

VALENTINE NATIONAL WILDLIFE REFUGE

Valentine, Nebraska

Annual Narrative Report

Calendar Year 2008

INTRODUCTION

Valentine National Wildlife Refuge (NWR) was established on August 4, 1935 under the Migratory Bird Conservation Act by Executive Order 7142. The purpose of the refuge as stated in the executive order is “as a refuge and breeding ground for migratory birds and other wildlife.” Acquisition funding came from Duck Stamp sales and the Emergency Conservation Fund Of 1933.

The 71,772-acre Valentine NWR is located in the Sandhills of north-central Nebraska. The Sandhills contain the largest remaining stands of mid and tall grass native prairie left in North America. The refuge is a unique and ecologically important component of the National Wildlife Refuge System. The refuge has about 49,000 acres of grassy, undulating sand dunes, 13,000 acres of sub-irrigated meadows, and 10,000 acres of shallow lakes and marshes. The refuge is home to 271 species of birds, 59 species of mammals, and 22 species of reptiles and amphibians. The refuge is important to nesting and migrating waterfowl and is also one of the few places where good numbers of sharp-tailed grouse and prairie chickens can be found in the same area. Several threatened or endangered birds stop at the refuge during migration. Two listed plants and one listed insect are also found here. Most of the native flora and fauna found here historically are still present today.

The refuge is part of a complex administered from Fort Niobrara NWR. Valentine NWR is in Cherry County with a subheadquarters located on Hackberry Lake, 17 miles south of the town of Valentine on US 83 then 13 miles west on State Spur 16B. Valentine National Wildlife Refuge staff also manages the Yellowthroat Wildlife Management Area in Brown County (see J.3) and four easements (see F.13).

INTRODUCTION.....	2
TABLE OF CONTENETS.....	3
A. <u>HIGHLIGHTS</u>	6
B. <u>CLIMATIC C.ONDITIONS</u>	6
C. <u>LAND ACQUISITION</u>	ntr
1. Fee title.....	ntr
2. Easements.....	ntr
3. Other.....	ntr
D. <u>PLANNING</u>	7
1. Master Plan.....	ntr
2. Management Plan.....	7
3. Public participation.....	ntr
4. Compliance with Environmental and Cultural Resource Mandates.....	ntr
5. Research and Investigations.....	8
6. Other.....	ntr
E. <u>ADMINISTRATION</u>	9
1. Personnel.....	9
2. Youth Programs.....	10
3. Other Manpower Programs.....	ntr
4. Volunteer Program.....	10
5. Funding.....	11
6. Safety.....	13
7. Technical Assistance.....	13
8. Other.....	13
F. <u>HABIATAT MANAGEMENT</u>	16
1. General.....	16
2. Wetlands.....	16
3. Forests.....	ntr
4. Croplands.....	ntr
5. Grasslands.....	19
6. Other Habitats.....	ntr
7. Grazing.....	20
8. Haying.....	25
9. Fire Management.....	26

10. Pest Control.....	27
11. Water Rights.....	ntr
12. Wilderness and Special Areas.....	29
13. WPA and Other Easement Monitoring.....	29
G. <u>WILDLIFE</u>.....	33
1. Wildlife Diversity.....	33
2. Endangered and/or Threatened Species (including plants).....	33
3. Waterfowl.....	36
4. Marsh and Water Birds.....	39
5. Shorebirds, Gulls, Terns, and Allies.....	40
6. Raptors.....	40
7. Other Migratory Birds.....	40
8. Game Mammals.....	40
9. Marine Mammals.....	ntr
10. Other Resident Wildlife.....	41
11. Fisheries Resources.....	43
12. Wildlife Propagation and Stocking.....	ntr
13. Surplus Animal Disposal.....	ntr
14. Scientific Collections.....	47
15. Animal Control.....	47
16. Marking and Banding.....	ntr
17. Disease Prevention and Control.....	50
H. <u>PUBLIC USE</u>.....	51
1. General.....	51
2. Outdoor Classrooms – Students.....	52
3. Outdoor Classrooms – Teachers.....	ntr
4. Interpretive Foot Trails.....	52
5. Interpretive Auto Tour Routes.....	52
6. Interpretive Exhibits/Demonstrations.....	ntr
7. Other Interpretive Programs.....	53
8. Hunting.....	53
9. Fishing.....	55
10. Trapping.....	55
11. Wildlife Observation.....	56
12. Other Wildlife Oriented Recreation.....	ntr
13. Camping.....	ntr
14. Picnicking.....	ntr
15. Off-Road Vehicling.....	ntr
16. Other Non-Wildlife Oriented Recreation.....	ntr
17. Law Enforcement.....	56
18. Cooperation Associations.....	58
19. Concessions.....	ntr

I. <u>EQUIPMENT AND FACILITIES</u>	59
1. New Construction.....	59
2. Rehabilitation.....	60
3. Major Maintenance.....	62
4. Equipment Utilization and Replacement.....	63
5. Communication Systems.....	ntr
6. Computer Systems.....	64
7. Energy Conservation.....	64
8. Other.....	ntr
J. <u>OTHER ITEMS</u>	65
1. Cooperative Programs.....	ntr
2. Other Economic Uses.....	ntr
3. Items of Interest.....	65
4. Credits.....	66
K. <u>FEEDBACK</u>	

A. HIGHLIGHTS

Large numbers of cedar trees invading prairies were removed mechanically and by prescribed fire. Sections F.9 and F.10.

Habitat was improved in 3 refuge lakes with carp control. Section G.15.

Refuge Officer Dave Kime retires his credentials after 33 years of service. Section H.17.

The Marsh Lakes Overlook is built along US Highway 83. Section I.1.

A new airboat is received. Section I.4.

B. CLIMATIC CONDITIONS

Weather records at Hackberry Headquarters show no record temperatures or rainfall events in 2008 (Table B1). Temperatures throughout the year were pretty “average” for the area, and rainfall for the year was 1.75” above the annual average. This was the second year in a row with rainfall above average, and makes 3 of 4 years with above average precipitation after six years of below average precipitation. Notable weather events in 2008 include getting 16 inches of snow in April, cool weather in May that set back plant phenology by about 1 week, six consecutive days of rain in early June, and a rainy spell in early September during which rain fell 10 of the first 15 days of the month. Precipitation for the year ran slightly above average through Jun, fell below average in July and Aug, and then swung back above average in Sept and Oct to finish the year with above average precipitation.

Ice cover remained on refuge lakes until about Mar 2nd, after which there was a few days with a light cover of ice that melted quickly. Refuge lakes and wetlands remained open water until Nov. During Nov., water temperatures hovered right around the freezing mark, and when the ambient temperature dropped below freezing overnight, the edges of the lake would be frozen in the morning. Wetlands were almost completely frozen over on Nov 7-8th, then mostly opened back up around 14 Nov. The lakes then mostly closed up again on 21-22 Nov, but strong winds on 23 Nov allowed pockets of open water to grow again, and pockets of open water could be seen on most lakes at the end of the month. Refuge lakes and wetlands froze over around 4 Dec, with most areas completely frozen at this time. A few areas where springs enter the lakes still had some open water. Very cold temperatures (sub-zero) in mid-Dec increased the ice thickness to about 6 inches by 15 Dec. A more detailed description of month by month weather conditions can be found on the biologist’s computer in the Work folder, MAR.

Table B1. Monthly weather data summary from the weather station at Hackberry Headquarters, Valentine NWR, during 2008.

Month	Precip. (inches)	Snow (inches)	Temperature (o F)				Record Temperature (o F)			
			Min	Ave	Max	Ave	Min	Year	Max	Year
Jan	0.35	6.1	-9	14	58	37	-38	1894	70	1974
Feb	0.56	7.2	-7	16	60	40	-37	1899	76	1982
Mar	0.87	8	-3	26	71	52	-28	1948	87	1946
Apr	3.01	16.1	18	33	79	59	-8	1936	97	1992
May	4.42	0.5	28	44	86	70	17	1909	102	1934
Jun	4.78	0	43	55	89	80	30	1973a	107	1937
Jul	1.93	0	53	63	98	89	38	1971	111	1990
Aug	1.06	0	47	61	101	85	34	1935	108	1947a
Sept	3.17	0	39	49	90	75	12	1926	103	1952
Oct	2.58	0	19	38	80	63	-6	1925	96	1922
Nov	0.27	1.2	12	28	80	50	-36	1887	82	2005a
Dec	0.25	4.5	-16	10	61	33	-34	1907	76	1936
Total	23.25	43.6	Average precipitation (1945-2008)				21.50			

a Indicates the most recent year record was observed.

D. PLANNING

2. Management Plan

The deferred maintenance update for Valentine NWR was completed. There were quite a few changes as we were funded for 4 projects this year. We also switched some of the priorities to implement the move of the refuge headquarters to Pony Lake.

The visitor facilities enhancement projects for Valentine NWR were also updated. We have been funded for our top priority project, the Marsh Lakes Overlook. Our new number one will be to pave the access road and parking for this facility.

Regional Office staff conducted condition assessments of all real property valued at \$50,000 or more during the last week in August.

A crew came from Federal Highways to update the road inventory for the Complex. The inventory was cut short when their vehicle caught fire and completely burned while working at Fort Niobrara. The Valentine NWR road inventory book, with all the needed corrections, was in the vehicle and also burned. Copies of the information was provided to replace that which burned.

RAPP was completed for Valentine NWR. We again have a busy year planned in biological monitoring, habitat management, and public use.

Refuge Operating Needs proposals were submitted for 11 positions and 5 projects for Valentine NWR. The refuge has been chronically understaffed for years as in seen in the disparity between the present staff (3) and the need shown in RONS(11). Hopefully we will fare better than the last RONS exercise from which we got nothing.

An annual work plan was formulated for Valentine NWR for 2009. It is fairly ambitious and includes some good habitat and public use projects. Habitat projects include increased emphasis on carp control, tree reduction, and weeds and replacement of 2 water control structures. Public use projects include road repairs, an auto tour route, and completion of the Marsh Lakes overlook.

Regional Office staff and the biologist from Crescent Lake NWR conducted a station review from September 29 – October 8. The checklist and Comprehensive Conservation Plan were used in conducting the review. The general consensus was that Valentine NWR staff was following the plan and making progress but could use increased staff and facilities to better meet the refuge goals. We did not receive a written report of their findings and recommendations.

5. Research and Investigation

b. Ongoing research at Valentine NWR

Work continued on the Valentine NWR Science Support Project being conducted through Northern Prairie Wildlife Research Center. Modifications to the data set were made in Excel so that the data would import into SAS. Some basic summary statistics were conducted by Terry Shaffer, which allowed us to error check the data. Deb Buhl, a statistician at NPWRC has also begun working with the bird data to calculate bird densities in program Distance based on the three years of data collected by technician on the refuge.

Dr. Robert Gibson (professor/researcher from University of Nebraska-Lincoln) visited Valentine NWR in April to collect some exploratory data on stress hormone levels in displaying Sharp-tailed Grouse. Dr. Gibson planned to trap 10-15 male and 5-10 female Sharp-tailed Grouse, and then collect a small blood sample from each grouse. These blood samples will be used to assay corticosterone levels and two measures of immune function. The proposal indicates that a blood sample would be taken immediately upon capture, and again after being held for 30 min. The second sample is planned to measure any increase in corticosterone levels resulting from capture and handling. Dr. Gibson is planning to use samples taken on the refuge to make some initial comparisons in corticosterone levels (i) between the sexes, (ii) between males trapped early and late in the season, and (iii) between males on smaller vs. larger leks. This

research is a continuation of work done by Dr. Gibson on the ecology prairie grouse.

Valerie Steen visited Valentine NWR in May to look for nesting Black Terns. Ms. Steen is a graduate student working on her Masters Thesis, and is looking at Black Tern nesting habitat use across their range in the Great Plains.

E. ADMINISTRATION

1. Personnel

Valentine National Wildlife Refuge is part of the Fort Niobrara/Valentine National Wildlife Refuge Complex with three permanent staff assigned to the station.

Mark Lindvall	Refuge Manager	GS-12
Mel Nenneman	Wildlife Biologist	GS-11
Dave Kime	Maintenance Worker	WG-8
Kim Chadwick	Park Ranger	GS-7/9
Megan Freidrichs	Biological Technician	GS-4 (5/12/08-9/12/08)
Evan Suhr	Biological Aid	GS-3 (5/12/08-8/20/08)

Megan Freidrichs helped the refuge biologist with a variety of monitoring projects. Evan Suhr helped out with refuge maintenance work and got in on some biological monitoring. Evan was a big help in catching up on parts of a large maintenance backlog. He was gone the last 3 weeks of work on a fire detail in California. This is the first year in many that we have been able to hire summer help.

In June Kim Chadwick was converted from a SCEP student to a Park Ranger and attended the Federal Law Enforcement Training in Gynco, Georgia. SCEP Kim Chadwick received a performance award for receiving the highest academic average in her FLETC class and receiving the Director's Award. The Director's Award is voted on by the class, as the student best representing the characteristics of a Federal Law Enforcement Officer. Following FLETC, Kim went to the National Conservation Training Center and completed Refuge Officer Basic training. From there she went to Charles M. Russel NWR and Upper Souris NWR for field training.

Biologist Mel Nenneman received a STAR Award for his work with Walnut Grove School in transplanting the endangered blowout penstemon on Valentine NWR. Mel made this environmental education program great by working hand and hand with the students and sharing his keen interest in biology with them.

Individual development plans were completed for Lindvall, Kime, and Nenneman.

2. Youth Programs

A Kid's Fishing Day was held at Ft. Niobrara NWR on 13 Sept. Refuge employees Neely, Lindvall, Nenneman, and McPherron helped set up fishing poles, bait hooks, and remove fish from hooks for eager young anglers. The Valentine Hatchery provided poles and hungry trout for the young anglers to catch, and Fred's Bait provided plenty of nightcrawlers to bait hooks. Most youngsters were able to land a fish or two during the 4 hour event.

On 27 Sept, Nenneman met with a group of students from Concordia University physical geography and geology class. Their instructor, Dr. Joel Helmer, had asked if someone from the refuge could discuss the relationship between groundwater, wetlands, and the importance water to wildlife in the Sandhills.

4. Volunteers

A group of about 15 students from Walnut Middle School in Grand Island, NE were on Valentine NWR May 19th to plant about 588 blowout penstemon seedlings.



Fig. E4.1 Students from the Walnut Middle School in Grand Island planting the blowout penstemon seedlings they started as part of their Penstemon Protectors project.

The students are involved in a project called the Penstemon Protectors at their school. The teachers (Janet Schutz, Paul Walkowiak, and Jeff Westerby) received a U.S. Fish and Wildlife grant to grow blowout penstemon seedlings in the classroom, and then transplant the seedlings at Valentine NWR. With help from Dr. Stubbendieck and Kay Kottas from the University of Nebraska-Lincoln, the students produced two trays of plants, and Dr. Stubbendieck provided 4 additional trays of plants for transplant at the refuge.

5. **Funding**

A proposal for avian influenza monitoring for 2008-2009 was funded for \$19,000. Work on this project is reported on in section G.17.

