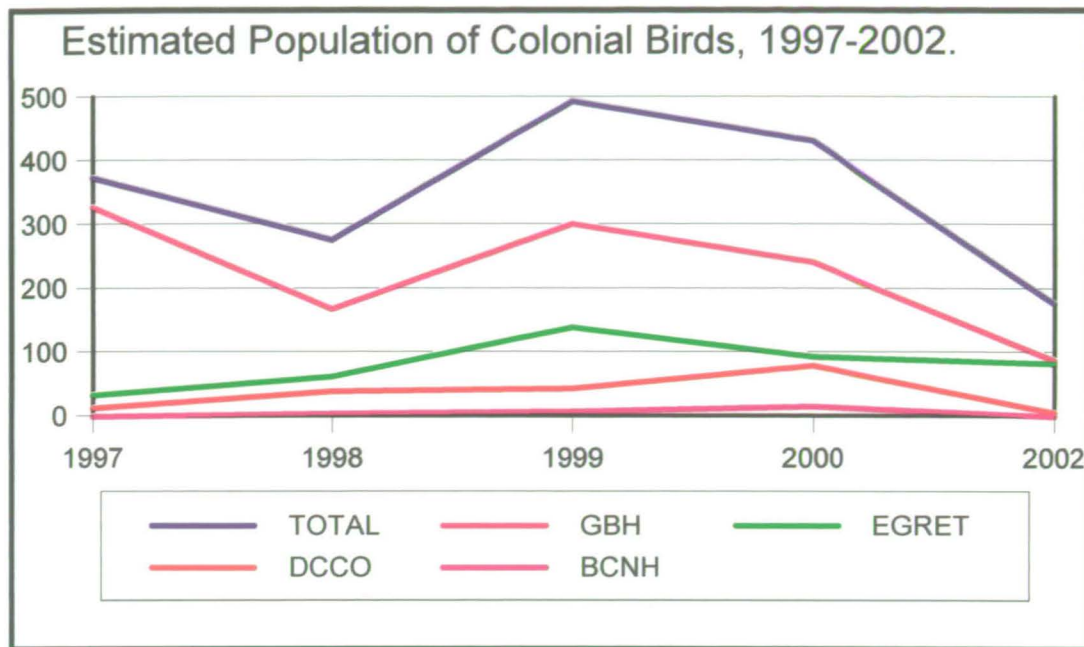


Figure 2

Estimated Population of Colonial Birds (Total and Each Species) in the Blue Lake Rookery, 1997-2002 (no data 2001 due to flood).

Declines were noted for each species. However, the changes did not appear to be equitable. Heron production dropped to 106 from 242 nestlings in 2000, egret production dipped slightly to 91 from 94 nestlings, but double-crested cormorants dropped from 80 young produced in 2000 to only six estimated to be produced in 2002. Again, no black-crowned night-herons were produced in 2002 (a decline from 16 estimated to be produced in 2000). It seems that many of the trees that contained cormorants in the past were either lost in the flood of 2001 or were actually surrounded by water due to continued high water levels in Blue Lake. Also, the colony appears to be shifting to the south side of the water control structure, which is closer to the Valley Fair Amusement Park. Staff is not sure why they are moving in this direction, but it appears that they are building new nests in trees that have not been used before, rather than occupying nests that are in existence north of the water control structure. The new nests are also getting closer to the bald eagle nest that has been active since 1997. It will be interesting to see if these eagles leave as the colony shifts closer to the nest, since in 1996 a pair of bald eagles vacated a nest inside the colony.

Following the discussion of the 2002 survey results with Minnesota Department of Natural Resources (MnDNR) biologists, it was determined that many factors may have contributed to the population decline of colonial nesting birds at Blue Lake. These may include:

1. Unusually warm weather in early spring followed by a snowstorm in mid-May may have caused the death of nestlings that hatched prior to the storm. In addition, high winds throughout the area in the spring may have blown nestlings from the nest. This would explain why many hatched egg shells were observed, but few nestlings were counted.

2. Several trees and associated usable (not starter) nests were lost in the prolonged flood of 2001. Also, many of the new nests visible in winter 2002 were starter nests and may have not been suitable for use or may have blown down in the spring winds. Note: the number of usable nests decreased 46% from 2001 (Table 1).

3. Perhaps the decline is due to the effects of the destruction of approximately 500 nestlings in the 1998 windstorms. These young were not available to return to the colony to nest.

4. Great blue herons which used to make up over 98% of the colony until the mid-1990's, may have left the area due to the recent influx of other colonial bird species (Figures 1 and 2).

5. High water levels in Blue Lake may have affected food availability and caused some birds to search out other nesting colonies.

Since declines and in some cases total abandonment of other metro area rookeries have recently occurred, the MnDNR is closely watching the status of other rookeries. We will continue to monitor the Refuge's rookery to see if the 2002 decline continues next year or if the colony rebounds.

Mammals

Muskrat house and beaver lodge surveys were conducted to determine trends in the local muskrat

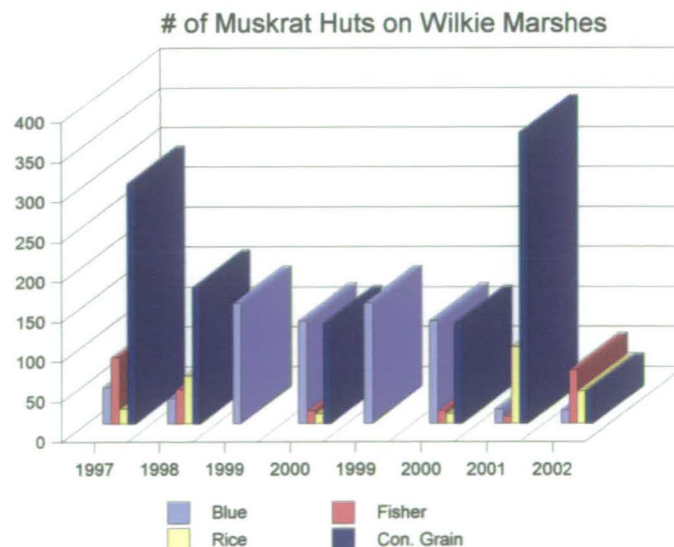


Figure 3
Number of muskrat huts observed on Wilkie Unit marshes, 1997-2002

population and to map the locations of beaver lodges on the marshes. The number of muskrat houses on Blue Lake has been low the past two years since the water levels have been kept high to help decrease river bulrush (Figure 3).



USFWS, by Timothy Klepp

The hut numbers on Fisher Lake were the highest they have been since 1997. Past draw downs of Fisher Lake have increased both the distribution and the diversity of the emergent vegetation. In addition, the increase in numbers may also be attributed to the migration of animals from Blue Lake. Rice Lake numbers dropped this year but were close to the five-year average. Water levels have remained stable on Rice Lake the past few years, and muskrats appear to be constructing huts along the outer edges of the marsh in stands of river bulrush. The hut counts for Continental Grain Marsh decreased 89% from 2001 (40 houses down from 364 houses), and are well below the five-year average. Although water levels were down slightly in the marsh due to water backing up into Eagle Creek, no drastic changes in vegetation were noticed, and water levels were still not below average. Therefore, this decline is difficult to explain and may just be a natural population reduction due to disease or some other factor.

It is important to note that although the overall winter hut count numbers were low, large numbers of muskrats were taken by Refuge trappers in early fall 2002, and Refuge staff noted numerous muskrat huts on the Wilkie Lakes.

Large beaver lodges were noted on many Refuge wetlands and the persistent dam building activity of these animals often makes it difficult to manage water levels. The number of beaver lodges observed on the marshes of the Wilkie Unit and the specific locations are as follows:

Blue Lake: One lodge was verified on the east side of the marsh. Also, there is often beaver activity near the control structure.

Continental Grain Marsh: Three lodges were observed. One is in the center along the stream, one in the northwest corner, and one on the north end. A large dam was also observed near the water control structure.

Fisher Lake: One lodge was observed on the east side.

Rice Lake: One lodge was observed on the west side.



Photo by Scott Sharkey



USFWS, by Robert Savannah

There have been sightings of a cougar this year both on and near the Refuge, which is an uncommon occurrence. Cargill employees and MnDNR biologists confirmed the presence of a cougar in the Minnesota River bottoms near the Refuge's Wilkie Unit. A few months later a cougar was sighted in the City of Bloomington near the Refuge on Nine Mile Creek. This cougar was later shot by a local law enforcement officer in a city park.

Officials stated that the animal would not leave the area and thought it posed a threat to people visiting the park. It is unknown whether the Bloomington cougar was the same animal observed in the Wilkie Unit.



Reports of river otter sightings seem to be on the increase. A visitor noted a female and three young playing near Old Cedar Avenue on the Long Meadow Lake Unit this summer and fall. Staff has also observed otters on the Louisville Swamp, Black Dog, and Wilkie Units of the Refuge. The MnDNR conducted helicopter surveys of the Minnesota River bottoms. The surveys conducted in 2000-2001 revealed an increase in the concentrations of river otter tracks. (Figure 4)

Invertebrates

Refuge volunteers, Ron and Kathy Huber, expanded their Refuge invertebrate surveys to include the Upgrala Unit. The Refuge now has a species list (See appendix) and a specimen collection of butterflies, moths and tiger beetles found on the Louisville Swamp, Rapids Lake and the Upgrala Units. The specimen collections will serve as an important historical reference for the Refuge and also will be mounted in our classrooms so visitors can enjoy the displays.

Waterfowl and Associated Species

Waterfowl counts are based on a monthly index of species using specific areas of the Refuge, and are not estimates of total waterfowl using the entire Refuge. The following is a summary of what was observed.

Fall 2001

Fall temperatures again were above average and resulted in a sporadic waterfowl migration. The widest variety of species (13 species) was observed the first week of November, although the actual numbers were low. Most notable migrations included over 2,600 mallards, 780 northern pintails, 450 scaup, 390 Northern shovelers and over 14,000 American coots on October 23. We also continue to see tundra swans using Refuge marshes, especially Fisher Lake. The majority of Refuge marshes did not freeze over until mid-December.

Winter (December 2001 through February 2002)

Wintering waterfowl usually congregate near the warm waters of the Black Dog Power Plant, but this year the numbers were lower than normal. Perhaps this is due to the mild temperatures throughout the winter which enabled the waterfowl to spread out in the river or other open water areas. While the January 2001 survey yielded more than 6,000 mallards, this year's survey yielded only 518 mallards. Also 134 geese were observed this year compared to just one of the previous year. In addition, a few common mergansers were observed in both years.

Spring 2002

The peak waterfowl numbers appeared to be around April 13, with thirteen species of waterfowl including 1,163 mallards, 1,380 scaup and 817 tundra swans. American coot peaked the following week, with over 7,000 observed. By the second week of May, most migratory waterfowl had left the area.

Summer 2002

Mallards, Canada geese, wood ducks, and an occasional blue-winged teal nest on the Refuge and were the predominant species recorded during the counts in June, July and early August. This year however, many American coots were observed on the Refuge throughout the summer. Broods were documented on Fisher Lake and Long Meadow Lake near Cedar Avenue.

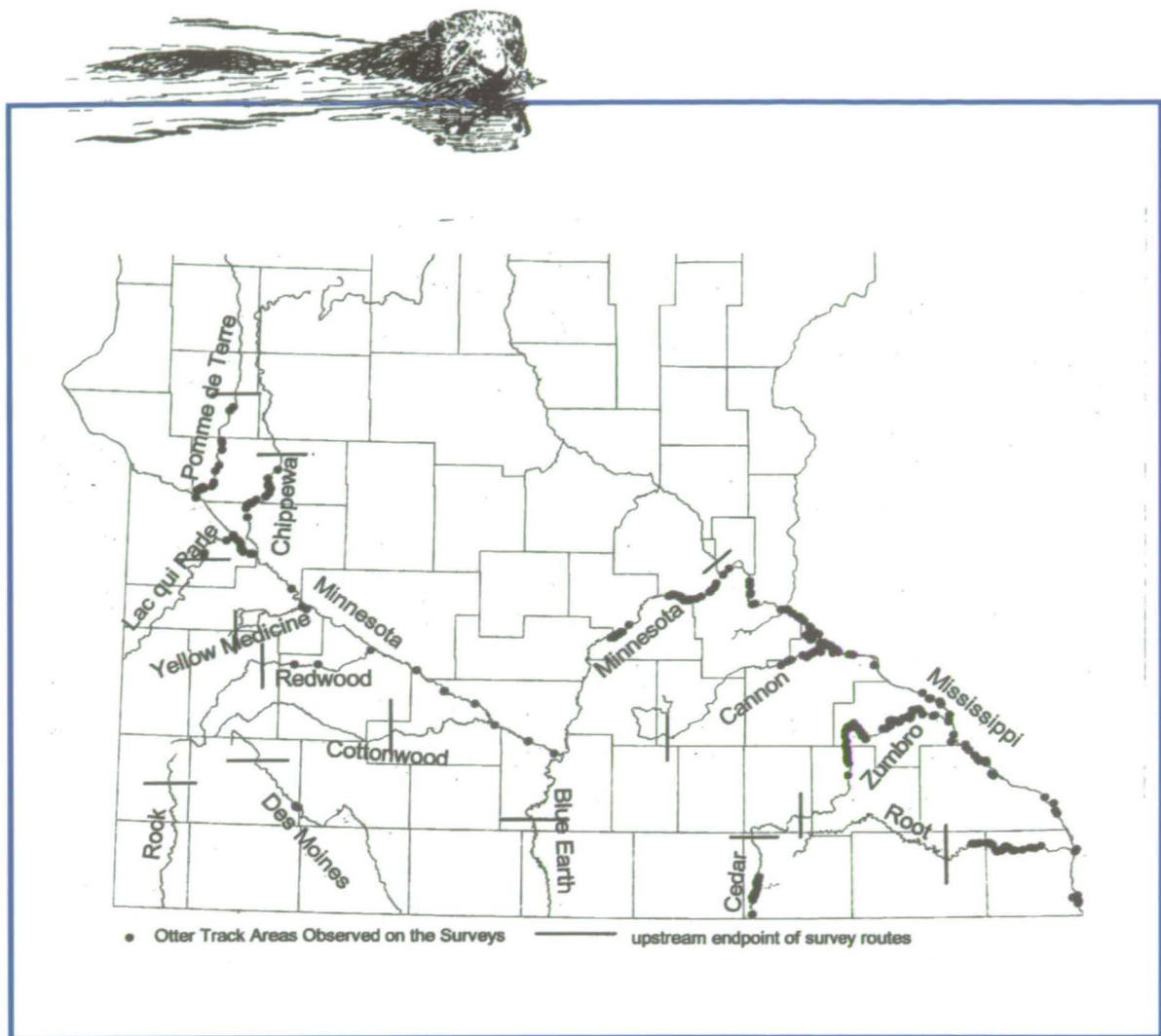


Figure 4
MnDNR 2000-2001 River Otter Survey in the Minnesota River Valley

Habitat Monitoring

Oak Savanna Habitat

The Refuge continues a monitoring program on two oak savanna restoration sites. One of these is located in the Louisville Swamp Unit where eight permanent vegetation monitoring plots were established in 1997 and baseline (preburn) data were collected from a 15-acre study area. Information was collected on all overstory trees (with dbh > 15 cm), pole trees (dbh \geq 2.5 cm and \leq 15 cm), seedling trees (< 2.5 cm), herbaceous plants (along a 50-cm transect using the point-line intercept method, and percent canopy (using a densiometer). Selective cutting, hydroaxing and fire are the main management tools used to restore degraded oak savanna. Non oak overstory and pole size trees were hand cut prior to 1999, the area near plot 18 was hydroaxed in January of 1999, and the rest of the study area was hydroaxed in January of 2001. Post management monitoring data was collected in Summer 2001, prior to any prescribed burning, so the trends reflected below relate to the hand cutting and hydroaxing only.