The contract to construct the Marsh Lakes Overlook was let for \$121,969. Adds to the contract brought the final price to \$137,625. This is a visitor facility enhancement project that was funded last year. The work includes the kiosk,

display walls, access road, and parking. The 8A contract bid received last year to do the same work was \$345,084. The 8A contractor wanted 2.8 times as much!! Work on this project is reported on in section I.1.

The contract for the interpretive panels for the viewing station was let for \$58,015. This was an IDIQ contract. Only preliminary work was done on this in calendar year 2008.

Left over Visitor Facility Enhancement funds in the amount of \$21,862 were made available to improve the nature trail at the Marsh Lakes overlook by adding curbs and stabilizing banks. We will also pave the approach off of Highway 83. This work will be done in 2009.

The contract for cedar tree cutting on Valentine NWR was let for \$60.00 per hour. The contract is for 200 hours (\$12,000). \$10,000 is RO equipment rental funds and the remainder station funds. Work completed with this funding is reported on in section F.10.

The road earmark funds for the repairs to the Pelican Lake Road were received. The earmark was for \$300,000 and we received \$269,000. We hope to work out an agreement whereby the County Road Department would do the work to repair the road from the Duck Lake County Road down to the rock boat ramp. No work was completed on this project in 2008.

Rental fund proposals for helicopter spraying of Canada thistle and fitting of a forestry package on a loader for tree control were submitted. Neither was funded.

For FY 09 Valentine NWR received \$59,000 in deferred maintenance funds that carried over from FY 08. The funds are to rehab the Pony Lake and West Long Lake dikes and water control structures. Carp barriers will be installed as part of the project. Part of the work on this project was completed in 2008 and is reported on in section I.2.

The Complex received \$28,000 in biological monitoring funds from the RO. The money will be used to hire a term biological technician to do GIS work on Fort Niobrara and Valentine NWRs. This will take place in 2009.

A proposal to fund a term Biological Technician to work on GIS and RLGIS applications for the Ft. Niobrara/Valentine NWR Complex was submitted to the Biological Monitoring and Technical Assistance funding pool. The proposal would provide funding to hire a technician for 2 years. This proposal was funded for year one (\$23k for FY 2009), and we will have to resubmit the proposal for FY 2010. The GIS technician will work on mapping vegetation communities, incorporating hard-copy GPS data (legacy data) into RLGIS, and otherwise build the capacity of the GIS databases for the Complex.

An EVS Grant for \$2,800 was received for production of an auto tour route brochure.

6. Safety

Maintenance Worker Kime hyper extended his knee after slipping on loose gravel in the parking lot at Lee Bird Field in North Platte. He was on his way to law enforcement training in Arizona.

Maintenance Worker Kime presented information on winter driving at the staff and safety meeting held on February 4.

7. Technical Assistance

Nenneman and Lindvall helped with the annual bison round-up and bison sale at Ft. Niobrara NWR.

Nenneman reviewed a note submitted to the Journal of Raptor Research. The manuscript was an observation of a large clutch of Cooper's Hawk eggs found in the suburban Milwaukee area.

8. Other

Kime, Lindvall, and Nenneman completed Quick Time training on the internet.

Biologist Nenneman and Refuge Manager Lindvall attended the Prairie Bird Symposium and Annual Meeting of the Nebraska Chapter of the Wildlife Society held in Kearney on February 28 and 29. Lindvall was also appointed to the treasurer's position on the board of directors for the Nebraska Chapter.

Refuge Manager Lindvall completed B-3 Basic Aviation Safety via the internet. Lindvall, Nenneman, and Kime all completed IT Security, Privacy Act, Records Management, Charge Card and No Fear training. Lindvall also completed Charge Card Approval and Ethics.

A district level meeting with Nebraska Game and Parks was held on March 17. Items pertaining to Valentine NWR were cooperation on avian influenza and chronic wasting disease surveillance, deer hunting regulations, grazing strategies for grassland management, and waterfowl nesting studies.

Refuge Manager Lindvall received a STAR Award for the work he did with the law enforcement SCEP student last summer.

Lindvall, Kime, and Nenneman completed the eight hour fire refresher taught at Fort Niobrara NWR on May 20. They were all issued the new fire shelters.

Zone supervisor Paul Corns visited Valentine NWR on July 24. Items discussed were staffing shortages, construction projects underway, poor waterfowl production, and a possible station inspection.

Park Ranger Kim Chadwick completed law enforcement training at the Federal Law Enforcement Training Center. Kim graduated with the top academic score in her class. She was also chosen for the Director's Award by her fellow students as the student best representing the characteristics of a Federal Law Enforcement Officer. Kim then went on to ROBS and will continue with ride along training. After training she will be stationed at Flint Hills and Marais des Cygnes NWRs.

a. Meetings

The annual Valentine NWR fisheries coordination meeting was held at the Valentine Fish Hatchery on 6 March. Jeff Jolley (SDSU Ph.D. student) provided an update on his research, and Greg Wanner (USFWS) provided an overview of the fisheries monitoring conducted on Valentine NWR.

On 21 May, Nenneman and Friedrichs met with Kay Kottas at the Spike Box Ranch. Kottas showed us the technique she was using to monitor individual blowout penstemon plants at the site to better understand the demographics of the penstemon. This technique is much more labor intensive than our current monitoring, so if it is decided to adopt this technique, it would have to occur on a few selected blowouts, rather than across the refuge.

Nenneman attended the Nebraska Grazing Conference in Kearney, NE on 12-13 August, and presented some of the preliminary results of the SSP project (Effects of grazing on grassland birds at Valentine NWR). Terry Shaffer conducted some basic ANOVA statistics looking at how grazing and year of study related to an index of bird abundance by species. Based on this preliminary analysis, it appears that birds using Valentine NWR respond more to year effects than to grazing treatments. Another statistician (Deb Buhl) will be working on calculating bird abundances with Distance sampling, and we still need to look at what vegetation variables to analyze.

a. Training

Nenneman attended 6 days of training in Jan. at the Colorado Wildfire Academy held at Northeastern Junior College in Sterling, CO. Coursework included Basic ICS, Firefighter Type 1, and Portable Pumps and Water Use. He also attended the Colorado Wildfire Management Academy in Gunnison, CO during the first week of June. He took S-260 Fire Business Management and S-290 Intermediate Fire Weather. These classes are part of the training requirements for becoming an

engine boss for the Complex. Hopefully the training and task book requirements will be finished next year.

Nenneman and Lindvall attended the Nebraska Chapter of The Wildlife Society annual meeting in Kearney on Feb 28-29. The meeting was held in conjunction with the Nebraska Prairie Bird Science Symposium, so there were many interesting papers presented. One thought-provoking paper presented by Chris Helzer (TNC) pointed out the importance of scale in making resource management decisions. Helzer pointed out that many decisions are made based on bird survey data, but he pointed out that prairie insects may be a better measure of how well management is working as insects often have more habitat-specific requirements than birds.

Nenneman attended the Aircraft Safety Refresher (Basic Aviation Safety Training B-3) for personnel that fly in aircraft. The class was taught by James Ward and Sean Bayless – they used a mix of video and displays of equipment to teach about safety when using aircraft and survival if you should happen to crash.

Biological technicians Megan Friedrichs and Evan Suhr both completed S-130 and S-190, and passed the pack test. With both technicians red carded, there is now enough personnel to staff an engine if a fire occurs on the refuge. We are still lacking a qualified engine boss unless Loren Eaton is around.

Nenneman, Suhr, and Coffman all completed the FWS training course for Agricultural tractor and Skid steer. Kime completed the Skid steer course.

Nenneman taught the ATV/ORUV class for seasonal employees on the Ft. Niobrara/Valentine NWR Complex. Seasonal employees completing the training included fire technicians Howard, Coffman, and Graham, and biological technicians McPherron and Suhr. Safe operation of ATV's at all times was stressed throughout the day.

A refuge review team from the Regional Office visited the Ft. Niobrara/Valentine NWR Complex during the last week of Sept. Nenneman and Lindvall met with the team on 29 Sept for a brief tour of Valentine NWR. Marlin French was able to ask most of the questions that he was interested in during this tour. The review team will provide a written report of their findings to the refuge, providing feedback on things that are being done well, and areas which we could improve.

F. HABITAT MANAGEMENT

1. General

The 71,772 acre Valentine NWR lies at the heart of the Nebraska Sandhills. These grass-stabilized sand dunes provide some of the best native mixed- and tallgrass prairie remaining in the U. S. The refuge contains rolling, vegetated sand dunes and interdunal valleys that characterize the Sandhills region. Shallow lakes and wetlands are interspersed throughout the valleys, grading into subirrigated meadows. Sandhills and choppy sandhills range cover about 59,000 acres. Native grasses provide the dominant vegetation cover, although some areas have been invaded by Kentucky bluegrass and smooth brome. Other exotic plants of concern include small areas of leafy spurge, Canada thistle, Garrison creeping foxtail and spotted knapweed. Low water in larger lakes and wetlands during the past few years has allowed Canada thistle and cottonwood trees to proliferate in the wetland margins. Grassland management is accomplished using permittee grazing and haying, prescribed fire, rest, and weed control.

2. Wetlands

There are 37 major wetland/lake areas on Valentine NWR that comprise about 13,000 acres. Wetlands on Valentine NWR held good water during the spring thanks to good snowfall in April, and above average rainfall in May and June. By the end of June, water levels in small wetlands and flooded meadows had begun to recede.

Lake elevations have been recorded at seven refuge lakes off and on since 1988. On these 7 lakes, spring 2008 readings were higher than spring 2007 on 5 lakes. Whitewater and Watts lakes had the greatest increase over last year, increasing by 9.12 inches and 9.6 inches, respectively. Clear and Willow lakes were both down from spring 2007, with decreases of 2.64 and 4.8 inches, respectively. All of the lake elevations are still lower than spring averages (Table F 2.1); the lakes are 1.13' below average for this time of year. However, this is an improvement over the 1.47' below average measured last year. Clear and Hackberry lakes show the greatest deviation from average, with Clear down 3.02', and Hackberry down 1.71' from spring average. All of the remaining lakes showed less than 1' difference from average (Dewey, -0.39'; Willow, -0.59'; Watts, -0.66'; Pelican, -0.76', and Whitewater, -0.78'). It appears that water levels are beginning to show some recovery from the years of dry weather experienced in recent years. Hackberry Lake elevations are probably still showing some lingering effects of the 2004 renovation. The lake of biggest concern (in terms of elevation) is Clear, which seems to be recovering much more slowly than the remaining lakes. From lake elevation data collected in Sept, it appears that Refuge lakes are beginning to show some recovery as elevations are getting closer to fall averages. In 2007, the seven lakes monitored on the refuge were down 1.4' from their fall averages. In 2008, these same lakes were down only 0.6' from average. Clear Lake appeared

to benefit from water released from Whitewater and Dewey lakes, going from 3' below average this spring to being down only 0.85' from the fall average. Additionally, the fall reading this year was higher than the current year spring elevation. Whitewater Lake showed the effect of the water release, as elevation here was 1' below average. Water levels in Hackberry Lake continue to slowly recover from the 2004 renovation. In fall 2007, the lake was 2.3' below average, while this year was only 1.6' below average. All other lakes were less than one foot lower than their fall average.

Table F.2.1. Lake elevations recorded on Valentine NWR, 2008. For all lakes, average spring elevations are based on the highest elevation recorded in Mar-May from 1988-2008, and the average fall elevations are based on the lowest elevation recorded in Aug-Oct from 1988-2008.				
Lake	Spring 2008	Fall 2008	Spring Average	Fall Average
Clear	2913.72	2915.05	2916.74	2915.9
Dewey	2923.9	2923.1	2924.29	2923.23
Hackberry	2922.62	2922.12	2924.33	2923.75
Pelican	2941.94	2941.76	2942.59	2942.02
Watts	2923.02	2922.16	2923.68	2922.76
Whitewater	2927.42	2926.48	2928.2	2927.44
Willow*	2909.31	2909.03	2909.9	2908.98

* Average elevation for Willow Lake are only from readings taken after 1997, when the water control structure washed out.

There are 32 ground water monitoring wells located on and adjacent to Valentine NWR. These wells were established in the 1950's by the USDI-Geological Survey, and have been monitored twice annually by refuge staff since 1970. In general, groundwater levels were higher in 2008 than those measured in spring 2007. Of the 31 wells monitored, six were down from spring 2007, 20 were up, and 5 were the same. None of the six that were down were down > 6 inches, while 12 were up > 6 inches from last spring. Comparing spring 2008 groundwater elevations to the average spring groundwater elevations shows that 20 elevations were lower than average and 11 elevations were higher than average. Of these, 10 were down more than 6 inches, and 6 were up more than 6 inches (Table F 2.2). Comparing fall 2008 groundwater elevations to fall 2007 groundwater elevations, only 2 of the 2008 readings were lower than in 2007, while 27 were higher than the 2007, and of these 20 showed increases of 6 inches or more over the 2007 elevation. In comparing the fall 2008 groundwater elevations to the long-term average, 21 were below average and 10 were above average. Of the below average readings, 10 were greater than 6 inches lower than average. Five of the above average readings were greater than 6 inches above the average. Taken together, both the spring and fall groundwater elevations indicate that while the groundwater levels are increasing (from 2007 to 2008), they are still lower than the 39 year average for these wells. Given the unpredictable nature of precipitation patterns in the Great Plains, such variation from average is not really out of the ordinary.

Table F 2.2. Spring and fall USGS groundwater well readings, and the spring and fall averages as recorded from 1970-2008. Groundwater elevation is given for all wells for which the elevation is known. For wells that the elevation is not known, an index value is given.

Well No.	Well Location	Spring	Spring Ave	Fall	Fall Ave
1	N. East Long	2875.83	2874.48	2873.93	2873.27
2	SE corner S. Marsh	2894.13	2894.55	2892.33	2893.13
3	SE corner Pony	2899.67	2899.49	2897.07	2897.42
4	SE corner Cow	2919.19	2919.27	2919.19	2918.48
5	Calf Camp & Hwy 83	2896.45	2896.39	2895.35	2895.08
6	Calf Camp West	2916.33	2915.54	2913.43	2913.66
7	Little Hay West	2915.44	2916.07	2916.04	2916.00
8	Little Hay & Hwy 83	2898.68	2899.29	2897.88	2898.15
10	W. Pony & Hwy 83	2922.81	2922.87	2921.71	2922.44
13	S. Willow	2915.95	2917.15	2916.25	2917.06
14	E. McKeel	2919.97	2920.14	2918.77	2919.02
15	S. East Sweetwater	2924.87	2925.12	2925.37	2924.62
16	SE Trout	2898.97	2898.80	2897.17	2897.53
17	E. Crowe Headquarters	98	95.45	98.8	95.44
20	S. Watts	2924.86	2924.69	2923.66	2924.03
21	E. Pony Pasture	2923.84	2924.83	2923.64	2924.37
22	Hackberry-Dewey Canal	2923.69	2923.72	2922.49	2923.03
23	Badger Bay	2923.49	2923.69	2923.69	2923.74
25	E. Pelican	2942.42 ^a	2943.57	2942.42 ^a	2943.27
26	E. West Long	2962.88	2965.01	2962.68	2964.91
27	Dad's Recreation Area	2956.79	2957.48	2955.09	2956.31
29	NW Pelican	2948.69 ^a	2948.37	2948.69 ^a	2947.59
30	S. Dewey Marsh	2939.94	2940.44	2938.94	2939.37
31	W. Dewey Marsh	96	98.07	96	98.29
32	N. Pelican	2942.15	2941.59	2940.65	2940.82
33	NW West Long	2979.3	2979.72	2978	2978.85
34	Hwy 83 & W. King Flats	2923.49	2924.02	2923.99	2923.82
35	SE "21" Lake	97.1	96.21	95.6	95.35
36	W. Sweetwater & Hwy 83	2926.47	2926.96	2926.67	2926.34
38	SE West Twin	2921.34	2920.51	2919.44	2919.72
39	SW Hassle Place	94 ^a	94.34	94	94.01

^a These wells held no water, only damp sand at the bottom.



Wild rice bed at the west end of Dewey Lake, possibly due to carp control in spring. (MLL)

5. Grasslands

The native prairie on Valentine NWR was recognized in 1979 with the designation of the refuge as a Registered National Landmark. Four range sites are recognized within the refuge boundaries, each contributing to the diversity of the grassland. Wetland range sites are characterized by prairie cordgrass, blue-joint reed grass, sedges, goldenrods, saw-toothed sunflowers, and willows. The threatened western prairie-fringed orchid is also found in some of these wetland range sites.

Sub-irrigated range sites are located where the water table is near the soil surface. These areas support grasses more characteristic of the tallgrass prairie. Dominant species found in these areas include switchgrass, Indian grass, and big bluestem. Many of our problem plant species occur in these sub-irrigated range sites. Kentucky bluegrass, smooth brome, leafy spurge, and Canada thistle are all most prevalent here.

Sand range and low sand range sites are on lower and gently sloping hills, and are covered with native cool and warm season grasses characteristic of the mixed-grass prairie. Needle and thread, porcupine, June, western wheat, prairie sandreed, sand bluestem, sand lovegrass, little bluestem, and switch grass are

prevalent on these sites. Many forbs are also found here at varying abundance and visibility depending on climatic conditions.

Choppy range sites are the high dunes that gave the Sandhills their name. These hills are generally vegetated, but may be subjected to wind erosion resulting in a blowout. These blowouts are habitat for blowout grass and the endangered blowout penstemon. Predominant grasses in the “choppies” are blue grama, sand bluestem, prairie sandreed, sand lovegrass, sandhills muhly, and little bluestem.

Grassland management goals are to preserve, restore, and enhance the ecological diversity of indigenous flora of the Sandhills prairie. Management to meet this goal is accomplished through disturbance with grazing, haying, and fire, and rest.

7. Grazing

In 1985 the refuge habitat management program was changed and short-duration grazing started. Prior to 1985, much of the refuge grassland was grazed on a six week rotation. Authorized AUMs for each of the permittees have remained about the same when compared to 1997 levels. In 2008, there were five permittees in the program. All have had permits for many years. Grazing rates were reduced to compensate permittees for the added expense of moving cattle for short duration grazing. One bid graze was also let. The program was similar to previous years with emphasis on spring grazing treatments in meadows and short-duration grazing in hill units.

In June many problems were encountered with the grazing portion of the habitat program during the month. Of the 6 herds grazing on the refuge only 2 remained in the correct units for the entire month. With a short staff it is very difficult to keep on top of this program.

Grazing fees for 2008 were:

spring grazing treatment		\$19.71/AUM
short-duration grazing		
	1 day in unit	\$12.38/AUM
	2 days in unit	\$17.88AUM
	3 days in unit	\$19.71/AUM
	4 days in unit	\$20.44/AUM
	5 days in unit	\$20.80/AUM
	6 days in unit	\$22.17/AUM
	7 days in unit	\$22.54/AUM
	8 or more days in unit	\$23.00/AUM
fall		\$23.00/AUM
winter		\$23.00/AUM

The full rate of \$23.00 for 2008 is an decrease of \$0.36 per AUM from the 2007 fee and is based on a rate survey conducted by USDA and published in Nebraska Farm Real Estate Market Developments. This is the first time in many years that the rate has gone down. Previous to 2008 we had been going up the maximum of \$1.00/year allowed by policy. After many years of \$1.00 increases we are finally at the market rate. The different classes of animals were also changed in 2003 and we now use the US Department of Agriculture Statistics Board conversion factors. Mature cow stayed at 1.00; mature cow with nursing calf went from 1.25 to 1.32; yearling went from .75 to .70; bulls from 1.00 to 1.50; and horse from 1.00 to 1.20.

Permittees also had their grazing bills reduced for improvements and repairs to wells, fence, tanks and other facilities needed for the program. In 2008 about \$62,592 was spent on improvements and deducted from final billings. Several projects, mostly replacement of boundary fence, were not completed and will be done in 2009 using 2008 funds. These are included in the previous total. Permittees were required to hire a contractor to repair fences in the units they used. Basically two fence contractors were hired and they split the fence repair for the five permittees. They were paid \$45.00 per hour for a crew of two, and supplied their own gas, tools, vehicle, and equipment. Total fees collected for the 2008 grazing season were \$30,967.

The methods and expected results for the different grazing strategies are explained below. The acreage of grassland treated with each type of grazing is listed in Table F7a.

a. **Spring Grazing Treatment**

Spring grazing treatment (SGT) is done before the end of May on sub-irrigated meadow sites. The cattle are in the unit for greater than two weeks. Cattle eat or trample almost all of the residual cover. They also over graze and thus reduce undesirable cool season exotic grasses (Kentucky bluegrass and brome). Cattle can be placed in a unit to remove residual and then brought back in later to hit the cool season exotics. In some instances, cattle are brought back in at several later dates for the same purpose. Because much of the feed is in the form of old mat, this treatment is best done by fall calving cows and not by lactating spring calving cows. Meadows that are hayed are also sometimes given this treatment to add fertilizer.

Dramatic results occur with this treatment. Exotic cool seasons, such as Kentucky bluegrass, are suppressed and native warm seasons, such as switch grass, increase in vigor and density. The disadvantage is the loss of the unit for nesting in the year of treatment and a lower waterfowl nesting density in the following year. Often the unit can however be rested for up to five years following treatment.

In 2008, 20 habitat units totaling 3,807 acres received a spring grazing treatment and included some areas that were later hayed.

b. Spring Short-duration Grazing

Spring short-duration grazing (ES-SD) is grazing a unit for less than two weeks during May. Generally the cattle are in the unit for only three to five days. This type of grazing is generally done in hill units to stimulate growth of grasses, especially cool seasons. The short exposure times eliminate overgrazing. In 2008, 2 habitat units totaling 950 acres had spring short-duration grazing. Where possible units grazed later in summer the previous years are grazed using this treatment. This both varies treatment and reduces disturbance to nesting cover. Most units grazed with ES-SD show excellent growth by fall.

c. Short-duration Summer Grazing

Short-duration summer grazing (SD-S) is done from June 1 through September 1. Cattle are in a unit for less than two weeks. Most units are grazed only three to five days and the cattle moved on to the next unit. Electric fences are used to break up larger units and increase stock density. Most short-duration summer grazing was completed by mid-July. In 2008, 66 habitat units totaling 13,912 acres were short-duration summer grazed. Units grazed in this method show good growth by fall if there is adequate moisture. If little or no late summer rainfall is received re-growth is less, especially in those units grazed in late July or August.

d. Summer Grazing

Summer grazing (S) is done from June 1 through September 1 and cattle are in the unit for two weeks or longer. In 2008 no habitat units were summer grazed. When we do summer grazing it is usually in larger units which have not been cross fenced.

e. Fall Grazing

Fall grazing (F) is done from September through November. Fall grazing can reduce mulch accumulations, add fertilization, and maintain grouse leks. If done at the proper time cattle will also graze out small wetlands and leave the surrounding upland vegetation alone. Generally the wetlands have green in them while the uplands have only cured grasses. Grazing in the wetlands recycles nutrients and provides pair habitat for ducks in the spring. Generally we have moved away from fall grazing. Fall grazing eliminates both winter cover and nesting cover in the following year. Some units were fall grazed in 2007 that will be given a spring grazing treatment in 2008. One unit was fall grazed after being hayed. This adds fertilizer to the soil and eventually improves the quality and quantity of hay harvested. In 2008, 3 habitat units totaling 649 acres were fall grazed.

f. **Winter Grazing**

Winter grazing (W) is done during the November through April period. In winter grazing, cattle are fed hay on a feed ground in a unit. The hay comes off the refuge. When the weather is harsh the cattle feed on hay but when it is nice they graze away from the hay ground. Units with a history of winter grazing combined with feeding also have excellent growth of grasses away from the feedlot. This is due to the import of energy in the form of fertilizer. Hay is cut in the meadows. Resident wildlife also utilizes waste grain from the feeding operation. Winter feeding can also be used to stabilize roads. In 2008, 4 habitat units totaling 318 acres were winter grazed.

g. **Fire**

Prescribed fire (P) and natural or wildland fire (N) are discussed in the fire section H-9.

Treatment		Units	Acres	AUMS
Rest	rest (R)	219	41,577	----
Spring	spring grazing treatment (SGT)	20	3,807	1,471
	early spring short duration (ES-SD)			
	ES-SD 1-6 days	0	---	---
	ES-SD 7-10 days	2	950	137
Summer	short duration summer (SD-S)			
	SD-S 1-3 days	41	5,732	1,013
	SD-S 4-7 days	21	6,944	1,027
	SD-S 8-14 days	4	1,236	188
	summer (S) 15-27 days	0	---	---
Fall	fall (F)	3	649	285
Winter	winter (W)	4	318	
Hayed	hayed (H)	9	421	----
Fire	prescribed fire (P)	3	218	----
	natural fire (N)	0	---	----
*Note: some habitat units received double treatment, primarily hayed units that were also spring grazed (SGT) or fall (F) grazed units, or rest (R) units that had N or P fires.				

Vegetation Monitoring

Grazing is the primary grassland management tool on Valentine National Wildlife Refuge. Grazing treatments are generally geared toward maintaining the growth and vigor of native grasses and forbs, while suppressing non-native grasses (see discussion of grazing treatments). In 2003, 202 random transects were established across Valentine NWR to monitor vegetation. These transects are designed to monitor long-term vegetation changes and to gauge if refuge

management objectives are being met. The monitoring protocol uses 30-m transects randomly placed within habitat units. Since vegetation differs between aspects (Bragg 1998), transects were stratified by aspect (NE facing, SW facing, hilltop, swale or interdunal flat). To ensure that sampling points were well distributed, the refuge was stratified into seven management areas (Fishing Lakes, Wilderness, Hay Flats, Marsh Lakes, Pony Lake, King Flats, and East End), and a grid system was placed over each area. The grid system was used to locate random points for the start of each transect. Once the random point was reached in the field, the nearest appropriate aspect (in the order NE, SW, hilltop, interdunal flat) was selected. On NE and SW facing slopes, the transect was placed perpendicular to and across the middle portion of the slope. For hilltops and flats, a random compass bearing determined the transect direction. To avoid disturbance caused by cattle or bison rubbing on the transect marker, vegetation measurements start 15-m away from the marker (the corner of the Daubenmire frame sits at 15-m, 30-m, and 45-m from the marker). On each transect, plant species composition and cover was assessed in three, 1-m x 0.5-m vegetation frames (Daubenmire 1959). Within the vegetation frame, each plant species was identified and assigned a percent cover value (1 = <1%, 2 = 2-5%, 3 = 6-15%, 4 = 16-25%, 5 = 26-50%, 6 = 51-75%, 7 = 76-95%, and 8 = >95% [Modified from Elzinga et al. 1998]). Vegetation visual obstruction (Robel et al. 1970) and litter depth were measured at the center of each vegetation frame. Litter depth was recorded to the nearest centimeter with the following exceptions: if the measuring dowel was resting on bare ground, a zero will be recorded. If the dowel was resting on or in contact with horizontal vegetation from a previous year's growth, but the total accumulation was <0.5 cm, a half-centimeter will be recorded. A measure of vegetation disturbance (grazing or fire) was also recorded within each vegetation frame. Disturbance by fire will be described by the percent of the plot burned using the cover values described above. Additionally, plant groups (Appendix A) were identified within a narrow belt (0.1 m) at every half-meter interval along the 30-m transect (Grant et al. 2004). One hundred fifty-six transects were located in upland (sands and choppy sands) sandhills units, and 46 were located in subirrigated meadow units.

In 2008, a subset of the 202 random transects was selected to balance the sampling of grazed and rested units, and to decrease the total amount of time required to complete sampling in the field. A total of 130 vegetation transects were run, with 84 in uplands and 46 in meadows. Upland sampling included 42 transects each in rested and SD-S grazed, with sampling fairly evenly distributed among the aspects. Meadow sampling included 28 rested, 4 SD-S, 12 SGT and 2 SGT-Hayed transects.

In the Valentine NWR CCP, specific grassland structure objectives are provided for both upland and meadow habitat types, in both grazed (disturbed) and rested units. In uplands, the acceptable range for visual obstruction readings (VOR) is 1-10", with an average of 3" for grazed units. In units rested for 1 or more years, the range goes to 1-18", with a mean greater than 6". For grazed meadows, the desired VOR range is again 1-10", with a 3" average. In meadows with one or more years of rest, the VOR range increases to 2-24", with an average of 10-12".

There was little difference in the VOR between rested and SD-S treatments by late summer in upland habitat units. The average VOR in rested and grazed treatments was 5.33" and 5.38", respectively. Grazed treatments had a smaller proportion of measures that exceeded 6" in height on interdunal flats compared to rested units, with all other aspects similar. Compared to CCP objectives, the VOR in grazed units exceeds the desired average condition, while in rested units falls a bit short of the desired 6" VOR. In meadows, the mean VOR for rested units was 16", for SD-S units was 12", for SGT units was 15", and for spring grazed and hayed units was 5". Thus, for meadow units, all treatments are exceeding VOR objectives. SGT units have recovered to have a VOR structure similar to rested units by late summer, with differences primarily in having less VOR in the >12" range, and a more VOR in the 3-10" range. SD-S meadows have a more even structure and a shorter VOR, while hayed meadows have the most homogeneous structure.

Upland habitat composition was about 70% grasses, 5% grass-like, 20% forbs, and 5% shrubs across both grazed and rested samples. These somewhat closely match CCP objectives, although there is less grass cover and more forb cover than the objectives suggest. In meadows, plant community composition was more varied, with grass cover ranging from 58% in rested units to 71% in SD-S units, grass-like from 12% in SD-S to 16% in rested, forbs from 16% in SD-S units to 23% in SGT units, and shrubs from 0% in hayed to 3% in rested units. Compared to stated CCP objectives for sub-irrigated range composition, percent grass cover is a bit low, grass-like cover a bit high, forb cover a bit high, and shrub cover a bit low.

8. Haying

About 421 acres of sandy, sub-irrigated, and wetland range sites were mowed and yielded 569 tons of hay. All or parts of 9 habitat units were mowed and hayed. GPS based measurements for hayed acres were not obtained this year. GPS information from 2006 was used. The area hayed is fairly close from year to year.