1. A slight decrease in the overall percent canopy was observed (from 87.7% in 1997 to 78.6 % in 2001 as a result of many overstory and pole size trees being cut (Figure 4). The biggest declines occurred in plots 18, 21, 23 and 24 which were the result of cutting hackberry, American elm, boxelder, silver maple and basswood. The overall decline was less than expected but may be a result of trees left in areas that were not hand cut, or that since the trees grew so close to oaks the crews let them stand. We will look at this area in 2003 to see if additional trees can be cut to further open the canopy in the range of 30% to 70% throughout the area.

2. Overstory trees are now dominated by bur oaks since selective cutting reduced most of the other dominant trees. A few large hackberry, American elm, black cherry, green ash and boxelder still exist. Most of these trees will be cut in the future unless they are large old growth that do not interfere with restoration efforts.

3. Cutting and hydroaxing removed most of the pole size trees in the study area. Out of the fifteen species that were present in 1997, only three species remained including buckthorn, hackberry and black cherry. As more of the area is cut and burned, we expect these species to decline also.

4. Seedling trees decreased but were still very abundant in the understory. Seedlings were dominated by the invasive buckthorn. Hackberry and elm seedlings increased due to the removal of larger trees that opened up the canopy.

5. In the herbaceous layer, overall native species coverage decreased slightly (from 80.5% in 1997 to 75.4% in 2001). This decline was the result of increased nonnative woody vegetation (Figure 5) which was primarily represented by buckthorn. A total of 77 native and nonnative plant species occurred. Trees, shrubs and vines comprised over 75% of all herbaceous forms, while grasses only 5.9%.

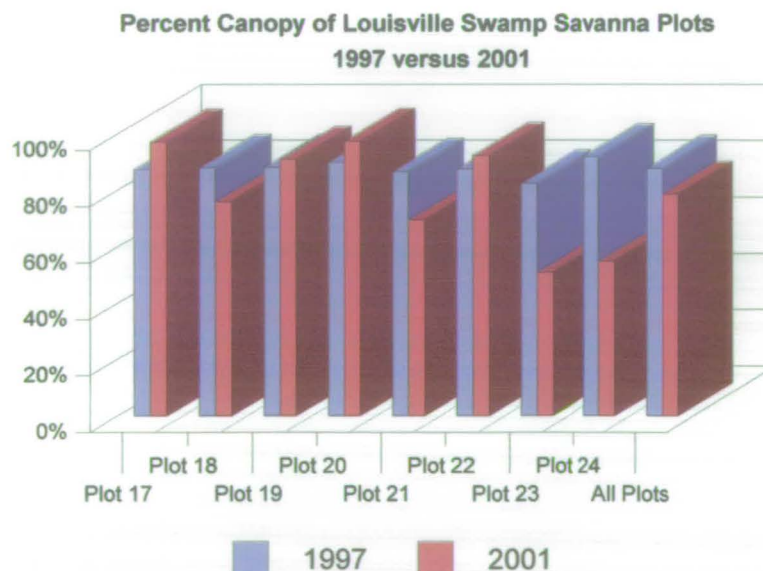


Figure 5
Percent canopy of Louisville Swamp Savanna Plots, 1997 versus 2001

Since the area had been cut and hydroaxed but not burned prior to the monitoring in 2001, preliminary analyses show encroachment of brush species and only slight declines in percent canopy, pointing to the need for increased management. Therefore, the entire area was burned in spring of 2002. Since a lot of buckthorn still remains, plans are in place to hand cut the buckthorn in the Fall of 2002, followed by spring burns in both 2003 and 2004. In addition, remaining non oak overstory trees will be cut to further open the canopy. The progress of restoration will then be reassessed in the Summer of 2005.

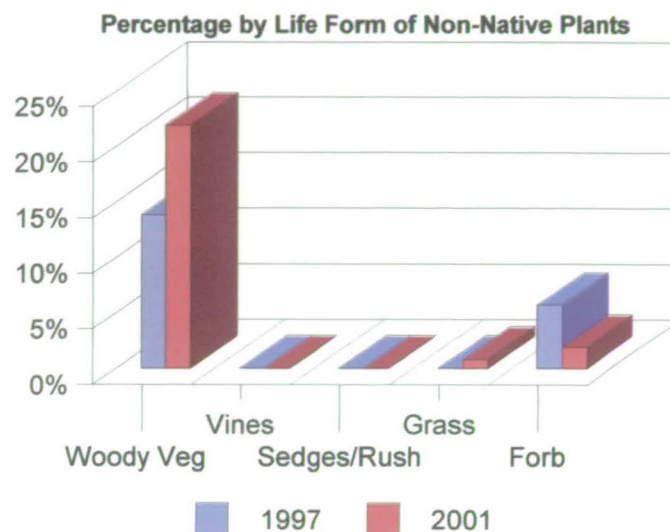


Figure 6

Percentage of nonnative plants found at the Louisville Swamp Savanna represented by each life form for both pre burn (1997) and post burn (2001)

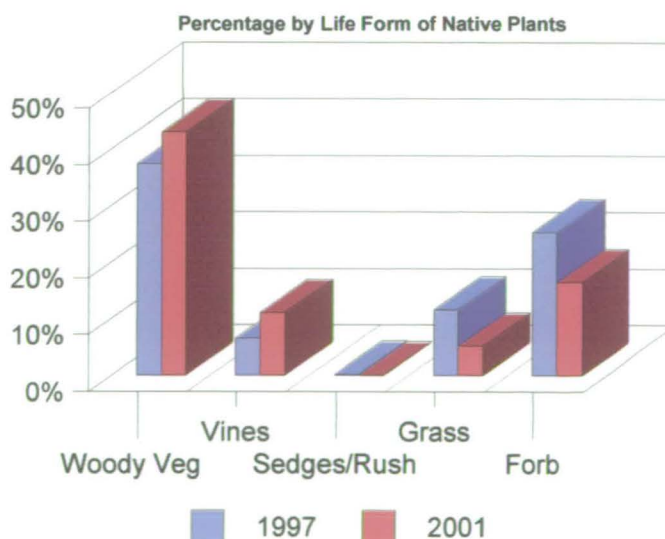


Figure 7

Percentage of native plants found at the Louisville Swamp Savanna represented by each life form for both pre burn (1997) and post burn (2001).

At the Rapids Lake Unit, a 200-acre site is being restored predominantly with fire and selective cedar and brush removal. Baseline data was collected on ten monitoring plots in 1998 throughout a 27-acre study area, and was reassessed in 2001. Restoration efforts included the cutting of red cedar in 1999, prescribed burning near (not on) plots 4 and 5 in 2000, burning of plot 10 in 2001, hydroaxing some of plot 6 in 2001 (following the monitoring), and during the Spring of 2002, plots 3, 4, and 5 were burned. Since the only management changes that occurred on the plots from 1998 to 2001 were due to selective cutting, they are the only effects that will be discussed at this time. The only exception was that plot 10 was burned in 2001. Since it was too early to monitor plot ten after the burn, this data will be collected at a later date and was not included in the present analyses.

1. Overall percent canopy did not significantly change in the area and is ~32%, within the range for an oak savanna. However, most of this area is fairly open canopy and we may have to look at the canopy on a broader scale to assess whether additional overstory trees will need to be removed.
2. Overstory is dominated by bur oak, although red cedar, hackberry and pin oak are represented. Most of these overstory trees will remain except the red cedars will be cut in the future.
3. Selective cutting has eliminated almost all of the red cedar pole size trees (there is only one remaining out of the sixty observed in 1998). Remaining pole size trees include hackberry, elm, and one nonnative Siberian elm.
4. There was an increase in the number of seedlings of all tree species found in the area. Bur oak, slippery elm, hackberry, and Siberian elm showed the greatest increase in the two years since baseline measurements.
5. In 2001, the herbaceous layer comprised only 26.9 % native species. The area was dominated by grasses (67.2%). Almost all were nonnative such as bluegrass, smooth brome and quack grass. Although most were present in only small amounts, 98 species occurred on the study area with most being native (68).

This data shows that the area has a large component of nonnative grasses and tree seedlings. Prescribed burning may help us deter the nonnative in favor of native grasses and forbs, however, this cannot be assessed until successful burns are conducted on the plots. If no burning of plots occurs in 2003, plots 3, 4, and 5 will be monitored to assess post burn effects from the 2002 burn. However, the fire plan calls for the whole study area to be burned in 2003. If weather conditions allow this to happen, the area will be monitored in 2004 to assess post burn effects of the entire study area.

Prairie Habitat

The Upgrala Unit's native bluff prairie near the Flying Cloud Airport was successfully burned this year for the first time in Refuge history. Grassland transects that were established in 2001 were again monitored this summer in order to assess pre burn and post burn differences. Although the data has just begun to be analyzed, there are some notable changes between pre burn and post burn data. The species diversity along the ten 30-meter transects increased slightly after the burn (Figure 7). In 2001, thirty-four species were found on the transects and in 2002 forty-three species were noted. See Table 2 for new plants that were found in 2002. The most notable species increase

were native grasses, especially side oats grama, sand reed, and Indian grass. Perhaps more noticeable than the diversity is the obvious visual increases of the height and coverage of the grasses in 2002 (see photos 2 and 3). The data will be further analyzed in the future to document the height and percent coverage changes by species. This year's differences may have occurred for several reasons:

1. Burning may have exposed the substrate and caused seeds in the seed bank to germinate. This coupled with above average rains this summer caused new plants to appear in 2002.
2. The prescribed burn and above average rains caused plants to thrive in the wet conditions that followed the spring burn in 2002. This perfect growing year caused the plants to thrive and produce seed heads.

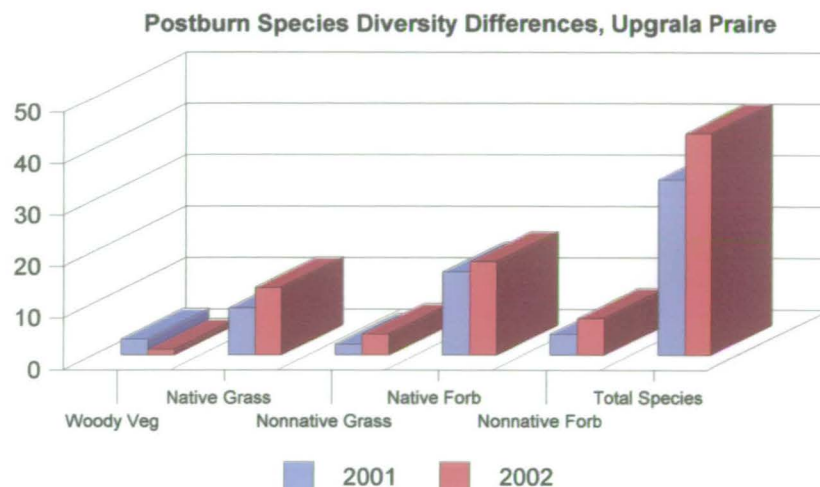


Figure 8

Differences in the number of species found pre burn (2001) and post burn (2002) at the Upgrala Bluff Prairie according to life form.

Although preliminary data shows some post burn differences in the Upgrala Prairie, the area will need to be reassessed in 2003 to observe whether similar changes occur after a full growing season.



Upgrala Bluff Prairie at plot number one prior to the burn (2001 pre burn monitoring). Photo by Vicki Sherry



Upgrala Bluff Prairie at plot number one after the burn (2002 post burn monitoring). Photo by Vicki Sherry

Table 2: New plants found on established transects in 2002 at the Upgrala Bluff Prairie.

Species	Common Name	Native	Life Form
<i>Berteroa incana</i> *	hoary alyssum	No	Forb
<i>Bouteloua curtipendula</i>	side oats grama	Yes	Grass
<i>Calamovilfa longifolia</i>	sand reed	Yes	Grass
<i>Chenopodium praetericola</i>	none	Yes	Forb
<i>Cyperus lupulinus</i>	flatsedge	Yes	Grass-like
<i>Elymus canadensis</i>	wild rye	Yes	Grass
<i>Eragrostis spectabilis</i>	lovegrass	Yes	Grass
<i>Euphorbia glyptosperma</i>	ridge-seed spurge	Yes	Forb
<i>Helianthus laetiflorus</i>	sunflower	No	Forb
<i>Lactuca serriola</i>	prickly lettuce	No	Forb
<i>Melilotus alba</i> *	white sweetclover	No	Forb
<i>Mirabilis nyctaginea</i>	umbrellawort, heart-leaved	Yes	Forb
<i>Physalis virginiana</i>	Virginia ground cherry	Yes	Forb
<i>Poa pratensis</i>	Kentucky blue grass	No	Grass
<i>Setaria glauca</i>	foxtail	No	Grass
<i>Solidago canadensis</i> *	tall goldenrod	Yes	Forb
<i>Sorghastrum nutans</i>	Indian grass	Yes	Grass
<i>Sporobolus cryptandrus</i>	tufted dropseed	Yes	Grass
<i>Strophostyles leiosperma</i>	wooly bean	Yes	Forb
<i>Tragopogon dubius</i> *	goatsbeard	No	Forb
<i>Trifolium pratense</i>	red clover	No	Forb

*Note: These species were not found on transects in 2001, but were observed within 5 meters of the transect line which is noted during the standard protocol.

Floodplain Habitat

Baseline monitoring data was collected on floodplain monitoring plots to initiate a three-year study. This study will assess a variety of methods to reduce reed canary grass and to increase the success of floodplain forest restoration. The Pahl Fields were divided into nine sections and will be subjected to eight different treatments, with one additional section being left untreated to serve as a reference area. The treatments include:

1. Spring Mowing and Spraying
2. Spring Mowing, Spraying and Disking
3. Fall Mowing and Spraying
4. Fall Mowing, Spraying and Disking
5. Spring Burning and Spraying
6. Spring Burning, Spraying and Disking
7. Fall Burning and Spraying
8. Fall Burning, Spraying, and Disking

The baseline vegetative data is currently being analyzed and treatment of the areas will begin in the Spring of 2003.

1.b. Studies and Investigations

Tom Cooper, a PhD graduate student with South Dakota State University, initiated his research project entitled "Land Stewardship, Habitat Protection and Avian Occurrence of Minnesota Valley National Wildlife Refuge and Wetland Management District. This project will provide the Refuge with a geographic information system layer showing where lands are currently protected, identify areas where important habitats exist (forest, grassland and wetland), identify where avian species of concern are located and examine how their distribution is related to current habitat conditions at multiple scales. It will also help determine the importance of short duration habitat programs to species diversity, abundance, and distribution. Preliminary field data was collected in 2002 and the actual research project will begin in Spring 2003.

Minnesota Department of Agriculture Weed biocontrol experts and the Refuge jointly worked on a project to assess the effects of fire on the insect component of the Upgrala Prairie. Pre burn (2001) and post burn (2002) collections were made along vegetation transects established by the Refuge. The Upgrala Prairie is one of the most successful biocontrol rearing areas in the State, and both parties are interested in the effect fire may have had on the insects. Department of Agriculture entomologists are currently identifying the Summer 2002 samples and will report their findings to the Refuge in February of 2003.

The City of Burnsville requested permission to access the Black Dog Unit to conduct surveys associated with the City's Breeding Bird Atlas. Although a few surveys were conducted this year, the final product will be a series of maps for each species that can be overlain onto land cover and other maps using the Geographic Information System. The contractor is still collecting data and will present the final product to the Refuge at the completion of the project.

2

Habitat Restoration

2.a. Wetland Restoration

On-Refuge

Wetland restoration efforts on Refuge lands focused on Waterfowl Production Areas (WPA's). These efforts resulted in 31 wetland basins restored totaling 32 wetland acres. Focus areas and highlights of this year's work included restoration on the following WPA's: Malecha WPA in Rice County; Dodge Center Creek in Steele County; Hahn Lake WPA in Sibley County, and Fickling WPA in LeSueur County. Many of the wetlands completed this year on WPA's were temporary, ephemeral, and seasonal basins. The restoration of these basins add diversity to the wetland complexes already established on these sites and provide critical habitat for a myriad of wildlife species.