The method of charging for permittee hay was changed in 2001. Now hay is put up on a 50/50 split with the permittee taking half home and feeding the other half back on the refuge at the full rate of \$23.00/AUM in the winter treatment. Thirty five large round bales of the refuge share of hay was hauled up to Fort Niobrara NWR for horse feed. Two hundred and twenty small bales were also hauled up to Ft. Niobrara NWR. These were cut on a 50/50 split.

Most of the meadows hayed are also grazed either in the fall or spring. This adds fertilization to the meadows and improves the quality and quantity of hay produced. In general we try to mow low sites with mostly reed and cord grasses.

Haying is used to provide fire protection for facilities, browse areas for Canada geese, sandhill cranes, prairie grouse, and deer and to provide hay to Fort Niobrara NWR. Mowing can also open up small wetlands for waterfowl pair

habitat. Hay is also used in the winter treatment described under the grazing section of this report.

Areas to be hayed, in which we have found the endangered prairie white-fringed orchid in the past, were searched on foot. Searches were done when the plant was in bloom. Plants found were marked with lathe with orange tops and they area not mowed. Haying may be of some benefit to the orchid as some of the plants found on the refuge are in areas that are annually hayed.

9. Fire Management

Two prescribed burns were conducted on Valentine NWR in April. On 28 April, a total of 90 acres was burned on the west end of Center Lake (31 acres in 32B1 and 59 acres in 32B2). The 32B2 portion of this unit had been a hay meadow for many years, and also had many cedars which were kept short by haying. The meadow had not been hayed for about 5 years, and the cedars were really beginning to shoot up. This area also has a population of western prairie fringed orchids. The burn was conducted with winds primarily out of the south and south east, with occasional south west shifts. The high temperature for the day was 58°F. The burn started just north of the culvert between Pony and Center lakes in HU 32B1. Ignition proceeded north and east from this point before progressing south into HU 32B2. The fire was allowed to flank somewhat through 32B1; once lines were secure along the west and north, the bulk of 32B2 was allowed to burn with a headfire. It was estimated that about 65-70% of the cedars were killed by the burn. Some cedars were scorched at the base, and may or may not have been killed. Visits to this unit later in summer indicated that nearly all of the cedars were killed by fire.

On 29 April, all of HU 21B2 (128 acres) was burned. There was a steady south wind during the duration of this burn, with wind speeds from 12-15 mph for most of the day. High temperature during the day was 74°F. Ignition began in the northwest corner of the unit sometime around noon. The only holding line was along the west side, as the Marsh lakes surrounded the remaining 3 sides. Some lighting was done along the north edge of the unit, along the edge of the lake. This fire was allowed to flank and back its way across the unit, so much more of the litter and duff was consumed than if a head fire was run across the unit. Removal of litter and duff should alter the microclimate to favor native grasses and discourage growth of Kentucky bluegrass.

Nenneman and Eaton responded to a wildfire call south of Kilgore on 27 Aug. Directions to the fire brought us in the long way around, but we did actually spend some time working on fire control lines and putting out some smoldering heavy fuels near the line.

Mow line firebreaks have been completed around burn units at Lee Lake, HU 23B, HU 32B2, and McKeel Lake. With any luck, we will be able to burn at least some of these in 2009 as weather conditions permit.

There were no wild fires on the refuge in 2008.

10. Pest Management

Pesticide use proposals for Valentine NWR were completed on line. A contract sprayer treated Canada thistle via ground application during the July. Areas sprayed were W. Twin, E. Twin, Tom's, Homestead, Coleman, Mule, and Punch Bowl. Sixty four acres were sprayed using Milestone at 5 oz/acre. The chemical (2.5 gallons) and labor (\$2,745) was paid for with grazing receipts. The contractor who was to do aerial spraying via helicopter did not come as the navigation system on his helicopter failed.

In August a contract sprayer sprayed 166 acres of Canada thistle in multiple patches around the fishing lakes area of Valentine NWR. Six and a half gallons of Milestone herbicide was applied at 5 oz per acre using ATVs. Cost of the chemical and contract labor (\$2,745) was paid for using grazing receipts. The helicopter contracted to spray did not come due to equipment problems. He also did not make it up in the fall to spray. Large areas of thistle in the Marsh Lakes and Pelican Lake area remain to be treated.

A contractor sprayed all known locations of leafy spurge with Plateau herbicide at a rate of 8 oz/acre. 448 ounces of chemical were used to treat an estimated 56 acres of spurge. Preference, ammonium nitrate, and dye were used with the herbicide. The spraying was done in the third week of September. No frost proceeded the spraying. Chemical and labor (\$2,205) was paid for using grazing receipts.

Common mullen was hand pulled and cut in the following areas; habitat unit 15 A 1,008 plants; habitat unit 3D 75 plants; and habitat unit 7A1, 2 plants. These are the only known locations of this weed which is on the Nebraska watch list. Hopefully we can eliminate this biennial plant before it becomes a problem.

Cottonwood trees in Sawyer Meadow on Valentine NWR that were mowed off last year re-sprouted. Some of the sprouts were wicked and sprayed with glyphosate during the month. Cottonwood and willow encroachment into meadows and wetlands is a serious problem that needs to be addressed now.



Willows and cotton woods in Sawyer meadow were mowed in 2007 and resprouts wicked with herbicide in 2008. (MLL)

The contractor cutting trees in habitat unit 16C finished up in September. He cut for 200 hours with a skid steer for \$12,000. A combination of management capability funds, \$2,000, and rental funds, \$10,000, was used to pay for the work. He cut cedar trees growing on the south shore of Dewey Lake including some up in the hills. Some of the trees were piled for burning in the winter. Work was done in habitat units 16C, 16A1, and a little in Natural Area 2.

A skid steer with tree shredder was borrowed from LaCreek NRW and used to remove cedar trees from around Watts Lake in Habitat Units 1A1-5 and 2A. We were able to get to most of the trees in these units. A few on steeper hills were not accessible and will need to be cut with a chain saw. The shredder takes anywhere from 10 seconds to 2 minutes to shred a cedar. It works very well, especially for scattered trees. It is estimated that about 1,000 trees were cut.

Cedar trees were also cut by a contractor with a chain saw around Marsh Lakes in Habitat Units 18B, 20A1, 20B1, 2,6,7; 21C1-4. These were mostly scattered trees near the lake. About 1,000 trees were cut in these units. This cutting was paid for out of grazing receipts.

Russian olive trees were trunk sprayed with Garlon 4 in Habitat Units 3C1 dike, 16A3, 18B1(M), and 18B3(M). A total of 26 trees were sprayed. Russian olives are not that abundant on the refuge, making this perhaps a good time to attack them.

Two patches of Garrison creeping foxtail located in 2007 during orchid surveys were observed again this year. Apparently spraying this grass with Rodeo during July has little effect, as the plants seemed to be pretty healthy yet this year. An effort should be made to spray these spots in the fall or spring to see if this introduced cool season grass can be controlled with approved herbicides.

12. Wilderness and Special Areas

The refuge became a Registered Natural Landmark in 1979. National Landmarks were designated by the Heritage Conservation Recreation Service.

In 2005, Valentine National Wildlife Refuge was designated a Nebraska Important Bird Area by the Audubon Society. The IBA program is an inventory of the key sites within a state that support significant numbers and high diversity of birds. The IBA program is a conservation and education effort of the National Audubon Society and has no regulatory authority. Our application was reviewed by a technical committee which commented on the high diversity of species and the large population of greater prairie chickens found on Valentine National Wildlife Refuge.

The refuge is also recognized as an Important Bird Area by the American Bird Conservancy (www.abcbirds.org).

The south west part of the refuge is also a proposed wilderness area. The area designated is about 15,937 acres in size.

13. Easement Monitoring

Four FmHA easements (Mead – 2 parts, Wagner, Yellowthroat (aka Tower) and one development easement are managed out of Valentine National Wildlife Refuge. We also have a road easement to access the Yellowthroat Wildlife Management Area (fee title parcel). All were visited during the year. Site inspection forms were completed and sent on to the Regional Office for the 4 FmHA easements.. We recommended that all be retained as all have significant acreage and wetland values. All landowners were sent certified letters with copies of the easement.

Mead FmHa Easement (Keya Paha County)

A prescribed fire was completed on the Mead Easement in Keya Paha County on May 7. The burn was completed by a contractor through the Landowner Incentive Program offered by the Nebraska Game and Parks Commission. A

special use permit was issued to the landowner to conduct the burn and post-burn graze. The burn took out many invasive cedar trees on the easement ground as well as on adjacent private lands that were included in the burn.. Many of the small cedar trees on the island were burned. Part of the area did not burn as anticipated as the one meadow had been trespass grazed. A spring graze of the fire area was also done post fire in an attempt to reduce brome and bluegrass.



Prescribed fire conducted to reduce cedars and cool season exotic grasses on the Mead Easement. (SB)

Wagner FmHa Easement (Knox County)

The Wagner easement is actually made up of 2 different easements. The land north of the county road is in a more restrictive easement where USFWS controls haying and grazing. The land south of the county road is less restrictive. The easement lands are owned by 2 different landowners. These easements were visited during the year and found in compliance.

Yellowthroat FmHA easement also known as Tower Easement (Brown County)

This easement was visited on several occasions during the year. The landowner had cut many of the cedar trees that are invading the grassland.

Yellowthroat Access Road Easement (Brown County)

The landowner adjacent to Yellowthroat WMA is offering 40 acres of land for sale. If sold the land will probably have a house built on it. The land is on the south boundary of the WMA and the best access to the land would be via an access easement we purchased and on the WMA access road. The landowners of the 40 acre parcel assumed that they could use the easement road and the road on Yellowthroat WMA to access their 40 acres. It is our contention that they can not use either road without USFWS permission. Realty was contacted and indicated that the new landowner could not authorize additional access on the easement without our permission. A letter denying the use of the Yellowthroat WMA access road by private individuals was drafted, sent on for the regional director's signature, and then on to the landowner. A Congressional inquiry concerning the access road was received and responded to. The irony of this is that this same landowner denied public access to the Yellowthroat WMA over an easement established by the FmHA at the time of transfer of the property to USFWS. This same route was also possibly an old county road on a section line.

Colburn Burying Beetle Easement

The Fish and Wildlife Service also has an easement on 1,324.25 acres of land that was formerly part of Valentine NWR. This land was traded away for other lands in what we refer to as the Colburn exchange. The easement was habitat units 24B1, 24B2, 12B3, 24D (N), 24D(S), 12B4, and 12B5 which were traded for habitat units 38A, 37B, and 37C which are now part of the refuge. The easement was placed on the land to protect the endangered American burying beetle. The easement restricts development on the site. We go buy this land as we do refuge work and noted no developments.

An inquiry from Viaro Wireless was received about constructing a cell phone tower on the Colburn exchange easement. There are existing cell towers north and south of the proposed location. They each have gravel roads into them, a fenced in gravel pad about 17 yards by 17 yards, a small building, a generator, and a propane tank. Both are US Cellular Towers. The north one is FCC antenna registration number 1204809 and Cellular One site number 855309. It is located about 6.5 miles north of where Verizon is interested in building a tower. The south one FCC antenna registration number 1258688 and Cellular One site number 855475. It is about 9.4 miles south of where Verizon is interested in building a tower. Both are lighted towers.

The Colburn land exchange easement in the 21 December 1998 warranty deed states that "There shall be no alteration of grassland, wildlife habitat, or other natural features by digging, plowing, disking or otherwise destroying the vegetative cover...." The easement also has a restriction on lighting.

The site investigator for Viaro was told that we could not permit the towers based on the easement terms. He was informed of the other towers and he stated that they might not be strong enough to accept another carrier. He was also told about the Beaver Lake Tower that is about 7 miles straight west of the proposed location. The representative did not state whether he would continue consideration of this site.

On June 11 Refuge Manager Lindvall visited five Wetland Reserve Program properties with NRCS and Game and Parks staff. Compliance with compatible use plans was better than in the past. Spring rains also have recharged wetlands on many of the easements.

Right of Ways

On January 28, 2008 a meeting was held with Nebraska Department of Roads (NDOR) and the Federal Highway Administration concerning State Spur 16A (.12 miles) on Ft. Niobrara NWR and that part of Spur 16B (1 mile) on Valentine NWR lands. Jim Knott, Roadway Design Engineer for NDOR, was proposing that NDOR terminate maintenance on these 2 roads due to the fact that they are on federal land and thus do not qualify as state spurs. Mr. Knott wanted to give the roads to the refuge to maintain. We would prefer not to maintain these roads.

Refuge Manager Lindvall gave NDOR copies of right of way easements for both roads. State Spur 16B on Valentine NWR was required to be built in 1938 as part of the mitigation for construction of Highway 83. In Permit No. 38-73 dated June 7, 1938 under conditions it states "There shall be constructed and maintained a spur road connecting the said highway with Valentine Migratory Waterfowl Refuge Administrative buildings located in the SW ¼ section of Section 14, T. 30 N, R.29W." When presented with this information Mr. Knott agreed that the state had an obligation to maintain this road.

State Spur 16 A is located on Ft. Niobrara NWR and goes from Highway 12 to just before the Cornell Bridge. This road was built by the NDOR in about 1958 when the location of Highway 12 was changed. The old highway was located near by to the Cornell Bridge. When the highway was moved away from the bridge and the old highway abandoned, it was necessary to construct Spur 16A for access to the bridge and the refuge. A right of way permit (Wyoming 073307 Nebraska) dated November 10, 1958 was issued to NDOR to change the location of Highway 12, abandon roadway not needed due to the location change, and for Spur 16A to connect the new highway to the bridge. When presented with this information Mr. Knott agreed that NDOR would continue to maintain this road.

G. WILDLIFE

1. Wildlife Diversity

Wildlife diversity, with the exception of large ungulates and their predators, is relatively unchanged in the Nebraska Sandhills as compared to most areas of the United States. Native grasslands dominate the local flora, and indigenous wildlife is well represented. Threats to this largely intact grassland system are changes in the disturbances that led to the evolution of the grassland system and invading exotic species. While much is not known about historic disturbance, fires and large bison herds undoubtedly played a role in shaping this grassland system. A bison vertebra, with the long spine that extends into the buffalo hump, was found along the dry shoreline of the Marsh Lakes at Valentine NWR in 2002, and a partial buffalo skull was found during the renovation of Hackberry Lake in 2004.

Maintenance and enhancement of the Sandhills prairie is necessary to ensure the ecological integrity of the flora and fauna found on Valentine NWR. Grassland management on the refuge incorporates grazing, mowing, rest and prescribed burning to accomplish refuge objectives. Nesting information collected at the refuge indicates that management for greater quantities of tall, vigorous native vegetation provides the best nesting cover for migratory waterfowl and resident prairie grouse. This type of cover is often lacking on private land, thus the refuge has sought to use grassland disturbance to maintain grassland vigor without compromising nesting cover.

Refuge wetland management is primarily accomplished to maintain wetland quality. Size limits on northern pike, capture of adults, and chemical renovation of lakes have all been used to reduce carp populations. Carp have detrimental effects on water quality, and subsequent plant and invertebrate production which play an important role in waterfowl production. Removal of carp has not been accomplished on refuge lakes, although renovations in the 1970's and 1980's removed carp for a few years. Current management using northern pike seems to be working to limit carp population growth.