We are especially grateful to the many partners who provided the funds and resources to restore the aforementioned WPA tracts. Partners that provided critical funds for wetland restoration included: Ducks Unlimited, Pheasants Forever, Green Isle Sportsman Club, Conservation Partners of America, Minnesota Waterfowl Association, Minnesota Pheasants, and more than ten other local clubs. Please refer to Coordination Activities section 5.c. for a complete list of partners.



Restoration of a seasonal basin at Hurley WPA in Rice County. Photo by M. L. Malling

Off-Refuge

Through the Partners for Fish and Wildlife Program (PFW), off-refuge wetland restoration was completed on 30 private land tracts. The product of these restoration efforts yielded 52 basins totaling 236 wetland acres. Projects were completed in nine of the 14 counties managed by the Refuge. Approximately 65% of PFW projects completed were located in tributaries of the Minnesota River Watershed while the remaining 35% were completed in the Mississippi River Watershed. These projects were aided by partnerships with more than 25 conservation clubs, nongovernmental organizations, private landowners, the Natural Resource Conservation Service (NRCS), private corporations, and various Soil and Water Conservation Districts (SWCD). These collaborations continue to be the impetus that drives the PFW program. Funds from these partners were matched with several different grant sources including Metropolitan Council (MET), LCMR, Challenge Cost Share, Clean Water Action Plan, Conservation Partner, Prairie Pothole Joint Venture, Ducks Unlimited Marsh, and North American Wetland Conservation Act Grants (NAWCA). These contributed funds, matched with grant dollars, provided approximately 70% of the total funds needed to restore these wetlands.

Highlights of the PFW program on private lands in 2002 included:

1. Restoration of seven wetlands totaling twelve acres at the Kasparik site in Rice County
2. Restoration of a five-basin complex encompassing 27 acres on the Friedges track in Rice County
3. Enhancement of a 67-acre brood basin in Sibley County
4. Restoration of a 17-acre basin on an LCMR site in Blue Earth County
5. Restoration of 14 acres on the Voight CRP tract in Sibley County.



Friedges wetland restoration located in Rice County. Photo by M. L. Malling

Landowner Randy Stangler in front of wetland basin prior to restoration in 2001. Photo by M. L. Malling





Stangler wetland after wetland restoration in Summer 2002. Photo by M. L. Malling

Moe Metropolitan Council wetland restoration in Scott County after restoration. Photo by M. L. Malling



2.b. Upland Restoration

On-Refuge

Approximately 380 acres of prairie was restored and/or enhanced on Refuge tracts during FY 2002. All of these restorations took place on WPA tracts. Highlights of this past season included:

- 1) restoration of MN Valley NWR's 10,000th acre on Harley WPA in Rice County;
- 2) completion of seeding at Fickling WPA in LeSueur County; and 3) forb enhancement on the Howard Family Farm WPA in Blue Earth County.

Seeding was accomplished by Refuge staff and sportsman club volunteers. Native seed composition included the following species: big bluestem, Canada wild rye, Indian grass, switch grass, little bluestem, side oats grama, blue-Joint, Kalm's brome, prairie dropseed, and porcupine grass. The aforementioned species were seeded in conjunction with more than 40 species of forbs including species such as: compass plant, black-eyed susan, bergamot, wild garlic, butterfly-weed, vervain, and prairie blazing star. This diversity will provide important resource benefits during migration, including breeding, nesting, and feeding habitat for waterfowl, shorebirds, and other wildlife.



*Forb enhancement on Howard Family Farm WPA in Blue Earth County.
Photo by M. L. Malling*

Off-Refuge

Refuge staff, through the PFW program, provided native seed and technical assistance to more than 30 private landowners. Over 260 acres of native grasses were restored on private land in Scott, Carver, Rice, Blue Earth, Scott, LeSueur, Sibley, Washington, and Dakota counties. Most planting was done by utilizing a native grass drill for fluffy grasses while broadcasting more than 40 species of forbs. Seeding was accomplished by utilizing a host of partners including SWCD staff, private landowners, Refuge staff, and private vendors. We are most thankful to the many partners who provided in excess of \$100,000 in cash and in-kind services for prairie restoration on private land tracts. Highlights of this past year included 1) a 65-acre native prairie/savannah restoration at the Carpenter St. Croix Nature Center; 2) a 20-acre prairie restoration at the Ascher FWS easement in Carver County; 3) a seven-acre bur and swamp white oak savannah restoration at Dodge Nature Center; and 4) a 20-acre prairie reconstruction project on the Gode site in partnership with the Scott Conservation District. These tracts provide important water quality benefits, critical wildlife habitat for a host of species, and strengthen and foster new partnerships with the local community.



*Gode restoration site in Scott County. Photo by M.
L. Malling*

2.c. Deepwater/Riverine Restoration

Off-Refuge

Nothing to report

3 Habitat Management

3.a. Water Level Management

Successful management of water levels in the past few years has allowed us to hold some pools at normal levels this year. The semi-marsh conditions that resulted from the original drawdowns have remained in the wetland basins. This was the second consecutive year that the Minnesota River did not have an out of bank spring flood. When the river does not flood, our water management efforts usually yield good results. Beavers continue to be the main factor preventing successful draw downs on other pools. However, interns and volunteers did an excellent job of keeping water levels from exceeding normal pool. Our total acres managed this year was 1,389.

Rapids Lake

Since 1989 when Rapids Lake was first restored and began as flooded grazing land, it has progressed each year to become a quality wetland with all the components necessary for migrating waterfowl and waterbirds. This year was the second year that robust emergents including bulrush and cattail could be found on the south, east and north shores. The middle of the basin is also beginning to provide the kind of interspersion that is desirable for waterfowl habitat. Food resources continue to become more plentiful and diverse with an explosion of arrowhead and sago. Moist soil plants continue to do well along the margins of the basin.

Fisher Lake

Perhaps some of the best wildlife habitat ever found on Fisher Lake and the Refuge was present this year. Diligent attempts at draw downs have finally created excellent interspersion of cattail, bulrush, wild rice and arrowhead. Sago is becoming more abundant as water levels are maintained more at normal pool.

Rice Lake

Beaver activity again prevented the first full draw down. However, the lake was held one foot below normal pool for most of the summer season. Some moist plant production was evident, but an intensive beaver control effort will be needed next year in order to expose the mudflats of the basin.



Fisher Lake Vegetation. Photo by Tom Kerr

Blue Lake

Water levels were held high throughout the year in order to set back homogenous stands of river bulrush. This was highly successful. Vegetation opened and a future draw down will be used to support a greater diversity of plants.

Chaska Lake

A draw down was attempted for the first time on Chaska Lake since acquisition of the adjacent Lano property. Siltation in the outlet channel allowed for only a partial draw down. However, some gains were made in moist soil plant production along the margin of the basin.

3.b. Moist Soil Management

Reevaluation of Refuge moist soil units will take place to determine the wildlife benefits versus the drawbacks of fragmenting the flood plain forest. There was no management of moist soil units this year.

3.c. Graze/Mow/Hay

Nothing to report

3.d. Farming

Nothing to report

3.e. Forest Management

Nothing to report

3. f. Fire Management



Photo by Tom Kerr

A very strong effort was given this year by all staff to bring the fire program to a new level. This included such things as revision and updates of past fire data in the Fire Management Information System; rewriting prescribed burn unit plans; the use of Administrative (AD) hires for planning, prescribed burning and urban interface projects; rural fire department grant applications; negotiation of new and old cooperative fire agreements; and equipment upgrades. New fire positions and an overall expansion of the program will be the result of these efforts.

Burn Severity Monitoring

This year we began assessing the effectiveness of our prescribed burns by conducting burn severity monitoring following the completion of each fire. Both the substrate and the vegetative layers were given a rating of one through five (where 1 = Heavily Burned, 2 = Moderately Burned, 3 = Lightly Burned, 4 = Scorched, and 5 = Unburned) according to the protocol outlined in the National Park Service's Fire Monitoring Handbook. The mean and standard deviation were calculated for each burn unit to aid us in determining the intensity of the fire and how evenly it burned throughout the area. Burn severity for the vegetative

layer on Refuge fires ranged from 2.00 to 3.45 (average of all burns was 2.78), meaning that the vegetation was lightly to moderately burned. Standard deviations ranged from .442 to 1.41 (the lower the standard deviation, the more uniform the burn), and generally burns in grasslands were more evenly conducted than burns in brushy areas like degraded savannas. Areas that contained woody vegetation were patchy, and in many cases the area contained sections that were moderately or heavily burned and other sections were just scorched or in rare cases, were left unburned. Burn severity for the substrate ranged from 2.09 to 4.12, with most being considered lightly burned to just scorched. The standard deviation ranged from .468 to 1.27, with the more open grassy areas burning more uniformly than areas with a lot of standing trees and/or brush. This data will be used to examine whether the intensity of the fire is affecting the outcomes of our management actions, and in some cases, may change the timing of some prescribed burns to help us reach our management goals.



Prescribed burn on Upgrala Unit. Photo by Tom Kerr



Prescribed burn on Upgrala Unit. Photo by Tom Kerr

Prescribed Fire

A total of 18 prescribed burns was conducted for a total of 398 acres. Although the acreage was low for this many units, most of these burns were accomplished on high priority areas in an urban setting. This included the Louisville oak savanna restoration and the Rapids Lake goat prairie bluffs where fire has been absent for perhaps hundreds of years. The highlight of the season was an intra-agency "type two" prescribed burn conducted on the Upgrala Unit. This was a complex burn in a wildland-urban interface. The result was a successful cooperative effort with the help of resources throughout Region 3. The rare, native prairie bluffs that were burned responded very favorably with a flush of native grasses and forbs.

Fire Suppression

Seventeen wildfires were documented on the Refuge and Waterfowl Production Areas. Most of these were natural outs and were the result of illegal campfires. A smaller number were suppressed by Refuge personnel or cooperating local fire departments. Two staff members, Sarah Inouye and Cheryl Groom, participated on interagency wildfires in the western United States. 29

3.g. Pest Plant Control

In a continuing effort to control exotic species on the Refuge, approximately 161,550 leafy spurge beetles were collected from the Upgrala Unit and redistributed in other portions of this unit and the Wilkie Unit. This population has grown to the point that other Refuges are now harvesting and releasing these beetles. Beetles were provided to Sherburne National Wildlife Refuge and in the past, Big Stone Refuge has also received beetles.

Galerucella species



G. pusilla *G. calmarianensis*

Purple loosestrife beetle populations continue to grow and set back loosestrife in release areas, particularly the Wilkie Unit. Volunteers also aided in purple loosestrife control by hand-pulling individual plants on the Wilkie Unit. Spotted knapweed biological control insects are thriving and an additional 1,950 insects which were introduced on the Long Meadow Lake Unit.



Canada thistle

Canada thistle control was also conducted this year on the Refuge and on the Wetland Management District with approximately 400 acres being treated mechanically and chemically. Canada thistle is a major concern with our neighbors and county commissioners in farm country. All of the thistle was cut on waterfowl production areas or the Rapids Lake Unit of the Refuge.



Buckthorn

Buckthorn and other woody exotics were targeted for control as part of the National Fish and Wildlife Foundation (NFWF) grant that was carried out this year. The NFWF grant was a partnership effort between the Friends of the Minnesota Valley, the Refuge, Minnesota Conservation Corps (MCC), Ft. Snelling State Park, City of Bloomington, City of Burnsville, City of Eagan, Great River Greening, the Lower Minnesota River Watershed District and the National Park Service. The partners received \$40,000 from NFWF which was used to hire a coordinator from the MCC and contract a MCC crew to help with inventory and control. In total, 3,800 refuge acres were inventoried for buckthorn and 500 acres were treated with a combination of cutting and chemical control.

Restorable oak savannas were targeted for the cutting efforts and other forested areas were treated chemically. Many volunteers assisted with the cutting and a small four acre oak savanna and prairie community below the Visitor Center was targeted for restoration. In addition, partners adjacent to the Refuge treated over 150 acres and a second grant application was submitted for 2003.



Buckthorn

4

Fish and Wildlife Management

4.a Bird Banding

The USFWS, Region 3, established a 100-wood duck banding quota for the Refuge as our contribution to a much greater sample size for recovery analysis. Beginning on August 12 and continuing through September 8, we employed the use of swim-in traps to capture ducks on four sites both on and off-refuge. The traps were modified occasionally to account for fluctuating water levels and alleviate any site-specific problems. All of the sites with one exception had a single trap. Due to the abundance of wood ducks at Continental Grain, three traps spaced within a shallow, slow-moving creek were utilized.

A crew of summer interns augmented Refuge staff and allowed for both morning and evening banding at a number of the trap sites. The staff/volunteer time expended, amount of available light, and poor capture rates eventually led to reconsidering evening trapping and the value of focusing efforts on morning sessions. In very little time, a routine of baiting and setting the traps at dusk and then returning in the morning to process the captured waterfowl was established. Most mornings were greeted by five to twenty ducks. On a few special occasions the traps were found to be filled-to-overflowing with ducks making the banding process exciting, hectic, and sometimes confusing. Before each duck was released, it was affixed with a USFWS band, aged, and sexed.



*Interns aging and sexing ducks.
Photo by Ron Knopik*



Trapped ducks. Photo by Ron Knopik



*Aging and Sexing of a Mallard.
Photo by Ron Knopik*

In addition to the difficulties caused by fluctuating water levels, mink and raccoons were responsible for three duck-kills at two sites, Continental Grain and Fisher Lake. No ducks were captured at the Peterson Pond site party due to damage caused by a resident beaver on two occasions. Two interns contributed a great deal of time to our banding effort. They noted their whimsical perspective on the obstacles to setting up a trap in a wetland.

Our Interns' List of Whimsical Obstacles

- ☺ Hauling supplies down a steep hill, through a fence, and over three fallen trees
- ☺ Monster mosquitos
- ☺ Hauling supplies through water while fighting a zillion submerged trees
- ☺ The foul taste of duck weed
- ☺ Leeches
- ☺ Sticks, logs, stumps and trees underneath fences
- ☺ The loss and recovery of tools
- ☺ Leaky waders
- ☺ Strong smell of methane
- ☺ Incapacitating laughter
- ☺ Straddling an embankment edge with the truck
- ☺ Only a one-person bathroom at a local gas station



The trapping effort in 2002 yielded 305 ducks from four species. The overall quota of wood ducks was achieved. However, the goal of capturing 25 ducks in each age/sex class was not achieved. In total 133 wood ducks, 126 mallards, 45 blue-winged teal, and one green-winged teal were captured and banded. Amazingly, a male wood duck banded by staff in September of 2000 was recaptured at the same site. The band, being significantly worn, was replaced and the two-year-old male was soon released. Table 1 lists the age/sex classes per species for the entire banding season.

Photo 4: The recaptured male wood duck. Photo by Ron Knopik

Table 1: Breakdown of Age/Sex Classes Per Waterfowl Species

Species	Sex	Age	
		Adult	Juvenile
Wood Duck	Male	45	48
	Female	15	23
	Unknown	1	
Mallard	Male	11	41
	Female	37	37
Blue-winged Teal	Male	4	16
	Female	3	22
Green-winged Teal	Female	1	

4.b. Disease Monitoring and Structures

Nothing to Report

4.c. Reintroductions

Nothing to Report

4.d. Nest Structures

A component of the private lands staff efforts is the distribution of wood duck, bluebird boxes, and mallard nesting cylinders to private land owners. An estimated 50 wood duck boxes, 50 bluebird boxes, and 25 nest cylinders were erected on private and public lands. Participating landowners also receive literature on current practices involving placement and care of these boxes. The boxes were constructed by Refuge staff and volunteers. In the past, more than 600 nesting structures have been built through cooperative partnerships between Refuge staff, volunteers, and conservation organizations.

4.e. Pest, Predator, and Exotic Animal Control

In order to reduce damage to forested habitats and neighbors lawns and gardens, the Refuge makes a concerted effort each year to maintain whitetail deer populations at approximately 25 deer per square mile (winter count). Where possible, bowhunting is allowed to help in this effort. Where hunting is not possible, Refuge sharpshooters (Refuge officers, city police, and other trained shooters) have removed on average, 45 deer each year on the Long Meadow Lake, Blackdog, and Bloomington Ferry Units. In 2002, only 15 deer were removed due to little snow cover and our inability to attract deer into bait.

5

Coordination Activities

5.a. Interagency Coordination

Refuge staff met with City of Bloomington on two occasions to discuss the ongoing issue of the need for improved water quality and rate control of storm water runoff into Refuge water bodies. The City continued to plan with Refuge staff for the effective treatment of runoff from new and redeveloped areas within the Airport South sub-watershed. The Airport South sub-watershed outlets into the Hogback Pond wetlands in the Long Meadow Lake Unit.

Although water entering the Refuge is still a long way from meeting Refuge standards, the City did install solid waste screens in the storm water outfall lines to Hogback Pond and Pond C during 2000. Despite this, solids transported by late winter runoff from snow melt and early rains still lined the banks and shorelines of the ponds during the spring of 2001 and 2002. Why the screens failed to work is not fully understood as of this writing.

The Metropolitan Council Environmental Services Division completed the installation of an outfall pipe to Blue Lake. A Right-of-Way (ROW) permit allowing for the construction of an outfall pipe into Blue Lake was issued in 1999. A condition of the ROW permit was to replace and/or rehabilitate two water control structures on Blue Lake. Work was completed on the structure between Blue and Fisher Lakes, but work remains on the rehabilitation of the existing structure on Blue Lake outlet. Final inspection and subsequent acceptance and transfer to the Service is nearing completion as of this writing.

Private Land staff continues to work cooperatively with local Soil and Water Conservation Districts (SWCD), the MnDNR, the Natural Resource Conservation Service (NRCS), and local watershed districts in restoring, protecting, and enhancing our natural resources. The staff plays an active role in working with other agencies including participating in screening committees for the State's Reinvest-In-Minnesota and Farm Service Agency's Conservation Contract easement program, assisting with the SWCD and NRCS wetland restoration programs, and delineating lands for Wetland Reserve Program (WRP) easements in cooperation with NRCS. In addition, staff continue to attend SWCD annual meetings, township and county meetings, MnDNR planning meetings, and also is represented on the CRP, CREP, and RIM ranking boards. We appreciate the help which these agencies have provided and realize that we cannot achieve our goals and objectives without help from these important organizations.

We are honored to have two Minnesota Waterfowl Association (MWA) Biologists on our staff. Katy Fitzgerald and Tom Cooper continue to provide advice to private landowners within our 14-county WMD. Important components of their job include identifying new tracts for fee-easement purchase, authoring and implementing the plan of operations for each tract, restoration design and construction, landowner meetings, posting boundaries, and updating our Geographical Information System (GIS). They also attend club meetings and banquets, give presentations to school groups, and help with Refuge special event activities. We appreciate our strong partnership with MWA and look forward to maintaining this partnership.

Partners Dave Thill from Scott Conservation District and Tom Cooper from Minnesota Waterfowl Association standing by a wetland recently restored through the PFW program in Scott County. Photo by M. L. Malling



5.b. Tribal Coordination

Red Lake Tribe

Youth Fishing Day, held again this year, is a cooperative effort between the Red Lake Tribe and the Refuge. Over the years, we have established a strong relationship with the Tribe as we combine our staff and resources for the benefit of several hundred children. These children, residents in the Minneapolis/St. Paul area, are taught the basics of angling.

Mdewakanton Dakota Sioux

Refuge staff has frequently worked with Mr. Jim Warren, archivist for the Mdewakanton community located in Prior Lake, Minnesota. Jim has taken an interest in the Refuge and the cultural resources contained within our boundary. For a time, Jim also served as a board member for the Friends of the Minnesota Valley.

5.c. Private Land Activities

The Private Lands staff continue to be an integral component in the conservation community.

Children enjoying a Dakota County Conservation Days presentation. Photo by Ron Knopik.



The following is a list of Private Lands Program accomplishments during FY 2002:

- ✓ Provided technical assistance to more than 175 landowners regarding restoration and protection;
- ✓ Signed wildlife management agreements with 60 private landowners resulting in the restoration of more than 600 acres of wildlife habitat through the PFW program;
- ✓ Assisted landowners with other conservation programs such as CRP, CREP, RIM, WHIP, and WRP leading to an additional 2,000 acres of permanently protected wildlife habitat;
- ✓ Completed 100 acres of habitat restoration through cooperative agreements with SWCD offices;
- ✓ Authored and completed seven grant applications;
- ✓ Completed survey, monitoring, and restoration on more than 25 WRP tracts in partnership with Minnesota Waterfowl Association and the Natural Resource Conservation Service;
- ✓ Provided assistance to local schools and communities through environmental education programs such as Dakota County Conservation Days. The team gave 15 presentations to more than 1,200 children and adults regarding wetlands and prairie conservation within our 14-county WMD;
- ✓ Attended 20 club meetings and banquets;
- ✓ Identified, delineated, and restored more than 1,000 acres of land through the Small Wetlands Acquisition Program; and
- ✓ Attended five public meetings regarding watershed management and protection.

The Refuge completed its 10,000th acre of habitat restoration on the Malecha WPA in Rice County during FY 2002. The Refuge and partners will celebrate this occasion at Malecha WPA during the centennial celebration in May 2003. Tentative plans include a BBQ and an informal gathering to honor our many partners who have helped us achieve this monumental objective. We look forward to restoring and protecting habitat for wildlife and people for another century here at the Refuge.

6

Resource Protection

6.a. Law Enforcement

As the rural areas are becoming more urbanized, law enforcement issues and cases are increasing on the Refuge. Many of these incidents are considered "red tail light cases." This means that our law enforcement officers are seeing the end results, instead of catching the culprits red-handed. Some of the more noted high profile cases this year included two homicides. In June 2002, a homicide victim was recovered from the Minnesota River near the Long Meadow Lake and Black Dog Lake Units. In November, another homicide occurred within the Wilkie Unit. There was also one suicide on the Refuge. In October 2002, a body was found on the Wilkie Unit north of Rice Lake. The body turned out to be a missing person.

Dumping and littering tends to be our biggest challenge. These incidents also burden the refuge in cleanup costs. Approximately 60% of the cases assigned this year were for dumping and/or littering.

Vehicular trespass is another incident that took place quite frequently. The more rural Chaska and Rapids Lake Units experienced a lot of activity from All Terrain Vehicles (ATV) and snowmobiles. Increased efforts by Refuge and local law enforcement, and increased signage and gates have had good results in deterring this activity. Carver County Sheriff's Department issued 13 citations to one group of ATV's coming out of the Chaska Unit.

Improvements were made in communication and relationships with local and state law enforcement departments. The Refuge enhanced the safety of its officers by purchasing 800 MHz radios. With these Refuge officers will have the capability to communicate with other Metro agencies.

A number of interagency details were organized. One such detail was water patrol with the MnDNR law enforcement division on the Minnesota River. These patrols resulted in numerous citations and warnings for



*Louisville Swamp Hunters' lot dumping.
Photo by C. Jussila*



Wilkie Unit vehicle trespass. Photo by Scott Carlson



individuals who did not have fishing licenses, who exceeded the number of fishing poles, and for boating safety equipment, and other water related violations. The Refuge also permitted Carver County's Special Response Team to conduct search and rescue training on the Chaska Unit.

*Hunting patrol with MnDNR.
Photo by Chris Jussila*

6.b. Permits and Economic Use Management

No Right-of-Way Permits were granted during the year. However, a total of 35 Special Use Permits were issued. Seven of the permits were issued for trapping beaver, mink, muskrat and raccoon within the Black Dog, Long Meadow Lake, Wilkie/Rice Lake, and Chaska Units. Totals of 64 beaver, 317 muskrats, 38 raccoon and 16 mink were harvested during the season.

One cooperative farming agreement was granted to a farmer on Perbix WPA to prepare for seeding with native grass and forbs next growing season.

6.c. Contaminant Investigations

Todd Schmidt, a graduate student from the University of Minnesota, worked with the Refuge Biologist in developing the contaminant investigation proposal "Evaluation of Storm Water Management in the Watershed of Minnesota Valley National Wildlife Refuge." The investigation is intended to provide actual pollutant loading data to identify specific areas with elevated contaminant levels within the Smith-Wright and Airport South Subwatersheds. Although we recently received word that we did not receive funding in FY 2003, it ranked high in the process and will be resubmitted in 2004. Plans are in place to begin some pilot sampling in 2003.

There wasn't any major progress on the ongoing ecological risk assessment process being conducted by the Army within the Round Lake Unit. This study is part of the ongoing effort to assess the ecological risk from contaminants that came from the Twin Cities Arsenal to Round Lake.

6.d. Contaminant Cleanup

Nothing to Report

6.e. Water Rights Management

Nothing to report

6.f. Cultural Resource Management

As part of the Comprehensive Conservation Plan, the Service contracted for a Cultural Resources Management Plan for Minnesota Valley National Wildlife Refuge. The plan was completed by U.S. West Research, Inc., of Salt Lake City, Utah. Dr. Anthony Godfrey was the principal investigator on the project.

6.g. Land Acquisition Support

No additional lands were purchased for the Refuge during the year. As of this writing, nearly 11,500 acres of the 14,000 authorized acres have been purchased and/or are managed through easement or agreements. The priority for land acquisition in future years will be the Upgrala Unit and we are hopeful that Congress will approve Land and Water Conservation Funding for a portion of the unit. The Friends of the Minnesota Valley and the Trust for Public Lands are working on the Refuge's behalf in anticipation of obtaining \$4 million in Fiscal Year 2003. Another appropriation amounting to nearly \$5 million will be needed in subsequent years to complete the acquisition of this unit.

During the year, a total of 735 acres of fee and 99 acres of easement were purchased through the Small Wetlands Acquisition Program and added to our WMD. These tracts and their location are as follows:

Tract Name	Unit Name	Acreage	Type	County
Jerry Benrud Earth	Benrud West	160	WPA	Blue Earth
Francis Felber et al	Felber WPA	249	WPA	Waseca
Hilliard Dehning	Dehning WPA	156	WPA	Sibley
MN Pheasants	Straight River Marsh	170	WPA	Steele
St. Olaf	St. Olaf Easement	99	Habitat Easement	Rice

6.h. Threats and Conflicts

A variety of new and ongoing development projects in or near the Lower Minnesota River Valley potentially threaten the biological and aesthetic values of the Refuge. These projects are summarized below.

Bloomington Storm Water

Discussions continued with the City of Bloomington concerning storm water discharges onto the Refuge. In particular, Refuge staff commented on the Bloomington Alternative Urban review Assessment (AUAR) that was completed and approved by the City Council for the Airport East District. As in the recent past, we asked the City to find ways to significantly increase the quality of waters that are discharged into the Refuge through the City's storm water system.

Contained within the AUAR was a recommendation to expand the size of Pond C which is located adjacent to Cedar Avenue. We are continuing our dialogue with the City concerning this proposal and related storm water treatment issues. Pond C was constructed by MnDot for storm water treatment purposes at the time Cedar Avenue was constructed. Following the completion of Cedar Avenue, MnDot granted a conservation easement to the Refuge subject to its primary storm water treatment purposes.

As a related issue, Refuge staff are seeking funding to reconfigure the Visitor Center parking lot to accommodate water gardens. Following their installation, virtually all of the storm waters from this parking lot will be treated prior to its discharge in the floodplain. We are also hopeful that upon completion, these water gardens will demonstrate how onsite treatment can effectively and efficiently improve the quality of waters entering wild lands within an urban setting.

Amphitheater Proposals

The Q-Prime Amphitheater, which is proposed to be constructed within 300 feet of the boundary of our Louisville Swamp Unit, seemed to have ground to a halt during 2002. From what we understand, Scott County has not finalized the Draft Environmental Impacts Statement for this facility due to a lack of payment from the developer. At this writing, however, we understand that Q-Prime is planning to move this project forward in 2003.

The Burnsville City Council approved the construction of the Black Dog Amphitheater, which, upon construction, will be located approximately 1/2 mile west of the Black Dog Unit. This project is also on hold due to significant opposition and potential lawsuits by a host of opponents. In both cases, we oppose the construction of these amphitheaters since we believe no one can intentionally use the Refuge to dissipate noise. In essence, the developers believe that they have the latitude to discharge a pollutant, and in this case, noise, onto Refuge lands without the USFWS approval. It remains to be seen how all of this will play out in the end.

Mosquito Control

There were no meetings with officials from the Metropolitan Mosquito Control Commission (MMCD) this year. Mosquito populations were very high with the consistent heavy rains but no cases of Encephalitis or the West Nile Virus were reported near the Refuge this year. A long-standing refuge policy restricts any type of treatment, except in the case of an emergency where there is a real and imminent threat to human health.

Proposed Highway Project

The Minnesota Department of Transportation (MnDot) proposed a project on Highway 101 in Savage near the Wilkie/Rice Lake Unit of the Refuge. The preferred alternative would require the filling of wetlands on approximately 0.2 acres within the Refuge. Refuge staff submitted responses urging the consideration of alternatives that would not require fill.

Blue Lake Watershed Drainage Project

Refuge Staff met with officials from the City of Shakopee, Lower Minnesota Watershed District, and Spring Lake Watershed District concerning a proposal by the City to alter the current drainage pattern within the Blue Lake Watershed to accommodate new development. Refuge staff had many concerns on all the alternatives suggested since all could have major adverse effects on Blue Lake. No decision had been made as of this writing.

Storm Water Control Structure Rehabilitated

The City of Burnsville conducted rehabilitation work on the inlet of an existing storm water structure located at the toe of the bluff on the Blick Estate tract within the Black Dog Unit during the summer. Considerable erosion created a situation that prevented surface runoff from entering a treatment pond and caused degradation down slope to a designated trout stream. The stream is the same stream degraded during another storm water pond failure above the bluff in 2000. MnDNR trout stream specialists estimate it will take 20 years or more for the stream to recover.

Cedar Springs Development Proposal

The Refuge was very excited to learn a Low Impact Development Proposal had been submitted to the city of Burnsville on private land next to the Refuge's Blick Tract within the Black Dog Unit. The proposal would provide a demonstration site for viewing by future developers as a model to be used as a guide for development next to high quality natural areas. Unfortunately, the developer had to withdraw the proposal due to financial problems.

Cedar Grove Redevelopment Area AUAR

Refuge and Ecological Services Staff continued to work with the City of Eagan on a 258-acre redevelopment project adjacent to and up slope from Nicols Fen. The project has high potential for a Low Impact Development site that could serve as a model for other cities and developers. Considerable consideration is being given to maintain the water quality and quantity for the Nicols Fen.

7

Public Education and Recreation

7.a. Provide Visitor Services

The Refuge received 233,290 visitors from October 1, 2001 to September 30, 2002, which is a figure very close to that of the previous year. In Minnesota, 2002 was one of the wettest years on record in terms of overall precipitation, and this may have impacted our visitation. Our general Visitor Center visitation total for this period was 13,865, also very close to the total from last year. Approximately 11,000 school children came through the Visitor Center while participating in class field trip activities, while 3,500 people attended special events and group meetings held here. In total, more than 28,354 people spent some time at the Visitor Center in FY 2002.

All of the “**big six**” wildlife dependent recreational opportunities were offered on the Refuge: hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Staff efforts in regard to facilitating each of the big six will be examined, below, in greater detail.

Hunting

A significant portion of the Refuge is open to hunting where public safety is not a major concern. In particular, waterfowl hunting is allowed on portions of the Wilkie and Louisville Swamp Units. Likewise, archery hunting for deer is allowed on the Wilkie, Rapids Lake and Louisville Swamp Units. Small game and turkey hunting is allowed in the southern half of the Louisville Swamp Unit and on all of the Rapids Lake Unit. Due to safety concerns, the use of centerfire rifles is not permitted on the Rapids Lake Unit.