2. Endangered and/or Threatened Species

a. Bald Eagle

As many as 8 Bald Eagles were observed at Clear Lake in mid March, and it was not uncommon to see an eagle or two around other refuge lakes during March. After a summer hiatus, Bald Eagles were again observed on the refuge during Oct, often near Hackberry Lake. Both adult and juvenile eagles have been seen, often perched in a dead cottonwood north of the rock road, or out harassing ducks on the lake. The eagles hung around until most of the ducks left in Nov.

b. Peregrine Falcon

Migrating peregrine falcons are usually observed traveling through Valentine NWR in the spring (generally April) and in the fall (generally Sept-Nov). None were observed in 2008.

c. Whooping Crane

No observations of Whooping Cranes on Valentine NWR in 2008. These cranes are sporadic refuge visitors, stopping occasionally at refuge wetlands and meadows.

d. Western Prairie Fringed Orchid

Nenneman and Friedrichs completed western prairie fringed orchid surveys in July. An attempt is made to search all units with orchid records during the peak of the orchid blooming, when the plants are easiest to find. Orchids have been found in 6 additional habitat units since 2004, so now orchids have been found in 14 habitat units plus 7 additional locations on or near the refuge where orchids have been seen since 1981. In 1994, 230 orchids were recorded. This year, 229 orchids were found in a search of the same areas. Adding orchids observed in the Habitat Units where orchids have been found since 2004 brings the total for 2008 to 341 flowering orchids and 8 vegetative orchids (Table G2d1; table excludes 5 off-refuge sites where orchids have not been seen in recent years). Variability in orchid blooming activity makes this a difficult plant to manage for, as the number of orchids observed in a given year may have very little to do with management efforts. In 2002 and 2003, very few orchids were located (0 and 1, respectively). While it is difficult to compare across years, it is apparent that 2008 was a very good year for flowering orchids.

Habitat Unit	Number of Orchids	Number of Flowers
32B2	66	586
29A1	10	103
24A2	2	25
24C2	3	30
24C4	135	1355
25B Sweetwater	2	15
25B Cow Lake	0	0
Hackberry HQ ROW	0	0
Hwy 83 ROW/29A1	7	49
18B7	15	153
36A	0	0
21A3	16	185
21A4	3	20
16E4	77	831
7A2	0	0
15C3	1	5

13A	12	140
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e. Blowout Penstemon

In March, a brief report on the “Showing Success” grant was written for Martha Tacha from the Grand Island ES office. The report highlighted how transplanting seedling blowout penstemon on Valentine and Crescent Lake National Wildlife Refuges has increased the number of plants on both refuges.

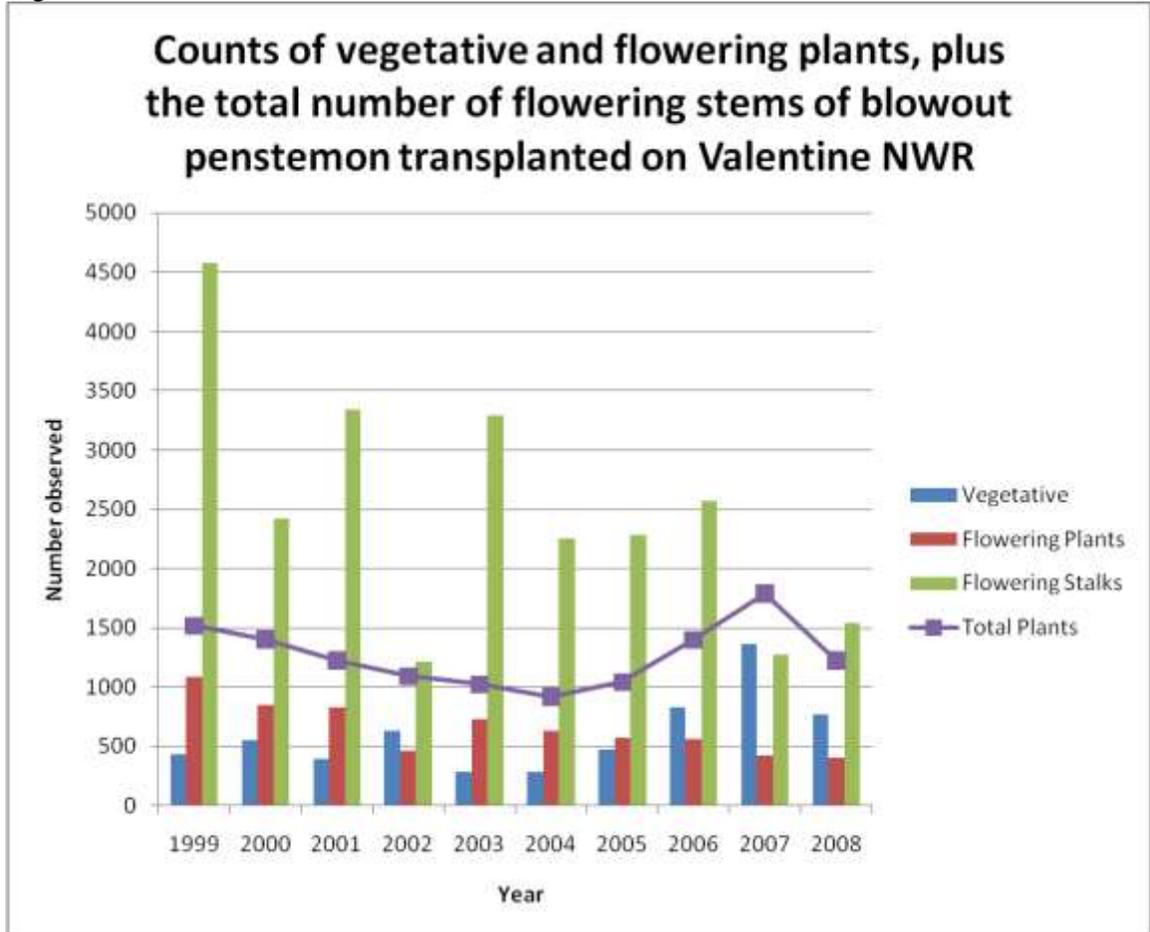
Megan Friedrichs completed the blowout penstemon survey/count for Valentine NWR during June. Apparently 2008 was not a good year for blowout penstemon, as the total number of plants observed declined by 563 from the 2007 survey (Table G2e1 and Fig G2e1). The biggest declines seemed to occur in transplants from 1996-2004, which was somewhat offset by transplants put in 2005-2007. These results are disappointing following three years where the counts had been steadily increasing. The total number of blowouts containing penstemon has increased with the transplant efforts, and 61 of 69 blowouts that had penstemon transplanted into them still had some plants in 2008.

Transplant survival from year to year has been tracked beginning with seedlings transplanted in 2005. The percentage of seedlings planted in 2005 found in the following years was 19.5%, 12.5%, and 10.6% in 2006, 2007, and 2008, respectively. For seedlings transplanted in 2006, the percentages found in the next two years were 11.8% and 7.4% for 2007 and 2008. Of the seedlings planted in 2007, only 6.0% were found in 2008. Apparently the wet weather experienced in Jun 2005 was good for establishing blowout penstemon seedlings.

Precipitation was likely not the only factor, but may have been one of the driving factors in getting almost 20% of the seedlings through to the next year. It is also possible that the very dry weather experienced in Jul 2007 had a negative impact on survival of all of the recent transplants in 2008.

Plant growth form	2004	2005	2006	2007	2008
Vegetative	289	474	833	1363	767
Flowering	630	570	567	424	408
Flowering stems	2250	2282	2567	1271	1545
Total plants	919	1044	1400	1787	1224
Native plants	15	20	17	26	3
Transplants	1078	2352	2548	2450	588

Figure G2e1



f. Wolves

Wolves were extirpated from Nebraska in the mid- to late 1800's. There is an occasional wolf sighting documented in Nebraska, but none near the refuge.

g. American Burying Beetle

American burying beetles have been documented on Valentine NWR through casual observation, and by a brief survey conducted in 2005. A minimum of 58 ABB were captured during 15 trap-nights in 2005, as well as 6 other species of *Nicrophorus* beetles (see 2005 narrative for more detail). The ABB survey will be repeated next year.

3. Waterfowl

a. Ducks

Spring migration - In early March, ice on refuge lakes began to break up, and with the appearance of open water, ducks began to arrive. Common mergansers,

common goldeneyes, and buffleheads were the early arrivals, followed by most of the other species by about the third week of March. Almost all species of ducks that migrate through or breed in the Sandhills were present by the end of the March. No ruddy ducks had been seen at the end of March. Waterfowl migration peaked in April, and many ducks had moved on from the Refuge by the end of the month. No surveys of waterfowl use days were conducted, but anecdotal observations indicate a peak in the number of species and number of ducks on the refuge lakes in the second and third week of April. Dr. Gibson observed canvasbacks feeding on snails on the west end of Hackberry Lake during his stay at the bunkhouse at Hackberry Headquarters.

Breeding waterfowl - Waterfowl pair and brood counts were conducted on the following lakes: Marsh Lakes, West Long Lake, Yellowthroat Marsh and Yellowthroat Lake, Center Lake, "21" Lake, Pony Lake, and Hackberry Lake. This is the first year since 2001 that any waterfowl counts have been conducted. Waterfowl pair counts were conducted during the 3rd week of May, and brood counts were conducted two times, at the end of June, and again at the end of July. Based on the percentage of refuge wetlands surveyed in 2008, the estimated number of dabbling pairs was 1290, and the estimated number of diver pairs was 372. The estimated number of broods was 30, or a brood pair ratio of 1.77%. In the past, the number of pairs and broods on the Marsh Lakes greatly exceeded the 2008 observed numbers (Table G3a1). The 2008 numbers are also well short of the CCP waterfowl objectives of dabbling duck pairs greater than 4000 and diving duck pairs greater than 700, with a brood/pair ratio greater than 20%. Another example of the low duck nesting effort shows in that three people walking the island (HU 18C2) in June produced only one duck nest, a Mallard with 7 eggs.

	BWTE	MALL	Dabbling	Diving	Coot	Broods
2000	420	560	1406	53	196	87
2001	190	338	732	42	214	NA
Average*	397	222	805	135	300	NA
2008	39	41	125	18	4	1

*Average is pair counts on Marsh Lakes from 1968-2001, excluding 1972-1977

Fall migration - The waterfowl migration picked up in Oct, with the highest number of birds and species observed about mid-Oct. Northern shovellers and gadwalls were the two most numerous species observed during AI work on Dewey and Marsh lakes. Waterfowl use of the Marsh lakes is considerably lower this year compared to surveys in 2007. The fall migration for waterfowl using Valentine NWR lakes appeared to peak around Nov 1st. Avian influenza surveillance on that day indicated the largest number of Mallards observed, and there were many diving ducks using Dewey Lake. There was a spike in duck numbers in mid-Oct, with a larger diversity of dabbling ducks represented, but the total number of ducks appeared to peak the first week of Nov. Dropping temperatures and some snowfall on 6 Nov seemed to push most of the ducks off

the refuge, although warmer temperatures through the middle of the month opened most of the wetlands up again, and there was some moderate waterfowl use of these areas, which continued until freeze up. By early Dec, ice cover on the lakes had sent virtually all of the waterfowl remaining in the area to other locations. Canada geese and trumpeter swans roosted on the ice for a few days after freeze-up, but by mid-Dec, no waterfowl were observed on the refuge.

b. Geese

No specific data were collected on Canada geese using Valentine NWR in 2008, but the following represent observations made through the year. Canada geese arrived as the ice left refuge lakes, with numbers building rapidly by mid March, then declining somewhat as migrants left the country. Breeding pairs of Canada geese are a common sight on almost all refuge lakes. A goose nest was observed in the marsh west of the DU water control structure in Calf Camp valley on 26 April. Other geese are undoubtedly nesting elsewhere on the refuge, although no attempt to find and monitor these nests has been made. No broods were observed in April. Three Canada goose broods were spotted during pair counts in May. Two goose broods were observed on Dewey Lake several times during the June. One brood had only one gosling that had reached nearly adult size, while the other brood had about 4 half-grown goslings.

By November, larger flocks of Canada geese were observed roosting on several of the refuge lakes in the latter part of the month. Most geese were seen on East Twin, West Long, Duck, and Hackberry lakes. Other lakes are likely used (e.g. West Twin and Dad's), but these lakes are not observed as often.

c. Trumpeter Swan

As with Canada geese, no specific surveys were conducted on Trumpeter Swans on Valentine NWR, and the following are observations made through the year. Trumpeter swans began spreading out into open water as it became available. Swans were seen on Hackberry, Watts, West Long, and Center lakes, as well as on the wetland south of Willow Lake in HU 16A3 during the month of March. Pairs of Trumpeter Swans were observed on several wetlands in April – these include East Long Lake, East Sweetwater Lake, Center and “21” lakes, Calf Camp Marsh along Hwy 83, wetland south of Willow Lake in HU 16A3, and on Watts Lake. Swans have been recorded as breeding on the HU 16A3 wetland, Center Lake, and East Sweetwater Lake in past years. On 14 April, the pair of swans observed at Calf Camp appeared to be checking out the area, and one bird appeared to be pulling up vegetation as if to construct a nesting platform. After this observation, the pair apparently abandoned this area, as they were not observed here again. Two cygnets were hatched on Center Lake between 14 and 24 May. This pair of swans was observed to have only one cygnet during the month of June.

By November, larger groups of swans were observed roosting on several refuge lakes. The west end of West Long had 6-8 swans roosting there for much of the month, and a group was also seen using East Twin Lake.

4. Marsh and Water Birds

A double-crested cormorant rookery on a small island in the Marsh Lakes was observed while conducting brood surveys on 03 Jul 2008. There were approximately 100 nests, and they had all been depredated or abandoned. It appeared that once some of the nests were depredated, the rest of the rookery abandoned. There were also two dead adult cormorants and one dead pelican on the island.



Figure G4. Abandoned Double-crested Cormorant colony on a small island in the Marsh Lakes, 03 Jul 2008.

a. Sandhill Cranes

Migrating sandhill cranes were observed on 14 April, and then for the next couple of weeks. No cranes were observed on the ground on the Refuge during spring migration. The cranes always seem to migrate through the Valentine area well after the NGPC conducts its spring crane survey in late March.

The bulk of the sandhill crane migration seemed to pass through the Valentine NWR area from about 22-26 Oct. Large flocks of cranes could be seen heading south every day during this window.

5. Shorebirds, Gulls, Terns and Allied Species
Ring-billed and/or Herring gulls have returned to the Refuge in March.

Shorebird use, while not great this year on either Dewey Lake or the Marsh lakes, was pretty constant during Oct avian influenza surveillance. Most shorebirds were yellowlegs and killdeer, although some peeps were observed using the Marsh lakes and a small sandy beach on the north shore of Dewey Lake. A few American avocets made use of the shallow waters of the Marsh lakes until about mid-Oct.

6. Raptors
Rough-legged hawks have been seen on and around Valentine NWR in Dec. Their numbers are not large, as only 1 – 3 rough-legs are generally seen on a trip across the refuge. Some red-tailed hawks are also still in the area.