With one exception, hunting is permitted consistent with state regulations on all waterfowl production areas. Due to the proximity of several homes near the Soberg WPA, the use of single projectiles (rifles or shotgun slugs) is not permitted.

Young Waterfowlers Program

A total of 18 youth and 16 mentors participated during the this year's 20-hour training program conducted cooperatively with the Minnesota Waterfowl Association. In addition to the actual hunt, duck and goose calling and the field day exercise continue to



Youth Waterfowler, Jon Gibson Jr and mentor, Dick Douglas having a successful hunt. Photo by T. Schreiner

be favorites among participants. Fisher, Blue, Long Meadow Lakes and Continental Grain wetlands were opened to participants during the Youth Hunt on September 14. A total of 54 ducks and 12 geese were harvested. The annual wild game appreciation dinner was held on February 23, 2002 for participants, mentors and their families. Approximately 35 people attended.



*Hunting blind for physically challenged at Upgrala Unit.
Photo by T. Schreiner*

Waterfowl Hunting for Sportsmen and Sportswomen With Disabilities

Another successful year was realized in the hunting programs for people with physical challenges. A total of ten physically challenged and nine able-bodied hunters participated in harvesting 17 ducks and 28 geese. Three physically challenged youth hunted on Youth Day, September 14, 2002.

Capable Partners, a nonprofit organization dedicated to providing outdoor experiences to our disabled public, was granted a special use permit which included guidelines for conducting the hunt. The Refuge provided and maintained the facilities which includes two blinds and a boat dock. Capable Part-

ners handled reservations and conducted the hunts. The facility is located on the north shore of Rice Lake within the Upgrala Unit. Participants of the program also joined in the festivities during the Young Waterfowler wild game appreciation dinner.

Potential New Program

Pheasants Forever contacted Refuge staff concerning a proposal to conduct a Upland Wildlife Educational Day and Youth Mentor Hunt on Refuge lands. The program would mimic the Young Waterfowlers Program focusing on hunter ethics and safety. The hunt would be a pilot program subject to evaluation after two years. Pheasants Forever is working with the MnDNR to obtain approval for the program which is to begin within the next two years.

Fishing

Although not the primary source of visitor interaction with the Refuge, Minnesota Valley continues to be used by a wide diversity of people seeking fishing opportunities. Volunteer Ranger observations of people fishing on the Refuge seem to indicate that the level of fishing activity remains fairly constant from season to season. Mostly due to location and accessibility, the two highest frequented spots for fishing continue to be in the Black Dog area, Long Meadow Lake, as well as bank fishing along the Minnesota River. Carp and catfish continue to be the most abundantly caught fish. The Bass Ponds was also an attractive place for anglers, primarily because of outstanding accessibility and convenient location. As was also noted last year, anglers from many cultures are using the Refuge. In particular, it is common to see anglers of Eastern European, Hispanic and Asian descent using Refuge facilities. With visitor safety always on our minds, volunteers and staff continue to inform all anglers of the potential health risks of consuming fish taken from the Minnesota River.

Youth Fishing Day

The 2002 Youth Fishing Day was held June 8 to celebrate National Boating and Fishing Week. The event consisted of seven learning stations and hands-on fishing in the Youth Fishing and Hogback Ridge Ponds. Various sponsors, including Bureau of Indian Affairs, General Mills, and Gander Mountain, helped make the event a success. One hundred and fifty inner-city youth attended the morning session and were provided with a mid-morning snack, and a fantastic walleye (or hot dog) lunch provided by the Red Lake Tribe and the Holiday Inn #2 personnel. The youth also left with a fishing rod and a "goody" bag filled with lures and educational materials, all to ensure that these youngsters will remain "hooked on fishing". The afternoon was open to the general public. By day's end, more than 600 people, young and old alike, attended the event. The event was a tremendous success, due in a large part to the sponsors and 160 volunteers.



This accessible fishing pier attracts users with limited mobility. Photo by S. Ford

Wildlife Observation



The Refuge is growing in stature as a gathering point for birders from all over the country, and even served as host for field training exercises as part of the 2002 Watchable Wildlife Conference, held in St. Paul. During peak migration times, the two locations which are most frequented by people wishing to add to their "Life Lists" are Bass Ponds and the Old Cedar Avenue Bridge. The presence of a whimbrel, as seen by one of the Refuge staff near Rapids Lake in early spring, was the cause of great interest locally. Several Refuge volunteers, as well as staff, continued the tradition of conducting exceptional birding programs throughout the year. These programs are designed to assist visitors in wildlife viewing etiquette and identification no matter what their level of proficiency. Volunteer Craig Mandel continues to draw large audiences for his frequent "Bird Watching Treks" around the Refuge.

Wildlife Photography

Last year, a contribution by the Nature Photography Club was used to construct two wildlife photography blinds to be used on the Refuge. The blinds, which have not yet been placed out on the Refuge, are designed to be mobile so they can be moved during flooding and to new sites periodically. Tree Trust was responsible for constructing the blinds during the winter of 2002 and Refuge staff will soon be placing them on the Refuge for use.

Project Bird Feeder

Guided by our mission and recognizing the increasing popularity of backyard bird feeding, the Refuge has undertaken an ambitious project designed to expand and improve its existing bird

feeders and surrounding landscape. Creating a "dynamic living exhibit", by attracting a greater diversity of birds that inhabit the area, will hopefully enhance the wildlife watching experience of all visitor center visitors. Adding value to existing environmental education program curricula is one goal of this project. Using the MnDNR Landscaping for Wildlife publication as a guide, along with input from numerous sources, a proposal was developed and initiated in 2002. Through encompassing numerous outdoor as well as indoor elements, visual, auditory, and informational opportunities will be created for Refuge guests. Although the primary focus of this project will be to attract avian species that either reside in or migrate through the area, attention to the surrounding area will also be given. Refuge staff and volunteers will plant and maintain native trees, shrubs, and perennial grasses/forbes in the area surrounding the feeder arrangement.



Photo by Judie Miller

An interpretive learning station has been planned for an appropriate location in the visitor center. Plans for this station include natural history and phenology information on commonly seen native plants and birds, seasonal bird identification posters, and a "bird of the month" fact area. There will be a computer station with a CD-ROM program that visitors may use to learn different birds and their calls. Also, a sitting/viewing area is being developed for visitors to sit comfortably and observe the birds, while browsing bird related materials and books.

Many partnerships have been formed because of this project. A local merchant specializing in birds has made many suggestions on feeder types and food choices and has offered to donate numerous items toward the completion of the project. This merchant has also offered discounts on seed purchase and free seed delivery. Members of the Minnesota Native Plant Society have agreed to design the landscape plan and they have submitted a MnDNR Environmental Partnership Grant on behalf of the Refuge. The total amount of the grant, recently awarded, is \$4,000. Also, a local nursery specializing in local ecotype seed-grown native plants, has offered the Refuge an up to a 50% discount on any plant purchases made.

As of the fall of 2002, buckthorn and other invasive species are being removed to prepare the bird watching area for native plantings in spring 2003. The final landscape design is close to being completed.

Environmental Education

Environmental education efforts continued at a strong pace in FY 2002. A total of 10,989 school age children from all grades, and all parts of the metro area took part in Refuge programs. Efforts were initiated at the end of the fiscal year to begin an ambitious outreach program. These efforts should begin to show some results next year with a greater number of contacts being made.

Partner School Program

This program was revived in 2001 and really began to work well in 2002. The Partner School Program is in

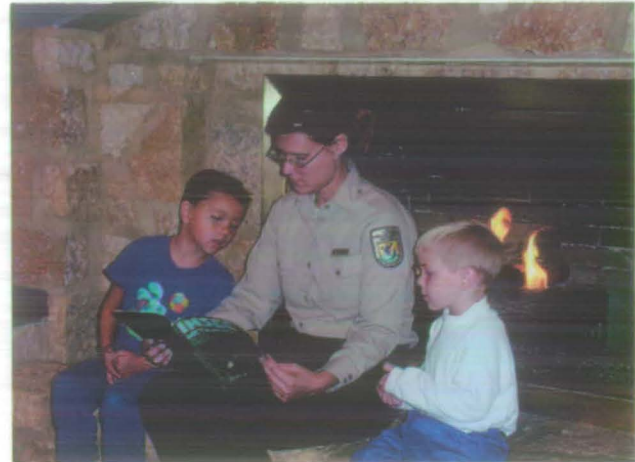


Ed Moyer and Sarah Inouye leading a group through the Visitor Center. Photo by S.Ford

place to help underfunded inner city schools, who are within close proximity to the Refuge, use the Refuge for the benefit of their students. The partnership creates opportunities for school kids to experience the Refuge and learn about the environment. It gives Refuge staff an opportunity to interact with the same kids on a recurring basis, increasing their familiarity with, and sense of ownership of the Refuge.

The current partner school program schedules 3-6 classroom visits by Refuge staff, and a minimum of one field trip to the Refuge by each participating class. Three schools are currently active in the program, and active they are! Those partners not able to visit the Refuge in person still receive a great deal of attention. In all, 28 in-class Ranger visits were held, contacting a whopping 1,361 students. As for their part of the partnership, some schools bring the kids out to the Refuge for a second visit, consisting of service learning projects, while some allow teachers and school staff to volunteer their time to assist with the environmental education activities.

We also supported one of our partner schools in their efforts to obtain a local environmental study grant. Northrop Elementary School in southeast Minneapolis celebrated Earth Day in a big way on April 25th. The Earth Day event was also used as the "kick-off" for the HYPE (Helping Youth Promote Empowerment) Grant, which Northrop Elementary applied for and received. Refuge staff joined with three school board members, Minneapolis Mayor R.T. Rybak, the mayor's staff, and several reporters from local television stations and newspapers to make the official announcement.



"Tales from the Hearth", Environmental Storytelling. Photo by Scott Ford



Sarah Inouye teaching children about habitat. Photo by Scott Ford

The HYPE grant provides funds for work relating to conservation and community service projects on school grounds. Refuge staff supported the grant application by discussing and designing projects with the school. The Refuge also wrote a letter of support committing to assist the school with these projects. Grant supported activities include mapping and identifying all the plants on the school grounds, aging all the trees, and producing a bilingual brochure for the general public to use during self-guided walks on the school grounds.

Students will map the school grounds and they will create a prairie or butterfly



Kristi Neilson teaching young bird watchers to use binoculars.

garden on the school grounds. In addition to the academic portion of these projects, these students will learn to plan, be motivated and engaged, show individual responsibility, and develop self-esteem through a community service project. Refuge staff are assisting with this project, offering technical advise and educational materials.

Curriculum Development

A critically important update to the Refuge environmental education program curriculum was initiated in 2002. For several years, EE/I staff have been presenting environmental education programs under the umbrella theme of "How Shall We Live Together?". This theme explores the diversity and

complexity of human/natural world interactions and their resulting impacts. In some way, all group presentations are tied together by this theme.

Our first step toward curriculum development was to contract the service of Seliesa Pemberton. "Sil" was retained to assist Refuge staff in updating and rewriting existing environmental education curricula to better serve teachers by adding activities into programs which would help them in addressing Minnesota State Graduation Standards. Sil has many years of experience in curriculum development for nature centers, and is also assisting the Prairie Wetlands Learning Center with their curriculum development.

Another positive step made in 2002 was the initiating of an interpretive theme review and exhibit sequence proposal through Wilderness Graphics (WG) Inc. This Tallahassee, Florida based company has the "Indefinite Quantities" contract for Region 3 for interpretive services, and has a long and productive history of providing high quality interpretive exhibits and other products to national wildlife refuges. Through a series of discussions with WG, a new interpretive theme for the Refuge will present itself through an exhibit concept plan, which we hope to have funding to implement in the coming fiscal years. This new interpretive theme will then be the basis for any new environmental education programming provided to school groups.



Tracking wildlife programs are always very popular. Photo by Scott Ford

Big River Journey

The Refuge is a partner in Big River Journey (BRJ), an educational partnership project coordinated by the National Park Service at the Mississippi National River and Recreation Area (MNRRA). BRJ provides students and teachers of grades 4-6 an opportunity to directly

explore the science and heritage of the Mississippi River. Through spring and fall river boat field trips, teacher workshops, and classroom activities, BRJ seeks to connect participants with the river and its watershed, and offers a science-based foundation that supports river stewardship. In 2002, 36 field trips were provided to over 4,000 inner city school children, reflecting a wide range of cultural diversity.

Refuge staff recruits and trains volunteer BRJ interpreters to help us conduct the Refuge portion of BRJ trips - a wildlife observation and identification station near the bow of the vessel. Our partners in this effort are senior high school students from the School for Environmental Studies, Apple Valley, who are required to perform environmental/community based volunteer work prior to graduation.

Minnesota Environmental Education Advisory Board (MEEAB)

Scott Ford, Park Ranger, continued to serve as the Refuge liaison with this group. The MEEAB meets once a month at various locations around the metro area. Minnesota Valley played host to this group twice during the year. This group has one primary goal...to expand environmental literacy in Minnesota. Through various outreach methods, the group seeks to raise environmental awareness among the general population, business community, school children, their teachers, and governmental entities.

Bus Grant

There are many inner city schools in St. Paul and Minneapolis who are Refuge neighbors. These schools offer an opportunity for the Refuge to reach these students through environmental education programming. In general, inner city schools have very limited funds to spend on student field trips. Taking this "roadblock" into consideration, the Refuge partnered with the Minnehaha Chapter of the Izaak Walton League during the summer of 2000 and together, applied for an Environmental Partnerships Grant Program offered through the MnDNR. This grant, titled "Inner City School Environmental Education" was used to defray the cost of busing for some inner city schools. Through this productive partnership, many urban children have had the opportunity to attend environmental education programs and learn about different aspects of the Refuge and our natural resources.

During the period of this grant, nine different inner city schools came to the Refuge and participated in environmental education programs. Included were two of the Refuges' partner schools. Initially, Refuge staff traveled to these schools to provide programming because the schools could not visit the Refuge through their own means. The visits helped both teachers and students get enthusiastic about visiting the Refuge and about being good stewards and advocates. Some of the local inner city schools who benefitted by the use of this grant money include Willard, Dowling, Adams Magnet, Mounds Park Magnet, and Sheridan Elementary.

Altogether, 717 children directly benefited from this grant. These students were given an opportunity to come to the Refuge and participate in programs about wetlands, birds, insect,



*Children learning about the refuge.
Photo by Scott Ford*

habitats, animal tracks, and carnivore scent post studies. This grant was completed during the summer of 2002.

Teacher Environmental Education Workshop

On Wednesday, August 14, the Refuge, in partnership with the Dakota County Environmental Management office, conducted an all-day environmental educators workshop, which was held in the Refuge Visitor Center and surrounding grounds. Educators throughout Dakota County were invited to attend. Planning for the workshop began in fall, 2001, with registration being opened up to educators in April. The 35 spaces allotted for this workshop were quickly filled, and 29 teachers attended. Workshop participants were provided valuable information on the abundance of environmental education resources available to them in this area, as well as how to incorporate simple and effective lessons in their classrooms. Other agencies represented at the workshop were Dakota County Parks, Dodge Nature Center, National Park Service, MnDNR, and the Minnesota Zoo.



St. Paul Schools use the Refuge for summer programs. Photo by Scott Ford

Highlights of the day were the "hands-on" sessions where workshop attendees were encouraged to participate in and comment on new environmental education programs being offered by the various agencies. Of particular interest to the group was a recently developed program just added to the Refuge's fourth through sixth grade curriculum. This interactive story, entitled "Who Polluted the Minnesota River?" received a flattering amount of praise, communicated both verbally, and through post-workshop evaluations. On a six point rating scale, with six reflecting "excellent", our program received an overall rating of 5.7, which tied us for the top spot out of the ten programs offered! Workshop evaluations also indicated strong support for the continuation of this showcase for local environmental education providers. Noting its exceptional value, participants encouraged us to provide this workshop on an annual basis just prior to the beginning of each school year.