7. Other Migratory Birds
The Breeding Bird Survey (BBS) route established during the biological inventory done by the National Ecology Research Center in 1991-92 has been repeated annually since 2003. The route was completed on 20 Jun 2008. Seven hundred eight individual birds of 56 different species were recorded during the survey. The top five species detected in these surveys were Red-winged Blackbirds, Marsh Wrens, Mourning Doves, Western Meadowlarks, and Yellow-headed Blackbirds. There were 26 species detected during the 1991-92 BBS route that were not detected in 2008, although none of these species were common. Sixteen of the 26 were known to have been present on Valentine NWR during 2008, and at least three of those remaining may not breed on the refuge. Five species detected in 2008 were not detected in 1991-92, but of these only the Dickcissel occurred in any numbers. Dickcissels are known to be somewhat nomadic by nature, and have been detected on the Valentine BBS route for the past 5 years.

8. Game Mammals

- a. Deer

Lindvall and Neely flew a deer survey of Valentine NWR on 24 Jan. Conditions were not ideal, as cold and windy conditions had apparently had many deer lying down in or near trees where it was difficult to see them; 131 deer were observed. This survey has been done the last couple of years to provide some information as to how many deer may be using the Refuge during the winter, which could be important if CWD is found on the Refuge.

There are two State deer management units on Valentine NWR - Highway 83 divides the refuge into the Calamus West and Sandhills units. Harvest regulations are set by the Nebraska Game and Parks Commission, and regulations for the

Sandhills unit are set to provide a higher percentage of quality bucks. Hunters reported a total deer harvest on Valentine NWR of 97 deer for the 2008 season (Table F8.1) Of the buck harvest, 22 white tails and 5 mule deer were 3.5+ years or were unaged (which is usually a nicer deer). Thus it appears that the state regulations to provide a nice buck hunt are working to some extent, even though the refuge gets pretty heavy hunting pressure, especially opening weekend.

Table F 8.1. Deer harvest on Valentine NWR during the 2008 deer season. Harvest information based on deer reported to the state check stations.				
Unit	White-tailed Deer		Mule Deer	
	Buck	Doe	Buck	Doe
Calamus W	11	0	0	0
Sandhills	45	5	11	2
State buck	9	0	1	0
Muzzleloader	0	1	2	0
Statewide youth	4	0	0	0
Archery	2	0	0	0

Note: above deer are deer 1.5 years old or greater. Total harvest included 3 male WT and 1 female WT

b. Muskrat and other furbearers

Valentine Fish Hatchery guys noted more muskrat activity in West Long Lake than in the recent past. Muskrat hut surveys were not conducted this year.

10. Other Resident Wildlife

a. Prairie Grouse

Greater Prairie Chickens (GPCH) and Sharp-tailed Grouse (STGR) occur in nearly equal numbers across Nebraska, with the prairie chicken being more abundant in the central and eastern grasslands. Sharp-tailed grouse are more abundant in the western part of the state, and throughout the Sandhills. Leks were checked in mid-March for placement of grouse viewing blinds. The grouse cooperated this year, allowing the blinds to be placed in the same locations as they were last year. Lek counts for prairie grouse were completed in the State Study Block area on Valentine NWR during April. A total of 155 male Sharp-tailed Grouse were seen on 17 leks, 116 male Prairie Chickens were observed on 13 leks. Male Sharp-tailed grouse numbers are up slightly from 2007 (up by 8 males), while Prairie Chicken numbers declined somewhat (down by 15 males).

The volunteer wing collection boxes for prairie grouse hunting were put out at 5 locations on the refuge prior to the opening of grouse season on 13 Sept. For the 2008 season, prairie grouse hunters reported a harvest of 233 birds on Valentine NWR. The harvest was dominated by Sharp-tailed grouse, with 194 birds. The

juvenile/adult ratio for Sharp-tails was 1.16 juveniles for every adult harvested, which indicates that it was not a particularly good production year for grouse. None of the 4 public lands had a very high juvenile/adult ratio in 2008 (range 1.16 to 1.69). At Valentine NWR, the estimated hatch date for Sharp-tailed grouse broods was a bit later than usual, with most broods hatching in late June and early July, which indicates a less than optimal production year. In years of good production, most broods hatch during the first and second week in June.

b. Ring-necked Pheasant

No specific surveys are conducted on pheasants – the following information represents observations made while doing other work during the year. Rooster pheasants began to crow in earnest during April. No surveys were completed, but it appears that good numbers of pheasants survived the winter months. Many hens were also seen with roosters. Ring-necked pheasant broods have been observed along trail roads on the refuge from about mid-June through the end of the month. Retired biologist Len McDaniel reported seeing 2 broods less than 1 week old on 22 Jun. The total number of broods observed was not recorded, but brood numbers and size seem pretty good so far.

c. Merriam's Turkey

Tom turkeys have been observed gobbling and strutting near Hackberry HQ, near the main boat ramp at Dewey Lake, and near the Pony Lake subheadquarters during April.

Colder weather in Nov. pushed a flock of turkeys into the Hackberry Headquarters area. During cold days, these birds (~15-20) can be seen moving around the headquarters complex throughout the day. Some turkeys have been observed roosting in the locust tree grove north of the Hackberry boat launch.

d. Gray partridge and Bobwhite Quail

A covey of Bobwhite Quail were observed around the Hackberry Headquarters off and on throughout Nov and Dec. Quail are uncommon in this area, so it was unusual to see them as frequently as these were observed. The covey started with 12-15 birds when first observed, but was down to 6-7 birds in Dec.

e. Reptiles, amphibians, and others

Dr. Gibson reported having 2 Tiger Salamanders crawl into the bunkhouse during his stay. Both were seen around the middle of April.

Snapping turtles were observed nesting in yards at headquarters and along trail roads throughout the refuge during the June. Several large snapping turtles were hit by cars on Hwy 83 at Calf Camp valley. The painted turtle nesting season seemed to be extended this year, with females nesting throughout the June, with no obvious peak in nesting activity.

Large numbers of dead snapping and painted turtles were observed on Devil's Punch Bowl Lake on May 30. It estimated that there were several hundred dead turtles, mostly painted, along the shoreline. Most look like they had died recently and were found from the waters edge to 3 feet from the shoreline. Several live painted turtles were seen in the lake. The cause of the mortality is unknown but may be winter kill. Some years turtles are injured as they hibernate in the mud. They come out in the spring but die shortly after emerging.

Nebraska Department of Roads repaired the turtle fences at Sweetwater on the refuge and at Ballards Marsh (off refuge). The fences were damaged last winter by vehicles that slid off the highway. The fences serve to keep Blanding's turtles from being killed on Highway 83.

11. Fisheries Resources

For information on carp control efforts see section G.15. Animal Control.

The annual fisheries coordination meeting with the Nebraska Game and Parks Commission and South Dakota State University was held at the Valentine Fish Hatchery on March 6. Decisions made included trying to manage Hackberry Lake for perch, making Pony an experimental bluegill only lake, not pursuing placing trees in Clear Lake for fish habitat, not to stock saugeye in Watts Lake, and to not pursue renovation of Watts Lake until carp reduce submergent vegetation and the sport fishery declines. Nebraska Game and Parks will provide fish for a fall Kid's Fishing Day and may help with funding carp barriers on Valentine NWR.

Valentine Fish Hatchery staff collected fish and fish eggs at the end of March and first part of April. Northern pike (59) were removed from West Long Lake and placed in Clear Lake (51). Eight went to the AKSARBEN Aquarium. Bass (43) and bluegill (91) were taken from West Long for brood stock. Yellow perch (281) were also caught in West Long and used as brood stock. The perch will be returned to the lake. Northern pike eggs (64 quarts) were taken from fish trapped in Dewey Lake. Eye up of eggs was again very low (8%). The cause is unknown.

SDSU Researcher Jeff Jolley found fish in Pony Lake. Pony Lake was treated with rotenone in the fall of 2007 with the intent of killing all the fish as part of Jeff's study. The study was to measure water quality and invertebrates in a lake with high carp numbers, no fish, and a sport fish community. It will not be possible to complete the study now. Trapping effort was; 2 – mini-fyke nets; 4 – cloverleaf traps; 4 experimental gill nets (various mesh sizes encompassing a wide range); and fished this gear for about 24 hours. Fish caught were: fyke-nets: 2 green sunfish, 1 grass pickerel; cloverleaf traps: 49 golden shiner (between 3 and 5”), 13 green sunfish (between 3.5 and 4.5”), 1 pumpkinseed, 2 grass pickerel. No carp were caught.

Biologist from the USFWS Great Plains Fish and Wildlife Conservation Office in Pierre, SD were down to survey the fishing lakes at Valentine NWR in both the spring and fall.

They prepared a report “*2008 Fisheries Surveys Conducted on the Valentine National Wildlife Refuge, Nebraska*” by Greg Wanner. The summaries from this report follow:

Clear Lake

Common carp – Relative abundance of carp has been declining since 2005. The removal of 2,735 carp in the ditch between Clear and Dewey Lake additionally contributed to the decline in 2008. During fisheries surveys in the spring and fall, turbidity was drastically reduced and the lake bottom could be observed in > 3 m of water. This was likely a direct result of lower carp abundance in Clear Lake. No young of the year carp were collected in gill nets; however, they were found in the stomachs of northern pike. This indicates that a year class was produced in 2008 and that gill nets may not always be effective at detecting carp reproduction in any given year or low detectability by gill nets due to low abundance and that northern pike are effectively controlling carp recruitment.

Northern pike – Relative abundance of pike remained similar to previous years. However, the overall trend has been a decline in abundance since 1993, the same year the 28 in. maximum length limit began. The northern pike population in Clear Lake was dominated by large individuals with minimal evidence of reproduction, recruitment, and/or increased harvest of pike (< 28 in.). Northern pike are likely controlling their own abundance and size structure as yellow perch abundances remain low and variable spawning success of carp limit prey availability. Northern pike mean W_r was average compared to other Sandhill lakes. Quality to preferred length northern pike preyed exclusively on carp, while preferred length fish preyed on both yellow perch and carp.

Bluegill – Low water levels did not allow for sampling bluegill since 2006.

Golden shiner – Golden shiners provide additional forage for predators.

Largemouth bass – Low water levels did not allow for sampling largemouth bass since 2006.

Yellow perch – There is no evidence of reproduction since 2004. One or two year classes have recruited to the preferred length in 2008 providing good angling opportunities for large perch.

Dewey Lake

Common carp – The removal of 1,300 carp in the ditch between Dewey and Whitewater Lake likely contributed to the decline in relative abundance in 2008 compared to the all time high in 2007. Mean CPUE was low from 1992 to 2006 and PSD and RSD-P remained high during that same time period indicating low or no recruitment until 2007. The carp population was dominated by stock to quality length fish as the sub-stock length (< 280 mm) carp in 2006 recruited to the population. Carp successfully spawned in 2008 as young of the year were captured in gill nets during the fall.

Northern pike – The long-term trends for the northern pike population appears to be stable when considering relative abundance, size structure, and condition. However, it does appear that a strong year class of carp did recruit to the population during the same time of lower than normal northern pike abundances from 2005 to 2007. Northern pike are also likely controlling abundance and size structure of other important game species in Dewey Lake.

Bluegill – Relative abundance of bluegills declined in 2008 with a corresponding improvement in size structure providing good angling opportunities. Mean *Wr* remained high.

Largemouth bass – Relative abundance of largemouth bass continued to decline in Dewey Lake from a high of 22 fish/hr (SE = 8.2) in 2005. The population is out of balance as was dominated by sub-stock length fish and few preferred length fish.

Yellow perch – Relative abundance remained low, while size structure has improved, but remained below the highs of the mid-90's. Angling opportunities do exist for preferred length yellow perch.

Hackberry Lake

Common carp – Carp were first detected by electrofishing in May 2008 since the renovation was conducted in 2004. Carp gill net mean CPUE for stock length fish in Hackberry Lake in 2008 was the highest ever recorded in any Refuge lakes since standardized surveys began in 1992. The carp population appeared to be dominated by one year class of fish in the quality to preferred length group. The carp are probably the result of an incomplete kill. Waterfowl and shorebird use has been tremendous following the renovation. It is a shame that the carp are back. The effects of the renovation will now most likely last about 10 years until carp again dominate the lake.

Northern pike – In addition to common carp, northern pike were observed in 2008 for the first time since the renovation in 2004. The pike are probably the result of illegal stocking by a “bucket biologist.”

Bluegill – Stocking of nearly 180,000 fingerling bluegills in 2007 appeared to be successful as mean CPUE substantially increased in 2008 after large numbers of

dead bluegill were observed during the spring of 2007 after ice out indicating a winter-kill. Bluegill condition in Hackberry Lake is one of the highest among the Refuge lakes and is above average for Sandhill lakes.

Largemouth bass – A significant winter-kill during the winter of 2006-2007 likely reduced the largemouth bass population in Hackberry Lake. The stocking of > 40,000 fingerling bass in 2007 was successful as the population in 2008 was dominated by sub-stock length fish with a few quality length fish from previous stockings.

Yellow perch – The relative abundance of perch decreased in 2008; however, the overall size structure improved with an increase in preferred length fish available to anglers. Gill netting appears to be a more effective gear at capturing preferred length perch compared to electrofishing. The condition of yellow perch in Hackberry Lake is one of the highest among the Refuge lakes and is above average for Sandhill lakes.

Pelican Lake

Common carp – The carp population in Pelican Lake appears to have stabilized since 2003. Carp are successful at spawning nearly every year with some recruitment. Northern pike predation is likely having some affect on the carp population; however, current low pike numbers may allow a strong carp year class to recruit to the population.

Northern pike – Relative abundance and size structure has remained constant from 2004 to 2008. The good condition of northern pike shows evidence of abundant prey in Pelican Lake.

Bluegill – Relative abundance was highly variable from year to year from 2005 to 2008 and opposite of yellow perch relative abundance. A corresponding increase and decrease in PSD has also occurred as stock to quality length fish in 2006 recruited to the quality to preferred length group in 2007 and a new year class of stock to quality length appeared in 2008. Mean Wr declined below 110 for the first time since. Bluegill mean Wr is below average when compared to other Sandhill lakes indicating that prey may not be readily available compared to earlier years.

Largemouth bass – Relative abundance was the highest observed since 2005. Based on length frequency distributions, a strong 2005 year class has recruited to the population. The largemouth bass population does have good numbers of preferred length fish providing excellent angling opportunities. Mean Wr remains average in 2008 when compared to other Sandhill Lakes.

Yellow perch – Relative abundance of stock length yellow perch continues to oscillate up and down from one year to the next. It appears that strong year classes

from 2001 to 2004 have recruited to the preferred length group in 2007 and 2008. Condition of yellow perch was average in 2008 when compared to other Sandhill lakes.

West Long Lake

Northern pike – No northern pike were observed during spring electrofishing, spring and fall trap netting, or fall gill netting.

Bluegill – The relative abundance of bluegill doubled since 2006 with multiple lengths available for anglers. The removal of northern pike (Jolley et al. 2008) and half the abundance of largemouth bass has directly improved abundance and size structure of bluegill in West Long Lake. Mean *Wr* was the highest among the refuge lakes indicating an abundance of prey.