Scouting

Once again, nine different programs were offered for Girl and Boy Scouts in our 2001 - 2002 "Wild Things" catalogue. Twenty-one presentations were given during the FY 2002 for 242 scouts and their parents. "The Poisonous Path" and "The Invaders" are two of their favorites. The first encourages involvement by having each troop member "become" a certain plant along the trail. Rather than carrying pencils and clipboards, the troop becomes a "living list" of the species they've learned during the program. "The Invaders" encourages scouts and their parents to engage in some sanctioned destruction of European and glossy buckthorn within a defined 1/4 acre area. These invasive trees are counted as they are pulled which gives us a rough idea of densities/acre and the effort to remove them. All scouts then get to cut a hiking staff to take home with them as a souvenir of their experience.

Junior Duck Stamp Program

A large ballroom magically lit with stately chandeliers, 100 finely painted masterpieces showcased, and five-hundred guests thronged in the spacious hallall waiting to honor this

year's young artists, the 100 winners of the Minnesota Junior Duck Stamp Competition. This was the setting for the 2001-2002 awards ceremony on April 20 at the Minneapolis/St. Paul Airport Hilton Hotel. The Minnesota youngsters being recognized and honored had ambitiously studied North American waterfowl and its habitat before painting their entry for this year's

competition. Minnesota is one of the few states that honors the artistic talents of its youth with an awards ceremony.

Approximately 900 Minnesota students from 55 schools and 15 home schools participated in this year's Junior Duck Stamp Program. Students

painted forty different species of ducks, geese, and swan with the overwhelming favorite being the wood duck. Students used a variety of mediums including scratch board, acrylic, oil, pastels, chalk, colored pencil, watercolor, gouache, pencil and crayons. Students are increasing their observation skills as evidenced by the fact that students are painting the birds in flight as well as in the water and in the correct habitat.

The judging of the paintings took place on March 21 in Burnsville. The five judges who assembled for the difficult task of selecting this year's Minnesota Junior Duck winners included June Berwald, Vice-President, National Duck Stamp Collectors Society, Mark Herwig, Publications Editor, Pheasants Forever, Lance Kuester, Private Lands Project Leader, USFWS, Karen Latham, Wildlife Artist and David Maass, Wildlife Artist (Federal Duck Stamp Winner 1974-1975 and 1982-1983). "It was a tough job," remarked Karen Latham. "Each year the entries are getting better and better."

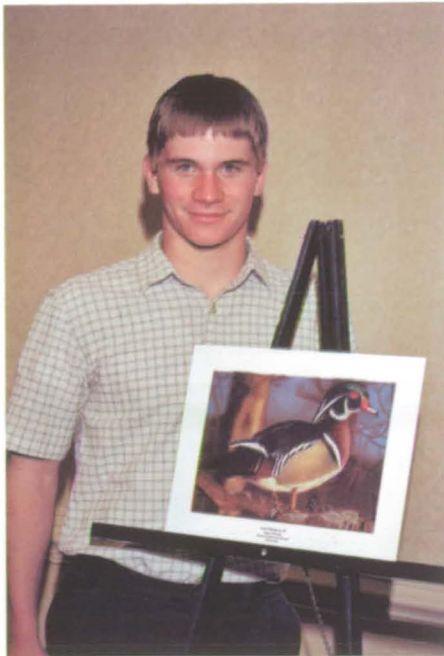
Levi Peterson, 17, took Best-of-Show honors with his rendition of a wood duck. Levi's painting, done in colored pencil, was selected as best from a field of 881 entries from talented students throughout Minnesota. Levi is a student at the Dassel-Cokato High School. His art teacher, William Esser, had twenty-four additional students who placed in the competition proving that the Dassel-



Junior Duck Stamp Ceremony. Photo by Mark Thompson



*Mn Junior Duck Stamp Judges
Photo by Mark Thompson*



*Levi Peterson with his painting.
Photo by Mark Thompson*

Cokato area is a hot bed for young artists. There was a total of 35 youngsters from Dassel-Cokato who were among the top 100 winners. These youngsters placed in all four grade categories, K-3, 4-6, 7-9, and 10-12.

Levi's painting was forwarded to the National Competition. This year's National Competition was held on April 27 in Ocean City, Maryland in conjunction with the Ward World Championship Wildfowl Carving Competition. Levi finished in the top ten. Natham Closson captured first place honors with his acrylic rendition of a mallard which will serve as the design for the next Junior Duck Stamp. The stamp sells for \$5.00 and is considered a collectable. The proceeds from the sale of the stamps are used to support the program. Natham Closson will also receive a \$2500 scholarship and a trip to Washington, D.C. later this year for an awards ceremony, held in conjunction with the Adult Federal Competition.

The Minnesota Junior Duck Stamp Program is

endorsed by the Minnesota Academic Excellence Foundation. Each year the program is open to students in grades K-12 and to home school students. The program is sponsored by the USFWS. This year the program received financial contributions from Region 3, Migratory Bird Program, from the Minnesota Waterfowl Association (MWA) and from the Challenge Cost Share Program. The use of the Hilton Ballroom for the ceremony was an in kind contribution from the Minneapolis/St. Paul Airport Hilton Hotel. In addition

the program received in kind contributions from Mark Thompson, Corporate Portrait Photography, from Jim Hautman, Bob Hautman, Cabela's, Hadley Company, Inc., Cheap Joe's Art Stuff, Dick Blick Stores in Minneapolis and Roseville, Wet Paint in St. Paul, Strathmore Artist Papers, Daler-Rowney, Chroma Acrylics Inc., Ampersand Art Supply, and Da Vinci Paint Company, Inc. plus 250 hours of service from volunteers.

The Junior Duck Stamp Program will start up again in the fall and it will incorporate the USFWS celebration of the Centennial anniversary of refuges. Teachers can look forward to receiving a teacher packet which will include materials on wildlife refuges. Teachers will be encouraged to involve their students and families with their nearest wildlife refuges.



*Levi Peterson's painting of a Wood duck.
Photo by Mark Thompson*

Interpretation

Volunteer Refuge Rangers continued their tradition of providing interpretive excellence for a variety of audiences in many different venues. Ranger staff and Volunteer Interpreters provided 139 programs. Final attendance figures for FY 2002 stood at 1,734 up from 1,345 in the previous year. These programs are advertised through the Minnesota River Valley Audubon Chapter newsletter, as well as in the Refuge Calendar of Events. Craig Mandel's birding programs continue to be the best attended of our interpretive programs. In addition to becoming our first Volunteer of the Year in 1993, Craig has dedicated approximately 3,000 hours to the Refuge as an interpreter, and has a tremendous following within the birding community.

Former Refuge Volunteer Interpreter Jack Lynch helped create an opportunity for an up and coming Park Ranger in 2002. Through a very generous endowment, Mr Lynch directed that a portion of his estate be held in trust by the Minneapolis Foundation. This fund was directed for use by the Refuge in hiring an intern so that they may obtain experience in providing person to person education and instruction in the fields of botany or biology. Molly Pagel was selected as the first Jack Lynch Fund recipient. Molly was a wonderful summertime addition to the staff.



Molly Pagel, Recipient of 2002 Jack Lynch Fund

2002 Metro Children's Water Festival

On September 25, two Park Rangers from the Refuge attended the 2002 Metro Children's Water Festival at the State Fairgrounds. In total, there were about 150 fifth graders from different schools around the Metro Area in attendance. The station hosted was by the Refuge was "Birds, Beaks, and Adaptations."

Dakota County Outdoor Youth Days

Over the course of four days, staff from MN Valley participated in the Dakota County Outdoor Youth Days in Farmington, MN. The days consisted of children from schools all over Dakota County coming and learning different aspects of the outdoors from different stations. There were twelve groups of approximately twenty fifth graders cycling through each station in twenty-minute intervals per day. In total, there were about 240 students per day.

At the Refuge station, staff talked students about waterfowl. Staff talked to the students about the characteristics and adaptations of waterfowl. To assist the students' learning, staff brought taxidermy specimens of a few ducks including a mallard, wood duck, ring-necked, and a hooded merganser. The students were also taught the difference between a dabbling duck and a diving duck.

International Migratory Bird Day - 2002

Our long-standing partnership with Como Zoo celebrating International Migratory Bird Day (IMBD) was discontinued in early 2002 and we scrambled to hold the event on-site at the Refuge. IMBD 2002 attracted just 52 people to the Visitor Center on a dark, rainy Saturday afternoon in May.



Our official greeter tabulated 43 adults and nine children participating in the event. The winner of our first IMBD poster contest arrived with her mother and two other adults. Five people learned about our IMBD event via the internet, 21 through a refuge mailing, and 17 people learned about us from local newspapers. Refuge partners in this day included the Friends of the Minnesota Valley, the Minnesota Waterfowl Association, and Northrop Elementary School, one of our Refuge Partner Schools. Six Refuge Volunteers assisted two staff members in putting on the events of the day.

Earth Day 2002

"Backyard Discoveries!" was the theme embodying this year's Earth Day celebration. Partnered with the Minnesota Waterfowl Association, the festival, held on Saturday, April 20 was a big success! There were numerous activities which melded with the celebration, including a youth art contest, construction of three large habitat puzzles, an outreach to school and after schools programs, and Refuge clean-ups. In total, there were over 700 individuals who in some way participated in these activities!



Earth Day 2002, Photo by Scott Ford

Prior to the main event on the April 20, we held a youth art contest centered around the theme of "Creative Pond Critter". Students from the Metro area were invited to be explorers in their backyards and pretend that they discovered a critter which has never been seen before. Students were given the freedom to use any medium, and some really great critters were invented. Some of the students even created scientific names for their discoveries. Entries were received from 270 students from eight different schools and youth organizations.

For the Earth Day celebration itself, many partnerships were created. One such partnership was developed with the Minneapolis Indian Center. The media group, consisting of more than twenty children, created three large, hand-painted, habitat murals (prairie, wetland, forest). These murals were then cut up and made into interpretive puzzles to be used at the festival.



Earthday 2002, Photo by Scott Ford

Earth Day committee members, as well as other Refuge staff, worked with at least five different school and youth organizations to offer interpretive outreach opportunities within the community. Approximately 100 youth were reached and given a new appreciation for their natural surroundings and a sense of stewardship.

Refuge staff also partnered with the Friends for two clean-up events. These events had approximately 100 attendees who removed over a ton of trash. Earth Day events in the Visitor Center included t-shirt printing, a kestrel program, face painting, bird walk, and many exhibits. More than 250 people attended.

Art Gallery Exhibits

The Refuge gives photographers and artists an opportunity to display their work while promoting its message of conservation. This year, the gallery hosted eight exhibits, each of a six-week duration. The exhibits focus on the environment. The mediums used in the art exhibits were not as varied as previous years. They were primarily color photography, watercolors, and pastels. Each artist hosted a reception which brought new visitors to the Refuge. Each exhibit was promoted in local daily and weekly papers and on various websites. Approximately 175 individual art pieces were hung. The gallery also hosted the Minnesota and Alaska Junior Duck Stamp Exhibits. The Gallery Exhibits included: "The Beauty All Around Us", color photography by Karl Blomseth, "Image~Diagram, Space~Place", cyanotype and digital images by Patrick Kelley, "The Wonder and Surprise of the Refuge, color photography by Patricia Kackman, "Photographic Glimpses of Nature



Photographic Image displayed in the gallery. Photo by Bill Johnson

- From Macro to Micro - ", color photography by Bill Johnson, "In Awe...a Photographic Tribute to Minnesota's Seasons", color photography by Andy Hall, "Six Artists - Six Views", transparent watercolors by Associated Watercolorists, "Lake Skies Series", watercolors and pastels by Nanci Yermakoff, and "Raptors, Minnesota Birds of Prey, color photography by Ron Winch.

Blufftop Bookshop

The Blufftop Bookshop, administered by the Friends and operated by Refuge staff, is conveniently located near the main entrance to the Visitor Center. The Bookshop continued to undergo various component upgrades throughout the fiscal year. As this report is being written, new bookshelves, new carpet, new lights and new chairs are all being installed. These upgrades were made possible by money obtained through the Challenge Cost Share program. Sales equipment such as the cash register and inventory software worked well all year long, with few if any delays in service. Inventory continued to be upgraded to reflect more mission oriented and environmental education messages, and received many favorable comments from visitors. In the Centennial Year of 2003, Refuge specific logo items and clothing will be made available for purchase. In FY 2002, the Bookshop sold items whose total value was \$17,371.92 as compared to \$12,800 in FY 01. This represents a profit of \$6,034.04 as compared to \$5,020 last year.

Resource Library Data

USFWS displays were used ten times by USFWS and public conservation agencies. Videos and films were used 207 times by teachers, USFWS agencies, and public conservation agencies. Information/resources were requested 32 times and the Educational Trunks were requested 30 times as follows:

Prairie Trunk	4
Project Wet Trunk	0
Suitcase for Survival	6
Songbird Trunk	5
Enviroscape Model	4
Wetland Trunk	2
Wolf Box	8
Zebra Mussel	1
Centennial Display	3
"Puddles" Requests	28



*Puddles,
Photo by Kristi Neilson*

7.b. Public Outreach

For the first time, the Refuge constructed and hosted a display for Minnesota Game Fair. The event drew 50,000 outdoor and sports enthusiasts for six days. The theme for the booth was "The National Wildlife Refuge System in Minnesota". It presented the public with information on refuges in Minnesota, the upcoming Centennial Year, programs, and opportunities.

The Junior Duck Stamp Exhibit traveled to ten different sites including schools, libraries, malls and state and county fairs. More than 150,000 people viewed the exhibit.

Judie Miller was detailed to Region 3 to create a special Centennial Brochure targeted for teachers. The full color brochure provided educators with the history of the National Refuge System and extended to them a special invitation to participate in the Junior Duck Stamp Program. The brochure was mailed to every school, school district, and library in the USA.

Twenty-five news releases were distributed to promote Refuge activities, special events, prescribed burns and volunteer activities. The Refuge webpage was maintained to reflect ongoing changes.

Other outreach activities included the celebration of the Refuge's 25th Anniversary and visits by several important guests.

Friends 25-Year Anniversary Celebration

Thursday evening, October 18 marked a very special occasion in the history of Minnesota Valley National Wildlife Refuge. From 5:30 to 7:30 p.m. the Refuge hosted at the Visitor Center, a diverse assemblage of folks who 25 years ago worked together for a common cause and were able to succeed in creating one of the largest urban wildlife refuges in the nation. The Refuge stands today as the remarkable and lasting achievement of the Minnesota Congressional delegation, Friends of the Minnesota Valley (the Friends), the USFWS, state and community leaders, multiple conservation partners and volunteers. Due to their efforts, work, dedication and perseverance of these groups, the lower Minnesota River Valley will forever remain a protected area.

The evening began as a social gathering, complete with hors d'oeuvres provided by the Friends. At 6:30, the Friends held a brief annual meeting as required by law. Following the required meeting, guest speakers Refuge Manager Rick Schultz, Retired Refuge Manager Ed Crozier, and Friends' President John Chamberlain reflected upon the history of the refuge, and took a look forward to the challenges looming in the next 25 years of conservation in the valley. Congressmen Jim Ramstad, Mark Kennedy and former Senator Dave Durenberger also addressed the group. Friends' Executive Director Nelson French presented several special service awards and then unveiled the design for a Silver Anniversary recognition plaque that was then kept on display in the Visitor Center.

VIP Visits

An exceptional, near record warm late January day, combined with an abundance of bright midday sun made an idyllic setting for an important announcement concerning watershed protection. Christine Todd Whitman, Administrator of the U.S. Environmental Protection Agency, took advantage of the wonderful weather conditions when she visited Minnesota Valley on January 28.