Largemouth bass – Even though abundance of largemouth bass was half the amount in 2008 compared to 2006, abundance continued to be the highest among the Refuge lakes. The population was represented by multiple length categories with evidence of successful spawning each year. Mean *Wr* levels indicated an abundance of prey for largemouth bass in West Long Lake.

Yellow perch – Relative abundance was the second highest among the Refuge lakes only behind Hackberry Lake. The size structure of the yellow perch population was balanced with one of the highest mean *Wr* for yellow perch found among Refuge Lakes.

14. Scientific collections

Mark Vrtiska, waterfowl biologist for Nebraska Game and Parks, was up and collected 2 mallard hens for their ongoing study of waterfowl nesting in the Sandhills. Their study has found poor nest success and larger than expected numbers of young mallard hens.

See section G17 for information on waterfowl collected for Avian Influenza surveillance.

15. Animal control

On 02 May 2008, one stop log was pulled from the Dewey Lake water control structure to allow some water into Clear Lake, and on 07 May 2008, one stop log was removed from the water control structure at Whitewater Lake. Water levels in Clear Lake seem to have been the most affected by below average moisture over the last 7-8 years, and water levels this spring were down 3 feet from the spring average (other lakes with elevation data were down <1 ft from spring

averages, except Hackberry L, which was down 1.71 ft from average). In addition to moving water into Clear Lake, there was the potential to trap common carp below the water control structure at Whitewater L. they move into the canal in response to the moving water. Two past efforts have removed common carp from Dewey L. in the trap at Whitewater L. water control structure.

On 15 May 2008, a large number of common carp were observed moving in the canal between Clear and Dewey lakes on Valentine NWR. There was a good head of water running out of Dewey Lake, with about 4 feet of water (the canal was nearly full; D. Kime reported that if the water was much higher it would have overflowed the canal into the marsh to the east) in the canal flowing on into Clear Lake. On 16 May 2008, a temporary fence was built across the canal about 70 meters south of the outlet into Clear Lake to prevent carp movement back into Clear L. The fence was constructed 2"x 4" welded wire and steel fence posts, and L-shaped weld wire was added on the upstream side to prevent scouring underneath the fence. Water temperature at the fence was approximately 58° F. Once the fence was in place, stop logs were replaced in the Dewey L. water control structure, and the water dropped rather quickly. Many carp were trapped between the Dewey Lake water control structure and the temporary fence. When checked on 17 May 2008 at around noon, the water flow through the canal had dropped to a trickle, and many carp were dead, especially at the fenced end. The carp that were still alive appeared to be stressed, although several pools had deep enough water that the carp seemed to be pretty healthy (responded to observer by swimming vigorously away). Some carp were stranded by the rapid drop in water, as some carp were observed high and dry on the banks where the water had been. A check at 7:00 a.m. Monday (19 May 2008) revealed that although the majority of carp were dead, there were still a good number, perhaps several hundred, still alive in pockets. On Monday afternoon, Doug Graham and Mark Lindvall applied rotenone to the pockets of water where carp were still hanging on. On 21 May 2008, we conducted a sample in the canal to estimate the number of carp killed. Due to the large number of carp at the water control structure and at the fence, these carp were counted separately.



Fig G15.1. Dead carp against the fence preventing them from going back into Clear Lake.

A total of 244 carp were counted at the water control structure, and an additional 523 at the fence. The mean number of carp observed per 5 meter interval in the canal was 13.4 (SE 3.5), for an estimated total of 1968 common carp in the canal. Adding the count from the water control structure and the fence provides a total estimated kill at 2735 common carp. The lower and upper 95% confidence interval for the number of carp killed is 1734 to 3736 common carp. Most of the carp appeared to be of a similar size class, estimated at around 8-10 lbs each. The largest carp observed were estimated in the 25-30 lb range; no scale was available to check weights of these carp. The capture of non-target fish was minimal, as we observed 4 northern pike, 1 large mouth bass, and 1 yellow perch.

A carp trap was set up at the outlet of Whitewater Lake. Common carp were captured in the canal between Dewey Lake and the water control structure at Whitewater Lake in June. The carp swam up against the water flowing out of Whitewater Lake and went past the funnel trap placed in the canal. The water flow through the canal was shut off in early June, and a total of 1,300 dead carp were counted on June 5th. The estimated average weight of these carp was put at about 25 pounds, or a total of 16.25 tons. In the fall there was a larger than usual amount of wild rice present on the west end of Dewey Lake. There was also an

increase in submergent vegetation. Waterfowl use during the fall migration was also good. We also noted the first muskrat hut on the lake in many years.

Common carp also ran out of Center Lake this year, responding to the flow of water out of Pony Lake. No trap was set at this location. The water flow brought the carp up to the outlet of Pony Lake, and the carp became stranded in early to mid-June as water levels in the lakes dropped, resulting in the removal of several hundred more carp from refuge lakes. The carp were not counted, but the number of dead carp was estimated at 400-500 fish, or several tons. Of interest was that following the reduction in carp in Center and 21 Lakes, there was a dramatic increase in the number of muskrat huts in these 2 lakes. Standing in one spot in the fall, 67 huts were counted. Water also flooded some of the previously dry marshes adding habitat for muskrats.

17. Disease Prevention and Control

Avian influenza surveillance continued through Jan. at Merritt Reservoir. Trumpeter swan numbers fluctuated with the amount of available open water. While it was relatively warm in early Jan., there was 86 and 100 swans observed; the surveys during the latter half of Jan. only recorded 4 and 19 swans. Other waterfowl numbers also followed the amount of open water available, with some common goldeneyes and mallards observed almost every week. No sick or dead waterfowl have been found at Merritt Reservoir. John Laux from LaCreek NWR continued these surveys through Feb, and observed no sick or dead birds.

A trumpeter swan was found dead alongside Hwy 16B, about 250 feet west of the information kiosk at the refuge east boundary. The swan was spotted 17 April, and had apparently been dead only a short time (overnight). It is assumed that the bird struck one of the powerlines that run along both sides of the highway in this area. There were no marks on the bird, and its wings both were unbroken. The swan was shipped to the National Wildlife Health Center in Madison, WI for necropsy. Lab tests for bacteria and avian influenza were both negative. Necropsy results show that the swan had a large blood clot in the sternum around the trachea, consistent with a blunt trauma injury. All tests for disease came back negative.

Avian influenza surveillance began on Valentine NWR on 29 Aug. Dewey and the Marsh lakes were monitored on a weekly basis until freeze up. No dead birds were found on the lakes during the Sept. We did observe several ducks that looked sick but were unable to capture them. Shorebird numbers are lower than those observed last year, probably due in part to somewhat higher water levels in the Marsh lakes. Last year, there were several exposed mudflats out in the lakes which are currently underwater. Estimated shorebird numbers on the Marsh lakes in 2007 reached into the thousands several times, while this year, estimated numbers remained less than 100 during Sept. Waterfowl numbers on the Marsh

lakes were also low through the month, with only about 100 ducks observed each week. Duck numbers on Dewey Lake were pretty low through the first two weeks of Sept, and then an influx of Northern Shovelers bumped numbers up into the thousands.

Avian influenza surveillance continued through Oct. Two dead birds were found on the Marsh lakes and submitted to the National Wildlife Health Lab in Madison for analysis. A dead American coot was found in shallow water near the western edge of Middle Marsh Lake, and a dead Canada goose was found on the north side of North Marsh Lake. The cloacal swab test for AI for both birds came back negative. General necropsy of both birds found nothing remarkable. The report sent 29 Oct 2008 indicated that there were several lab results pending on both birds. Quite a few waterfowl were present on Dewey but very few on the Marsh Lakes. The Marsh Lakes used to be the best waterfowl area on the refuge but has been degraded by carp.

Avian influenza surveillance was conducted on Dewey and Marsh lakes on 1 Nov. No sick or dead waterfowl were observed, although two flightless American white pelicans were observed on the Marsh lakes. Since AI is not known to affect pelicans, these birds were not collected. One bird had a wing injury on its right wing, and the other flapped a short distance without ever really becoming airborne. The following weekend brought snow and icy conditions, and AI surveillance on the refuge was suspended for the year. Surveillance efforts will begin in Dec with surveys at Merritt Reservoir.

Avian influenza surveillance was begun at Merritt Reservoir on 11 Dec 2008, and will continue weekly until most of the Trumpeter Swans leave the area in late winter/early spring. Swan numbers vary through the winter with changing ice conditions, as cold weather and more ice leaves fewer places for the swans at Merritt. Early in the month there were up to 70 swans present. Large numbers of waterfowl were also observed at the reservoir during the first two surveys (lots of common mergansers, some Canada geese, mallards and swans, and smaller numbers of other ducks). By the end of the month, cold temperatures and ice had driven all but a few ducks off of the area. No sick or dead birds were observed in Dec.

H. PUBLIC USE

1. General

The following news releases were sent out and appeared at least in the local paper and on the radio station.

Blinds for Viewing Grouse Displays at Valentine NWR
Marsh Lakes Overlook Under Construction at Valentine NWR'

A news article “*Refuge Personnel Attend National Friends Conference*” was in the Midland News newspaper. The article described activities held at NTC and attended by Refuge Manager Lindvall and friends group board member Laura Vroman.

Refuge Manger Lindvall did a radio interview on KVSH and a TV interview for NTV on the new overlook.

An article “*Saving the Jewels of the Sandhills*” appeared in the June/July issue of the Refuge Update magazine. The article feature the work Refuge Biologist Mel Nenneman has done with the Walnut Grove Middle School in growing and planting the endangered blowout penstemon.

Refuge Manager Lindvall was on the Outdoor Report on KVSH Radio talking about the opportunities to view grouse on the booming grounds.

An article that featured pike fishing on Valentine NWR appeared in the March-April issue of Nebraskaland Magazine.

2. Outdoor Classrooms - Students

On July 18, Refuge Manager Lindvall gave a program on Outdoor Survival Skills to 15 children enrolled in the summer reading program on the Rosebud Indian Reservation.

Biologist Nenneman helped out with the Lions Club Kid’s Fishing Day held at the Valentine Fish Hatchery on May 10. Turnout was good especially considering the rainy weather. Mel taught knot tying and helped the kids catch fish.

Eight college students from the Cedar Point Biological Station were at Valentine NWR as part of their wetland id class.

Lindvall and Nenneman helped with the Kid’s Fishing Day held at Fort Niobrara NWR on September 13. Twenty four budding fishermen caught quite a few trout.

4. Interpretive Foot Trails

The Civilian Conservation Corps Nature Trail goes from a parking area on the west end of Hackberry Lake to the old fire tower constructed by the CCC. An observation deck is located inside the legs of the tower and interpretive panels teach about the geology, habitats, and wildlife of the Sandhills. There are 15 interpretive signs located along the trail.

5. Auto Tour Routes

We received a \$2,800 in a visitor services grant to do the auto tour route. A draft auto tour brochure was completed and sent to the RO for desk top publishing. We also

purchased large signs to go at the ends of the tour route as well as fiberglass numbered signs to mark the stops along the route. The tour route follows the Little Hay Road and should be operational in 2009.

7. Other Interpretive Programs

Refuge Manager Lindvall served as a judge for the Valentine Rural High School Science Fair. Students conducted experiments, wrote up results, and presented their findings to the judges. Some of the students will go on to the regional and possibly state competition.

Refuge Manager Lindvall participated in Career Day at the Valentine Middle School. He held mock interviews with 12 students interested in natural resource careers. It was interesting to note that most had been camping, and many both hunting and fishing. At least this group seems to be getting outdoors.

8. Hunting

Waterfowl hunting is permitted on Watts, Rice, and Duck Lakes. Seasons and bag limits are the same as those set by the state. The 2008 season was October 11 - January 14. There was not a split season this year. The season also opened one week later than it has the past several years. Hunting pressure was light during most of the season.

Grouse season opened on September 13. Participation in grouse hunting continues to decline. Few hunters were out for the opener but some did well getting the limit of 3 grouse. The season continued through December 31. Most of the refuge is open to grouse hunting except the natural areas and around building sites. We have noticed a decline in the number of hunters for grouse. Nebraska Game and Parks estimated that grouse hunter numbers declined from 20,000 in 1987 to 6,200 in 2002. Hunter harvest is reported through voluntary wing collection boxes placed at five locations on the refuge. In 2008 we had 191 hunter days. Reported harvest was 233 prairie grouse including 32 chickens, 194 sharp-tails, and 7 unknown. More complete information on grouse harvest can be found in section G10a.

Refuge Biologist Retired Len McDaniel was featured hunting grouse over decoys in the August-September 2008 issue of Nebraskaland Magazine. The article was titled *Never Too Old to Hunt Grouse Never Too Young to Hunt Smarter*. The article included hunting grouse using decoys on the refuge. Neighboring rancher Dick Ballard was also in the article.

Pheasant season opened on October 25. Hunting pressure was moderate. Hunters had good success. One group of 8 hunters shot 18 roosters. There were a fair number of pheasants around for most of the season. It seems as if interest in pheasant hunting is staying up even as interested in grouse hunting is declining. The pheasant season ran through January 31, 2009 with a limit of three roosters. No counts were made of the

number of hunters and we do not use the wing boxes for monitoring as we do with grouse. An estimate of 300 visits by pheasant hunters is made. Some people combine a pheasant hunt with a grouse, duck, or deer hunt.

Nebraska firearm deer season ran from November 15 – 23. Deer numbers appeared to be up and hunter numbers down. We have not found any deer dead around wetlands this year. The past few years we had found quite a few that we assumed had died from EHD. Again many of our hunters were from out of state. The regulations were made clearer and we did not see as many hunters who thought they could use season choice permits on the refuge. The fact that these permits are not good on Valentine NWR was included in the brochure this year. These permits are for 2 does and are designed to reduce the deer herd to alleviate crop depredation. We did not have a check station on the refuge this year.

Most of the deer hunting takes place on the opening weekend of the season. Some hunters reported seeing lots of deer and others few. We had quite a few hunters from out of state. We again also seemed to have more people that have 2 rifle deer permits valid on the refuge. This is in part due to the fact that statewide buck permits are now unlimited in number. We also say some statewide youth permits.

A total of ?? deer was recorded as harvested during the rifle season on Valentine NWR. This includes deer taken under Sandhill and Calamus West general permits, state wide buck permits, and statewide youth permits. More complete information on deer harvest can be found in section G8. Numbers come from records obtained at Nebraska Game and Parks check stations and the refuge check station.

All of the refuge west of Highway 83 is in the Sandhills Deer Hunting Management Unit and all east of the highway is in the Calamus West Unit. In 1995 Nebraska Game and Parks removed Valentine NWR from the area where doe only Sandhills permits were valid. Starting in 1997, a statewide bucks only permit was also available. Starting in 2006 there were also youth statewide permits available. The refuge probably receives about the heaviest hunting pressure of any location within the units but a quality hunt is possible especially if opening day is avoided. Nebraska is trying to reduce the deer herd in the state to control depredation problems. They have done this by increasing numbers and types of permits available. Access on private land has however become more difficult over the years resulting in more hunting on public lands such as Valentine NWR.

The refuge is also open for muzzle loader deer hunting. The season runs from December 1-31. Hunting pressure for this deer season was light. A muzzle loader permit allows the harvest of both bucks and does of either mule deer or white-tailed deer. This year Nebraska Game and Parks included a bonus tag for an additional white-tailed doe with every muzzle loader permit. In 2008 ?? deer were taken during the muzzle loader season.

The refuge is also open to archery deer hunting which runs from mid-September through the end of December. Archery deer hunting is not permitted during rifle deer season.

Only a few hunters were known to have visited the refuge for archery hunting. This year ?? deer were taken by archers.

Coyotes can be hunted on the refuge from December 1 through March 15. A free permit is required. The permit is a postcard that the hunter returns at the end of the season. There is no charge for the permit. Running coyotes with dogs is not permitted. For the 2007-2008 season, 49 permits were issued and 19 returned for a 39 percent return rate. Successful hunters reported taking 12 coyotes. It is felt that successful hunters are more likely to return the cards. Many of the coyotes on the refuge and in the surrounding area have mange. Some have only hair left on their heads.

The refuge is also open for dove hunting but few hunters come here specifically to hunt doves. A few are shot by grouse and pheasant hunters.

9. Fishing

Nine refuge lakes (Watts, Rice, Duck, West Long, Pelican, Hackberry, Dewey, Clear, and Willow) are open to fishing year round. Fishing, especially ice fishing, accounts for most visits to Valentine NWR. Willow Lake had a complete winter kill in the winter of 2002 – 2003 and there was a partial summer kill on Rice Lake in 2003. These lakes were open to fishing but received no fishing visits. Rice Lake went dry during the summer of 2007. Willow Lake presently does not have enough water in it to sustain a fishery. Hackberry Lake received very few visits year as it was renovated in 2004 and most of the fish are still too small for harvest. Most of the visitation for the refuge is for fishing. Not enough counts were made to provide a good estimate for fishing visits. An estimate of 15,000 visits is made.

There was sufficient ice for ice fishing from December 2, 2007 through March 1, 2008. These dates are when the first ice fisherman was spotted and the day when the last ice fisherman was known to be out. Refuge size limits remained the same with a 15-inch minimum on bass and northern pike with a 28-inch maximum size limit (pike greater than 28-inches must be released). The state has a 15-inch minimum on bass for most public waters including the refuge. Minnows are prohibited on refuge lakes to prevent introduction of exotic fish. Gas powered boats are not allowed.

Quite a few ice fishermen started fishing the refuge following the Christmas Holidays. They had good success on perch and bluegills on Watts and Duck Lakes and pike on Pelican Lake.

10. Trapping

The refuge has a trapping plan and is open to trapping. No recreational trapping took place on the refuge in 2008.

11. Wildlife Observation

Blinds were placed for observation of both sharp-tailed grouse and prairie chickens. The blinds were put on leks in Habitat Units 30A2 and 16B2. People come from all over the country and even a few from foreign countries to watch the grouse display. We have a reservation system for the blinds. The two blinds were booked for 32 days.

People come to the refuge to bird watch and enjoy the prairie. No counts are made for this type of visit which seems to be on the increase.

The Valentine NWR grouse blinds were featured in the USFWS Photography Handbook, Welcoming Photographers to National Wildlife Refuges.

17. Law Enforcement

Refuge Officers Lindvall and Kime attended the annual 40 hour law enforcement refresher held in Marrana, AZ.

Refuge Officers Kime and Lindvall attended the fall LE requal held at Fort Niobrara NWR on August 20 and 21. Refuge Officers Kime and Knode (Crescent Lake NWR) were recognized for their 30 plus years of service as refuge officers.

A request to allow Refuge Office Dave Kime to relinquish his law enforcement authority was prepared and submitted to the Regional Office. Dave has been doing law enforcement on Valentine NWR for 30 plus years and will be greatly missed come next hunting season. His request was approved and became effective January 31, 2009. That leaves the Complex with one full time officer for the Complex, one collateral duty office at the Fort, and one collateral duty officer at Valentine.



Refuge Officers Knode and Kime retired from law enforcement after many years of excellent service. (MLL)

On March 23 Refuge Officers Kime and Neely assisted the Cherry County Sheriff's Office in locating and recovering a stolen vehicle. Three suspects were arrested and the badly damaged truck recovered.

On August 7 about 200 head of trespass cattle were found in habitat unit 36A on Valentine NWR. This is the 3rd year that this rancher has had cattle in on the refuge. The cattle entered through a water gap that had been taken down. They had not been on the refuge long. The rancher had to know the gap was down as there was a salt box very close to the fence. The rancher was contacted about the problem. Nebraska is a fence in state but the refuge has always repaired the boundary fence.

Refuge Office Lindvall traveled to Texas in the first week of September as part of the boat crew response for hurricane Gustav. The hurricane weakened before coming ashore so the boats were not needed and we quickly returned home.

On October 10 a grouse hunter got lost on the east side of Valentine NWR. That night refuge staff, a local game warden, and a state patrolman unsuccessfully searched for the hunter. The next morning the Wood Lake and Valentine Volunteer Firefighters, Cherry County Emergency Management, and Volunteer Ambulance crew joined the search. The hunter was found early in the morning. The hunter realized he was lost as it got dark on

October 10. He saw a building in the distance and went to it. He spent the night in a hay shed and was fine. Unfortunately he did not think to climb a hill and use his cell phone! He did signal with 3 shots in the morning which shortened the search.

For the calendar year 2008, there were 13 Notice of Violations issued on the Valentine National Wildlife Refuge. Numbers and categories are listed below.

- 2-Unauthorized Camping/Trespassing
- 1-Disturbing the Peace
- 8-Violations of State Hunting Regulations
- 1-Violation of State Fishing Regulations

Total fines and costs assessed	\$2500.00
Total fines and costs collected	\$2300.00
Outstanding fines and costs at end of 2008	\$200.00

18. Cooperating Associations

The Complex has a friends group, the Sandhills Prairie Refuge Association, which does projects on Valentine NWR. The group sponsors the book and souvenir sales at the Fort Niobrara Visitor Center and has a quarterly newsletter. Refuge Manager Lindvall attended the quarterly board meetings and provided articles for the newsletter.

The board of directors of the Sandhills Prairie Refuge Association met on January 29 and voted to spend up to \$1,500 for the auto tour route at Valentine NWR. This will supplement the \$2,800 received via an EVS grant for brochure design.

Refuge Manager Lindvall and Board Member Laura Vroman attended the Friends for the Future Conference held at NCTC from April 4-6. The conference provided information on how to strengthen friends group, work with refuge neighbors, and provide environmental education. It was attended by over 300 friends and refuge staff from all across the country.

The Sandhills Prairie Refuge Association hosted an appreciation banquet for refuge staff on October 28. Staff were treated to a fine meal and congratulatory speeches. It was nice to be appreciated. They also gave out booklets featuring bios of present and past refuge staff.



The Sandhills Prairie Refuge Association hosted refuge staff at their annual membership meeting. (JG)

I. EQUIPMENT AND FACILITIES

1. New Construction

The contract to construct the Marsh Lakes Overlook was let for \$121,969. The work includes the kiosk, display walls, access road, and parking. The 8A contract proposal received last year to do the same work was \$345,084. The 8A contractor wanted 2.8 times as much!!

Construction on the overlook was completed on October 17. The final product which includes a shelter, parking, access road, and nature trail looks nice. A second contractor is working on the display panels. The project is a Visitor Facility Enhancement Project. The project was funded for \$274,000. The contract for constructing the overlook was for about \$121,969.50. There were several adds bringing the total to \$137,624.79. The contract for the display panels is for \$58,015. Contracting and engineering fees should be

about \$21,000. About \$73,000 remained at the end of FY 08. In FY 09 we received \$21,862 of the \$73,000 which will be used to place curbs along the edges of the nature trail and pave the approach off of Highway 83.



The Marsh Lakes Overlook Visitor Facility Enhancement project was completed. (MLL)

The rolling dock we ordered last fiscal year arrived. It is 60 feet long, is handicapped accessible, and has a bench and rod holders. The dock cost \$14,774. We will use it at Pelican Lake but will need to pour a cement parking pad and approach.

2. Rehabilitation

Frames for about 20 directional signs we ordered last year were fabricated and the signs placed around the refuge. We also ordered more signs that will be put up in 2009. When these are up, most of the old signs dating from about 1988 will have been replaced.



New signs and frames were put up.

On May 7 Project Leader Hicks and Refuge Manager Lindvall met with representatives from Cherry County about the possibility of the County repairing the road along Pelican Lake. We have received \$300,000 in an earmark in the Transportation Bill to do the work. The County seems interested in doing the work and could most likely do 2.5 miles of road. This is far more than we could complete by contracting out the work. The County Commissioners later voted to pursue the project.

Cherry County repaired the road going from the Duck Lake County Road to Pelican Lake sub-headquarters at Valentine NWR. This is the same road that we hope to have them rebuild with our earmark funds. They hauled in many loads of asphalt millings and graded them. The road is shown by the County as a road that will only be maintained at the land owner's expense. The road is also on the Valentine NWR road inventory as a refuge road. There is no easement to the County for this and several other roads that the County maintains.

Corps Nationwide Permits were received for the water control structure and dike work for West Long and Pony Lakes. We will be doing the projects force account using deferred maintenance funds as the bids we received for doing the work were way over the

available funds. We also received clearance from the Nebraska Department of Water Quality.

We received deferred maintenance funds to replace the culverts and water control structures and repair the dikes on both Pony and West Long Lakes. The project was put out for bids which came in way over the amount available. The fish barriers offered by the contractor were also not what we wanted. The project was cancelled for this year and the funds carried over into FY 09.

Part of the work was done via force account in 2008. A new culvert was installed at West Long Lake. The new culvert is 24 inches in diameter and 30 feet long. It replaces the old 18 inch culvert. The new was installed at the same elevation as the old. The dike was also raised and widened by placing fill over the old dike. During high water the old culvert was not big enough to handle the flow and the dike was over topped. This allowed pike to enter the lake. Miraculously carp did not make it into the lake. We also plan on placing a solar powered fish screen here.

The public restrooms at Hackberry Headquarters were rehabbed as a force account deferred maintenance project. The building was sided, insulated, painted inside and out, and the concrete in front replaced. The stall dividers, hand dryers, and doors were replaced. Cove and solar heaters were added so the building can remain open in the winter. The building is much improved.

The Calf Camp water control structure was cleared of blockage. It needs to be modified so it does not become blocked again.

One thousand and ninety five tons of reclaimed rail road rock was placed on Little Hay Road. The rock cost \$24,000 (\$21.90/ton) delivered. It was placed on sections of the road where the base rock was showing. A five gallon test bucket of the reclaimed rock was tested by washing it over a ½ inch screen. The sample was 30% rock by volume and 26% rock by weight. The rock appears to be holding up well to traffic and preventing the loss of the base rock.

3. Major Maintenance

Maintenance Worker Kime replaced the upper deck on the yellow 5th wheel trailer. The deck was rotted and was a safety problem.

Boat ramps on Dewey, Clear, Pelican, and Watts Lake were dug out. The ramps were silted in making boat launching difficult. Dug out materials were used to fill holes in refuge roads and parking lots. The work was much appreciated by fishermen. Repairs, including replacing toe rails, leveling the walkway, weed control, replacement of barrier posts, and fixing hand rails were made to the Watts Lake dock.

Repairs were made to the School Lake cut across road. Dirt removed when working on boat ramps was spread and graded in ruts and holes in the road.

The roof for the machine shed was completed on October 28 at a cost of \$45,000. The new roof is a metal standing seam that matches the shop/office roof. The old roof was covered with asphalt shingles. The contract included extensive language on asbestos abatement due to a small amount of asbestos present in some adhesive. This language drove up the price of the contract. The final result was that the amount of asbestos present was less than that requiring abatement and the shingles and adhesive just went into the dumpster as in any regular shingle removal project.



The asphalt roof on the Hackberry Machine Shed was replaced with a metal roof. (MLL)

A semi-truck ran into the south information kiosk along US Highway 83 at Valentine NWR. The truck damaged the roof and knocked one wall off the cement slab. We lifted the wall back onto the slab and fastened it down. The roof was also repaired. Some minor repairs remain to be made.

4. Equipment Utilization and Replacement

The Air Ranger Airboat purchased with FY 07 avian influenza surveillance funds was received. The boat cost \$43,822, not including the \$6,500 trade in for our old Panther

boat and \$2,500 trade in for our old Airgator boat. The new boat is 16 feet long, has an automotive engine, counter rotating props, and a heavy duty poly covered hull. It is a great improvement as it always starts and can be dry loaded. It also steers better than the old boats and is much more sea worthy.



Two old airboats were traded in for a new one. (MLL)

Two 1991 Suzuki 4 by 4 atvs were traded in on the purchase of a new 4 by 4 Polaris Ranger for use at Valentine NWR.

6. Computer Systems

Battery backups were purchased and installed on all computers at Valentine NWR.

Refuge Managers Lindvall's computer failed. The hard drive was removed and placed in the old mapping computer. Later a new Dell Optilex 755 computer was received to replace an older model being used by Refuge Manager Lindvall.

7. Energy Conservation

The house trailer, Pony Office, Trappers Shack were all winterized. To save energy, we do not heat these buildings.

A solar heater was added to the Hackberry restrooms to reduce heating costs. The heater is a supplement to 3 electric heaters, one in each room of the building. The restrooms will now be heated and open year round.



A solar space heater was added to the Hackberry public restrooms.

OTHER ITEMS

3. Items of Interest

The 480 acre Yellowthroat WMA in Brown County is managed from Valentine NWR. The area has an excellent mix of grassland and wetland. There is a water control structure located between the marsh and lake on the area. The land was acquired in fee title from the Farmers Home Administration. Much of the sandy soil on the area was farmed under center pivot irrigation prior to acquisition. All has been seeded back to native grasses. The area is open to public use including hunting and fishing.

At Yellowthroat WMA, tress on the east side of the area were cut, stump treated, and stacked by a contractor. There are still other areas that could use this treatment.

Trespass cattle, about 200 head, were present on Yellowthroat WMA during the last part of October. The owner of the cattle was contacted and removed them. The water gap between the WMA and the School Section often fails and cattle come onto us.

The lake on the east side of Yellowthroat WMA was surveyed for fish by the Nebraska Game and Parks Commission. They used an electro-fishing for 35 minutes and found 7 black crappie, 17 bluegill, 1 green sunfish, 166 largemouth bass, and 34 yellow perch. Some of the perch were nicer sized fish. Water clarity was good and there was lots of submergent vegetation. On 10 September they stocked 5,135 yellow perch with an average length of 3.7 inches.

Six dollar corn is having an impact in the Sandhills. Old center pivots are coming out of grass and being planted to corn. Some new pivots are also going in. Some are even going to try dry land corn again. This is the third time farming has been tried in the Sandhills, homesteading, the 1970's, and now round three. Several pivots were put in nearby to Yellowthroat WMA.

4. Credits

Refuge Manager Lindvall wrote sections A; D-1 and 4; E-1,4,5,6,8; F-7,9,10,12,13; G-11, H- all; I- all; J-3; Biologist Nenneman wrote sections B; D-5; F-1,2,5, 7 (monitoring); G-1,2,3,4,5,6,7,8,10,17. Photo credits; Mark Lindvall - MLL; Mel Nenneman – MN; Dave Kime – DK; Janet Grabher – JG; Sandy Benson – SB.