Christine Todd Whitman, Photo by Scott Ford

Administrator Whitman used the Minnesota River as a backdrop to announce a \$21 million grant program which is being set up to improve water quality in up to twenty watershed basins across the country. The program proposal will be included in President Bush's 2003 budget. EPA will receive recommendations from each state, and will then determine which projects will receive funding.

Refuge Manager Rick Schultz and Minnesota Pollution Control Agency Director Karen Studders greeted Ms Whitman upon her arrival. Before the press conference

commenced, the three spent a few minutes together viewing the Minnesota River Valley via the Visitor Center overlook. Manager Schultz took the opportunity to detail some of the good work being accomplished at the Refuge, particularly in the area of environmental education targeted to the diverse populations of metro area elementary school students.

The Refuge also played host to a very special guest on Friday afternoon, August 9. Congresswoman Betty McCollum (D – 4th District), stopped by the Refuge Visitor Center to learn about the numerous ways in which the Refuge serves her constituency. During the 90-minute briefing, Refuge Manager Rick Schultz was able to share many of the current management issues, challenges, and concerns facing Minnesota Valley. Several members of The Friends were also on hand to provide the Congresswoman with their perspective on, and support for, current Refuge issues.



Betty McCollum, Photo by Scott Ford

Also attending the briefing were teachers, Kristi Weiley from St. Paul Expo Elementary School, and Poppy Potter from Skills for Tomorrow High School. Both schools are in the Congresswoman's district, and actively participate in Refuge programs. Each teacher brought along a student from the respective schools. When questioned directly by Ms. McCollum, the students were eager to share their appreciation for the Refuge's environmental education program and volunteer opportunities. The teachers did this as well. All in attendance had a very enjoyable and information filled afternoon.

8 Planning and Administration

8.a. Comprehensive Conservation Planning

Work continued on the CCP for the Refuge and our WMD during the year. The draft CCP was circulated for public review during the early spring and summer. Relatively few public comments were received considering our location within a major metropolitan area. On the whole, the public supported the direction that we have laid out in the draft plan and look forward to its implementation. The only significant amount of dissent came from members of the mountain biking community which hopes to continue to use the Bloomington Bluffs for their activities.

During the year, approximately 90,000 additional acres along the Minnesota River from Jordan to Fort Ridgely were reviewed for possible acquisition. A large amount of valuable floodplain habitats plus adjacent hillside forest and remnant native prairie were identified. Of this acreage, we expect to identify up 36,000 additional acres for future Refuge acquisition in fee or easements.

Minnesota Valley National Wildlife Refuge Trust, Inc.

The Trust remained relatively inactive during the year, primarily due to the fact that the Refuge's CCP and its associated mitigation plan were yet to be completed. The Trust continued to support mitigation planning which consisted of providing the Refuge with salary and associated funds to employ a Park Ranger. In addition, the Trust made an unsuccessful attempt to acquire 402 acres of Minnesota River floodplain lands located near Henderson, Minnesota. The lands were offered for sale at a public auction to the highest bidder. With the assistance of The Conservation Fund, the Trust was prepared to bid up to \$500 an acre for this property. Unfortunately, the land sold to Mr. Sever Peterson of Eden Prairie, Minnesota, for \$750 per acre.

At the close of 2001, the value of the Trust assets were approximately \$27,550,000. These funds, which are administered by Wachovia (formerly First Union, Inc.) were fully invested in a balanced portfolio during the year. Due to a down turn in the economy, the value of the portfolio on November 30, 2002 decreased to approximately \$24,296,000.

Special Recognition and Awards

The Refuge received honorable recognition in the 2002 Department of the Interior Environmental Achievement Award. The Refuge received this recognition for its environmental stewardship. Some of the activities recognized included pollution prevention, waste reduction, energy conservation and the acquisition of environmentally preferable products.

A Save Energy Audit of the Refuge Visitor Center was conducted by a contractor for the Department of Energy. The contractor noted that due to the diligent maintenance of the mechanical systems had extended their useful years beyond their normal life. Roy Wassather has been responsible for this careful maintenance of the facility and has saved the Service many dollars in replacement costs. Roy was recognized with a Star Award for his outstanding maintenance of the facility.

Staff responsible for the maintenance of the Visitor Center as well as the maintenance and repair of Refuge trails, parking lots, and Refuge areas damaged by the flood were recognized for their hard work. These staff included Lonnie Boyd, Dean Franke, and Roy Wassather. Together their work served to improve the public's image of the USFWS.

Kristin Raveling was recognized for the high quality customer service she demonstrated in carrying out her assigned duties as well as her willingness to accept added responsibilities. During the four-month vacancy of the administrative assistant position, Kristin ambitiously tackled the task of time card completion and travel vouchers. She completed these assignments with a high level of competency despite little formal training.

Judie Miller received a special recognition from Region 3, Refuges and Migratory Birds. Judie was presented this award for her outstanding contribution to support and develop the Junior Duck Stamp Program at the National level and for planning and designing the first ever National Workshop for Junior Duck Stamp Coordinators.

8.b. General Administration

Funding

The Refuge's budget for FY 2002 was \$1,971,285. In addition, the Refuge had a carryover from flood monies in the amount of \$454,490. Table 1 provides a description of the projects, subactivity codes and the dollars associated with each one.

Staffing

The Refuge welcomed five new staff this year and said good-bye to two. Kristi Nielson and Kristin Ravelin joined our Environmental Education and Interpretation staff. In addition, Chris Jussila and Barbara Mack came on board to serve as our full time Refuge Office and Administrative Technician, respectively.

Those departing included Greg Lau, who transferred to Fergus Falls WMD for a WG-10 position and Barbara Mack, who was offered a higher paying job with Northwest Airlines.

Juancarlos Giese returned for his third summer as a SCEP student and took on a leadership role in training in the new summer workers. At summer end, Juan Carlos accepted an assistant manager's position at Rydell NWR. We had one summer intern, Linsey Becker, from the University of Wisconsin-River Falls, who was our Biological Intern.

Table 2 lists the entire staff for Fiscal Year 2002, including titles, current grades and report dates.

Table 1, FY 2002 Budget

Description	Project	Subactivity Code	Amount
Refuge Operations			
	Base Salaries	1261	\$1,201,343
	Operation Expenses	1261	233,200
	Regional Resource Center	1261	26,996
	Challenge Cost Share	1261	14,950
	Volunteers	1261	6,250
	SCEP	1261	10,000
Maintenance			
	Refuge	1262 A3MV	75,000
	District	1262 A3MW	15,000
	YCC	1262 A3MV	15,644
Private Lands			
	Habitat Resoration	1121 03HR	50,000
	Dakotoa Cty Nature Center	1121 03HR	10,000
	Mn River Watershed Wetland Restoration, Phase II	1121 03HR	14,000
	Cannon River Watershed Wetland Restoration, Phase II	1121 03HR	12,000
	Technical Assistance	1121 03TA	110,320
	STEP	1121 03TA	7,000
	NAWMP	1234	17,000
Fire Funding			
	Administrative Support	9251	46,400
	Fire Equipment	9263 PROG	13,700
	Wildland Urban Interface	9264	69,500
Regional Resource Library			
		1122	4,788
		1220	4,788
		1231	957
		1234	957
		1311	4,788
		1662	4,788
		5110	958
		9410	958
Total			\$1,971,285
Additional Funding			
	Flood Carryover	2972 E3GG	\$454,490

Table 2, Minnesota Valley NWR staff positions

FY 2002 Staff				
Name	Title	Grade	Report Date	Status
Current				
Baird, Dennis	Maintenance Worker	WG-8	10/20/02	
Becker, Lindsey	Student Trainee (Biology)	GS-4	1/7/02	
Boyd, Lonnie	Maintenance Worker	WG-8	11/13/94	
Ford, Scott	Park Ranger	GS-12	02/25/01	
Franke, Dean	Maintenance Worker	WG-10	03/30/97	
Groom, Cheryl	Park Ranger	GS-9	01/28/01	
Kane, Chris	Refuge Operations Specialist	GS-9	7/24/94	
Jussila, Chris	Park Ranger - LE	GS-9	12/16/01	
Inouye, Sarah	Park Ranger	GS-7	01/28/01	
Vacant	Bio-Science Technician	GS-7		
Kane, Jana	Park Ranger	GS-9	12/05/99	
Kerr, Tom	Refuge Operations Specialist	GS-12	04/05/92	
Lehmann, Jodi	Administrative Officer	GS-9	09/23/01	
Malling, Mike	Wildlife Biologist	GS-11	04/27/97	
Malz, Linda	Park Ranger (Trust)	GS-12	08/26/01	
Miller, Judith	Park Ranger	GS-11	06/28/92	
Moyer, Ed	Park Ranger	GS-7	11/14/82	
Palaia, Nick	Bio-Science Technician	GS-7	12/19/99	Transferred
Johnson, Christine	Administrative Technician	GS-6	10/20/02	
Schreiner, Terry	Refuge Operations Specialist	GS-12	07/21/85	
Schultz, Richard D.	Refuge Manager	GS-14	10/16/94	
Sherry, Vicki	Wildlife Biologist	GS-11	03/20/94	
Wassather, Roy	Maintenance Worker	WG-9	07/28/91	
Neilson, Kristi	Park Ranger	GS-7	11/18/01	
Raveling, Kristin	Park Ranger	GS-5	10/1/01	
Knopik, Ron	Bio-Science Technician	GS-6	4/24/01	
Left				
Gregg Lau	Maintenance Worker	WG-6	2/24/02	Transferred
Barb Mack	Administrative Technician	GS-6	2/24/02	Transferred
Molly Pagel	Park Ranger	GS-4	6/2/02	Term Ended
STEPS				

Staff Photo:



Pictured left to right:

Front Row: Scott Ford, Cheryl Groom, Linda Malz, Sarah Inouye, Tom Kerr, Terry Shreiner, Ed Moyer

Second Row: Kristin Ravelin, Vicki Sherry, Roy Wassather, Rick Schultz, Juan Carlos Giese

Third Row: Ron Knopik, Nick Paiala, Chris Jussila, Mike Malling, Chris Kane, Jana Kane, Kristi Neilson

Missing from Photo:

Jodi Lehmann, Judie Miller, Dennis Baird, Lonnie Boyd, Dean Franke, Christine Johnston

Volunteer and Special Work Programs

The volunteer program logged 11,451 hours by partners, interns, volunteers, and community members. This is equivalent to five full-time and one part-time employee amounting to \$172,456 of donated service. Support was provided to most Refuge programs but was focused on habitat restoration and visitor services this year.

Volunteers logged an incredible 4,000 hours performing woody exotic species removal, local eco-type native prairie and forb seed collection, and tree planting. In particular, they cut and removed more than four acres of European buckthorn from near the Visitor Center in support of our National Fish and Wildlife Foundation "Pulling Together Towards 2003 Initiative." They also contributed nearly 700 hours in monitoring activities such as frog-calling, insect, and vegetation surveys.

Visitor services received great support with 4,500 hours donated. From operating the information desk to leading school groups in environmental education programs, volunteers played a significant role in this program. They also assisted in planning and coordinating new visitor center exhibits, developing new public programs and curriculums for teachers, and in remodeling the Blufftop Bookshop.

The annual Volunteer Appreciation Brunch was held on March 23, 2002. This event provided all of us a great opportunity to catch up with volunteers, new and old, that have donated their time and talents to make the Refuge a better place. More than 80 volunteers attended the event and we had the honor of naming Steven Sutter as our 2001 Volunteer of the Year. Steve donated nearly 1,000 hours assisting with Visitor Center information desk duties, serving as a Volunteer Wildlife Ranger, working with our fire management program, and volunteer work as part of the Friends of the Minnesota Valley.



Volunteers Planting Trees, Photo by Jana Kane



2002 Volunteers, Photo by Jana Kane

Volunteer training held this year included CRP and First Aid training, basic volunteer orientation, refuge tours, environmental education and information desk duty training, and exotic species removal training.

A significant portion of the volunteer hours were logged during group service days from such groups as the Hubert H. Humphrey Job Corp, Macalester College's "Into the Streets" program, St. Paul Academy, girl and boy scouts, and various church organizations.

Sentence to Serve

The Scott County Sentence to Serve program donated more than 400 hours to the Refuge assisting with tree planting at the Louisville Swamp Unit.

Hubert H. Humphrey Job Corp

The Refuge began a partnership with the Hubert H. Humphrey Job Corp in St. Paul during the year. Ten students were chosen to serve on a leadership team that served to plan and organize large group events. In addition, the team received habitat restoration training from Refuge staff. As part of this effort, the team "Adopted a Plot" of oak savannah to restore and manage for the next two years. The team also made plans for a buckthorn removal day to be held in 2003.

On a daily basis, three additional Job Corp students donated approximately six hours each day performing a variety of tasks in and around the Visitor Center. Among these included exhibit removal and repair, maintenance of water control structures, and buckthorn removal.

Tree Trust

The Refuge continued its long standing relationship with the Tree Trust during the year. This organization has provided the Refuge with top quality maintenance and construction projects over the years. The only cost to the Refuge for these projects is for materials. Projects completed by the Tree Trust in 2003 included the removal of an unserviceable boardwalk on Long Meadow Lake, the rebuilding of the Bluff Trail Boardwalk, and construction and installation of a new accessible waterfowl hunting blind on the Upgrala Unit.

8.c. Major Construction and Maintenance

Maintenance remains the biggest challenge facing Refuge staff.

The highlight of the year was the start of the planning phase for the construction of the new maintenance shop on the Rapids Lake Unit of the Refuge. The current shop on the Wilkie Unit is a converted junkyard in the 500-year flood plain of the Minnesota River. Both the Refuge staff and the river will benefit from the construction of the new shop on high ground in the Rapids Lake Unit. The Shakopee shop boneyard was also given a thorough cleaning and reorganization.



Black Dog Sprinkler Repair. Photo by Tom Kerr

Maintenance staff and interns spent much time repairing damage to gates, signs and structures that was caused by vandalism. In addition, staff also mowed and maintained more than 30 miles of trails, 17 parking lots and grounds for nine buildings. Grounds and parking lots were mowed every ten days during the summer. The Refuge also maintains 17 unit signs, 37 gates, nine informational kiosks, 15 structures

(fishing piers, boardwalks, observation piers, amphitheater, benches etc.) and numerous water control structures. In order to keep better track of structures, all real property was entered into our Refuge GIS.

The Refuge installed three new parking lots on Waterfowl Production Areas and mowed 17 parking lots on WPAs in preparation for the fall hunting season. In preparation for the Centennial, new entrance signs were installed in three Refuge parking lots. In addition, most of the post and rail, informational kiosks and gates were repainted on the Refuge. The remaining public use structures will be painted in FY2003.

The lower level storage space in the Visitor Center was converted to an office area to house the Geographic Information System station, a cooperative MWA Biologist, a Friends of the Minnesota Valley volunteer and a Regional Office Wildland Urban Interface Ecologist position. The space may also house a National Park Service fire position in the near future. The walls were painted and systems furniture, carpet and electrical service were installed in the new office area.

The Refuge also completed a large cleanup of the newly acquired Chaska Unit. In the fall of 2001, a major cleanup was held and during the early summer of 2002, staff removed deer stands and trash from the unit. The unit was also posted during the summer. Faded and damaged boundary signs were also replaced on the Long Meadow Lake, Black Dog and Louisville Swamp Units.

Scrap metal and the remains of an old homesite were removed from the Upgrala bluffs during the summer. Portions of the Upgrala Unit were also posted.

Refuge staff repaired a large washout in the Jabs dike. Staff also repaired a blowout in the Hogback Pond dike. The watersheds that flow through these structures have been dramatically altered since the structures were built. The Jabs dike and structure receives water from a 250,000-acre watershed which is intensive agriculture and small housing developments. The Hogback structure receives water from an intensively developed urban area, including large commercial developments such as the Mall of America. Other sections of Refuge trails were also repaired. The trail downstream of the Minnow Ponds was repaired several times, again due to storm water runoff.



Jabs Dike Repair. Photo by Tom Kerr

Trails on the Black Dog and Louisville Swamp Units were brushed out by summer intern crews and the Minnesota Conservation Corps. Burnable wood removed from these trail cleanups was taken to our Jabs Farm Historic site in the Louisville Swamp Unit, which includes a warming hut for cross country skiers.

Staff spent much time patching roof leaks on the Visitor Center. The ceiling in the Hearth Room of the Visitor Center collapsed due to the leaking roof. The ceiling and carpet in the Hearth Room were replaced. Staff and several contractors tried to fix the problem but a new roof is needed for a long term solution. Several broken exhibits were removed from the Visitor Center. A traveling ecosystem exhibit was installed in the Visitor Center and will be removed in two years.

Appendix A

List of Scientific and Common Names of Species in Document

Scientific Name

Common Name

Animals

Aix sponsa
Anas acuta
Anas clypeata
Anas crecca
Anas discors
Anas platyrhynchos
Aphthona sp.
beetle)
Ardea herodias
Aythya affinis
Aythya collaris
Branta canadensis
Casmerodius albus
Castor canadensis
Cygnus columbianus
Cyprinus carpio
Dreissena polymorpha
Falco peregrinus
Falco sparverius
Felis concolor
Fulica americana
Galerucella sp.
Haliaeetus leucocephalus
Ictalurus punctatus
Lutra canadensis
Meleagris gallopavo
Mergus merganser
Mustela vison
Numenius phaeopus
Nycticorax nycticorax
Odatra zibethicus
Pandion haliaetus
Pelecanus erythrorhynchos
Phalacrocorax auritus
Procyon lotor
Protonotaria citrea
Stizostedion vitreum
Vermivora peregrina

Plants

Acer negundo
Acer saccharinum
Allium ursinum
Andropogon gerardii
Anemone patens
Asclepias tuberosa

Animals

Wood duck
Northern pintail
Northern shoveler
Green-winged teal
Blue-winged teal
Mallard
Flea beetle (Leafy spurge

Great blue heron
Lesser scaup
Ring-necked duck
Canada goose
Great egrets
Beaver
Tundra swan
Common carp
Zebra mussel
Peregrine falcon
American kestrel
Cougar
American coot
Purple loosestrife beetle
Bald eagle
Channel catfish
River otter
Wild turkey
Common merganser
American mink
Whimbrel
Black-crowned night-heron
Muskrat
Osprey
White pelican
Double-crested cormorant
Raccoon
Prothonotary warbler
Walleye
Tennessee warbler

Plants

Boxelder
Silver maple
Wild garlic
Big bluestem
Pasque flower
Butterfly weed

Appendix A

List of Scientific and Common Names of Species in Document

Scientific Name	Common Name
<i>Bouteloua curtipendula</i>	Side-oats grama
<i>Bromus inermis</i>	Smooth brome
<i>Bromus kamii</i>	Kalm's brome
<i>Calamagrostis canadensis</i>	Bluejoint reedgrass
<i>Calamovilfa longifolia</i>	Sand reed
<i>Celtis occidentalis</i>	Hackberry
<i>Cirsium arvense</i>	Canada thistle
<i>Cornus stolonifera</i>	Red-osier dogwood
<i>Delphinium virescens</i>	Prairie larkspur
<i>Elymus canadensis</i>	Canada wild rye
<i>Elytrigia repens</i>	Quack grass
<i>Euphorbia esula</i>	Leafy spurge
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Geum triflorum</i>	Prairie smoke
<i>Juniperus virginiana</i>	Red cedar
<i>Lemna minor</i>	Duckweed
<i>Liatris pycnostachya</i>	Prairie blazing star
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Monarda didyma</i>	Bergamont
<i>Nuphar lutea</i>	Yellow water lily
<i>Nymphaea odorata</i>	White water lily
<i>Panicum virgatum</i>	Switch grass
<i>Parthenocissus</i> sp.	Woodbine
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Poa pratensis</i>	Bluegrass
<i>Populus deltoides</i>	Eastern cottonwood
<i>Potamogeton pectinatus</i>	Sago pondweed
<i>Prunus serotina</i>	Black cherry
<i>Prunus virginiana</i>	Chokecherry
<i>Quercus bicolor</i>	Swamp white oak
<i>Quercus ellipsoidalis</i>	Pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Rhamnus cathartica</i>	European buckthorn
<i>Rhamnus frangula</i>	Glossy buckthorn
<i>Rubus</i> sp.	Bramble
<i>Rudbeckia hirta</i>	Black eyed susan
<i>Sagittaria longiloba</i>	Arrowhead
<i>Scirpus fluviatilis</i>	Bulrush
<i>Shizachyrium scoparium</i>	Little bluestem
<i>Silphium laciniatum</i>	Compass plant
<i>Sisyrinchium campestre</i>	Blue-eyed grass
<i>Sorghastrum nutans</i>	Indian grass
<i>Sporobolus heterolepis</i>	Prairie dropseed
<i>Stipa spartea</i>	Porcupine grass

Appendix A

List of Scientific and Common Names of Species in Document

Scientific Name

Common Name

Tilia americana

Basswood

Typha latifolia

Common cattail

Ulmus americana

American elm

Ulmus pumila

Siberian elm

Ulmus rubra

Slippery elm

Verbena sp.

Vervain

Appendix B
Butterflies, Moths and Tiger Beetles of Minnesota Valley NWR
Ron and Cathy Huber, Refuge Volunteers
Sightings from 2000-2002

*Note: s=sight record, p=photographed, v=vouchered

Carver County: Rapids Lake Unit

Order Coleoptera

Family Cicindelidae (Tiger beetles)

- Cicindela punctulata punctulata (s)
- Cicindela purpurea auduboni (v) (new county record)
- Cicindela repanda repanda (v)
- Cicindela scutellaris lecontei (v) (new county record)

Family Scarabaeidae

- Euphoria inda (v)

Order Lepidoptera

Butterflies

Family Hesperidae (Skippers)

- Euphyes vestris metacomet (Dun skipper)
- Poanes hobomok (Hobomok skipper)

Family Pieridae (Whites and Sulphurs)

- Colias philodice (Common sulphur) (s)

Family Lycaenidae (Coppers, etc.)

- Celastrina neglecta (Summer azure) (s)
- Everes comyntas (Eastern tailed blue) (v)
- Mitoura gryneus (Olive hairstreak) (v)
- Satyrion edwardsii (Edwards' hairstreak) (v)

Family Nymphalidae (Brush-footed butterflies)

- Asterocampa celtis (Hackberry emperor) (s)
- Cercyonis pegala (Common wood nymph) (v)
- Danaus plexippus (Monarch) (s)
- Junonia coenia (Buckeye) (s)
- Megisto cymela (Little wood satyr) (v)
- Nymphalis antiopa (Mourning cloak) (v)
- Phyciodes tharos (Pearl crescent) (v)
- Polygonia comma (Comma butterfly) (v)
- Polygonia progne (Gray comma) (v)
- Speyeria cybele (Great spangled fritillary) (v)
- Vanessa atalanta (Red admiral) (s)

Moths

Family Arctiidae (Arctiid moths)

- Holomelina sp. (v)

Family Noctuidae (Owlet moths)

- Unidentified species (v)

Appendix B
Butterflies, Moths and Tiger Beetles of Minnesota Valley NWR
Ron and Cathy Huber, Refuge Volunteers
Sightings from 2000-2002

Hennepin County: Upgrala Unit

Order Coleoptera (Beetles)

Family Cicindelidae (Tiger beetles)
Cicindela scutellaris lecontei

Order Lepidoptera

Butterflies

Family Hesperidae (Skippers)

Hylephila phyleus (Fiery skipper) (v) (Stray from South, few MN records)

Family Lycaenidae (Blues, coppers, etc.)

Everes comyntas (Eastern tailed blue) (v)

Family Nymphalidae (Brush-footed butterflies)

Phyciodes selenis (Northern prairie crescent) (v)

Family Pieridae (Whites and sulphurs)

Colias eurytheme (Alfalfa butterfly) (v)

Colias philodice (Common sulphur) (v)

Pieris protodice (Checkered white) (v)

Moths

Family Geometridae (Geometer moths)

Macaria ambloflava (v) (very few MN records)

Family Noctuidae (Owlet Moths)

Anagrapha falcifera (Celery looper moth) (v)

Family Pyralidae (Snout moths)

Crambus laqueatellus (v)

Scott County: Louisville Swamp Unit

Order Coleoptera (Beetles)

Family Cicindelidae (Tiger beetles)
Cicindela sexguttata (v)

Order Lepidoptera

Butterflies

Family Hesperidae (Skippers)

Euphyes vestris metacomet (Dun skipper) (v)

Poanes hobomok (Hobomok skipper) (v)

Family Lycaenidae (Coppers, etc.)

Celatrina ladon (Spring azure) (s)

Celatrina neglecta (Summer azure) (s)

Everes comyntas (Eastern tailed blue) (v)

Harknclenus titus (Coral hairstreak) (v)

Satyrion edwardsii (Edward's hairstreak) (v)

Appendix B
Butterflies, Moths and Tiger Beetles of Minnesota Valley NWR
Ron and Cathy Huber, Refuge Volunteers
Sightings from 2000-2002

Family Nymphalidae (Brush-footed butterflies)

Asterocampa celtis (Hackberry emperor) (v)
Asterocampa clyton (Tawny emperor) (s)
Basilarchia astyanax (Red-spotted purple) (v)
Basilarchia archippus (Viceroy) (v)
Cercyonis pegala (Common wood nymph) (s)
Danaus plexippus (Monarch) (s)
Megisto cymela (Little wood satyr) (v)
Nymphalis antiopa (Mourning cloak) (s)
Phyciodes tharos (Pearl crescent) (v)
Polygonia comma (Comma butterfly) (s)
Polygonia interrogationis (Question mark) (v)
Speyeria cybele (Great spangled fritillary) (s)
Vanessa atalanta (Red admiral) (s)

Family Papilionidae

Pterourus glaucus (Eastern tiger swallowtail) (s)

Family Pieridae (Whites and Sulphurs)

Colias eurytheme (Alfalfa butterfly) (s)

Appendix C

Refuge Comprehensive Accomplishment Report, FY 02

	Obligations (\$000)			Staff Days			Volunteers			Outputs	Outcomes
	Staff	NStaff	Total	Staff	Other	Total	Vols.	Hours			
	1260 +	1260 =	1260	Other	Total	1260 +	Other =	Total			
Monitoring & Studies											
Surveys & Censuses	26	11	37		37	100	60	160	568	2 habitat surveys 8 wildlife surveys	10% TE 15% WF 15% OMB 15% RW 25% HEC 10% PED 10% PRC
Vegetation monitoring was conducted on ten transects in the Uprata Unit following this spring's successful prescribed burn. Preliminary data and photo-point comparisons show a dramatic increase of native grasses throughout the area. In addition, baseline data was collected on floodplain monitoring plots. This initiates a three year study to assess a variety of methods to reduce reed canary grass and increase the success of floodplain forest restoration.											
Studies & Investigations	8	8	16		16	25	2	27	111	3 studies or investigations 30% off refuge	10% TE 15% WF 15% OMB 15% RW 6% FAR 30% HEC 5% PED 5% PRC
Tom Cooper, a PhD graduate student associated with South Dakota State University, initiated his research project entitled "Land Stewardship, Habitat Protection and Avian Occurrence of Minnesota Valley National Wildlife Refuge and Wetland Management District. This project will provide the Refuge with a geographic information system layer showing where lands are currently protected, identify areas where important habitats exist (forest, grassland and wetland), identify where avian species of concern are located and examine how their distribution is related to current habitat conditions at multiple scales. It will also help to determine the importance of short duration habitat programs to species diversity, abundance and distribution.											
Habitat Restoration											
Wetland Restoration	28	28	56	150	208	50	600	650	419	32 ac. refuge wetlands restored 236 ac. off-refuge wetland acres restored	10% TE 40% WF 10% OMB 10% RW 5% FAR 10% HEC 5% PED 10% PRC
During FY02, Minnesota Valley restored 38 wetlands on 4 WPA's. Approximately 32 acres of restored wetlands on Malecha, Dodge Center Creek, Hahn Lake and Fickling WPA's will provide critical habitat for waterfowl and other wetland dependent species. Highlights of wetland restoration off refuge included several CRP sites and two complexes in Rice and Scott County; 6 wetlands on each site were adjacent to CRP grasses.											
Upland Restoration	12	90	102	150	252	25	250	275	1,197	380 refuge ac. restored 260 off-refuge ac. restored	5% TE 30% WF 10% OMB 30% RW 10% HEC 5% PED 10% PRC
Upland restoration highlights include prairie restoration on more than 380 acres of WPA and FWS easements. In addition, more than 260 acres were restored on private land sites including the 52 acre Voight tract, the 41 acre Fitzpatrick CRP tract and the Guentzel complex in LeSueur County.											
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	Staff	NStaff	Total	Staff	Other	Total	Vols.	Hours			
	1260 +	1260 =	1260	Other	Total	1260 +	Other =	Total			
Acquisition of the Lano tract in the Chaska Unit allowed for the management of Chaska Lake for the first time. A successful partial drawdown stimulated moist soil plants and will provide an excellent food source for migrating waterfowl. A partial drawdown was also initiated on Rice Lake for the first time since the new water control structure was installed. A significant increase in robust emergents was achieved. Fisher Lake continued to be extremely productive with the most favorable wetland conditions on the Refuge. Minimal water-level manipulation was required. All other wetland pools were kept near normal pool levels due to significant gains achieved in management from recent years.											
Forest Management	17	15	32	15	47	110	110	220	788	4 ac. harvested 50 ac. treated	5% TE 10% OMB 10% RW 75% HEC
Minnesota Conservation Corp crews harvested and bucked 4 acres of trees in the Louisville Swamp oak savanna restoration. This will allow the growth of fine fuels and provide the ability to carry a prescribed fire through the unit. Restoration of 50 acres of floodplain forest in the Minnesota River valley was accomplished, with tree plantings. A variety of native seedlings (2,300) were established with the help of staff, volunteers and Scott County Sentence-to-Serve crews.											
Fire Management	34	18	52	140	182	263	115	378	52	398 ac. of on-refuge prescribed burns 18 prescribed burns conducted 17 wildfires suppressed	100% HEC
Refuge staff and the Minnesota Conservation Corp succeeded in burning very high priority units this year. All oak savanna restoration burn units in the Louisville Refuge unit were burned; for some areas it was the first time in several decades that fire has been present. The same is true for prescribed burns along the Rapids Lake bluff. This is native prairie that has experienced fire suppression for perhaps several hundred years. The highlight of the burn season, and perhaps of the fire program to date, was the intra-agency cooperative burn of the 152 acre Uprata bluffs. This prescribed burn was a cooperative effort between Minnesota Valley, several refuges and wetland districts in the region and the city of Eden Prairie. This unit contains one of the largest tracts of native prairie remaining on the Refuge. Preliminary data shows that the burn was extremely successful in reestablishing native plant species.											
Native Pest Plant Control											
Invasive Plant Management	28	19	47		47	60		60		3000 refuge ac. infested 517 refuge ac. treated 166 refuge ac. treated chemically 267 refuge ac. treated mechanically or physically 85 refuge ac. treated biologically 2400 ac. surveyed or	100% HEC
In a continuing effort to control exotic species on the Refuge, approximately 161,560 leafy spurge beetles were collected and redistributed on the Wilde and Uprata units. The Uprata leafy spurge beetle insectary site continues to produce harvestable amounts of biological control agents which have also provided source populations to other Refuges throughout the region. Purple loosestrife beetles were present on the Refuge at previous release sites and continue to be specific and detrimental to the target plant. Spotted knapweed biological control insects are thriving and an additional 1,950 insects were introduced on the Long Meadow Lake unit near Kidder Marsh.											
Fish & Wildlife Management											
Bird Banding	3	1	4		32	20	10	30	32	302 waterfowl banded	100% WF

