RECLAMATION

Managing Water in the West

Resource Management Plan

Calamus Reservoir, Nebraska
Great Plains Region

U.S. Department of the Interior
Bureau of Reclamation
Nebraska-Kansas Area Office
Grand Island, Nebraska

June 2010

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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prepared by

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SUMMARY

The Calamus Reservoir Resource Management Plan (RMP) serves as a guidance document for land and resource management at the Calamus Reservoir and Kent Diversion Dam project areas. Calamus Reservoir and Kent Diversion Dam are components of the features and facilities constructed as part of the North Loup Division. This RMP has been developed cooperatively between the Bureau of Reclamation (Reclamation) and the Nebraska Game and Parks Commission (Commission). The Commission manages both Calamus Reservoir and Kent Diversion Dam for Reclamation under a long term lease agreement.

The RMP provides information regarding project characteristics, land and water use, cultural resources, endangered species, wildlife and fisheries management, recreation management, agency responsibilities, and reservoir operations. In addition, information detailing the scope and operations of the Calamus Fish Hatchery is provided. Project water use and water management, such as reservoir water level management, are outside the scope of this RMP and are not addressed, Chapter 5, however, contains general information regarding project water operations and uses within the North Loup Division. Maps provided in the RMP delineate the management designations for land areas at Calamus Reservoir and Kent Diversion Dam. The project area lands are managed for recreation, wildlife, or operations purposes. Water surface areas carry a wildlife management designation.

There are no significant construction or development projects proposed for wildlife, recreation, operations, or fish hatchery areas at Calamus Reservoir or Kent Diversion Dam associated with the implementation of the RMP. Based on the amount of land and water surface area, and recreational user carrying capacity of the project area, Reclamation and the Commission consider the Calamus Reservoir and Kent Diversion Dam project areas to be fully developed. Maintaining an uncrowded, quality recreational experience is important to both Reclamation and the Commission. According to a 2007 park user survey conducted at Calamus Reservoir, 84% of visitors rated their satisfaction with the Calamus State Recreation Area as better than average or excellent. Subject to available funding, upgrades and improvements to existing facilities will be implemented through cooperative programs sponsored by Reclamation and/or the Commission.

This RMP has been prepared in compliance with the National Environmental Compliance Act (NEPA). Since this RMP does not identify any construction or development projects to be addressed programmatically under this document, all future development projects implemented at Calamus Reservoir or Kent Diversion Dam will be addressed under NEPA documents and/or National Historic Properties Act documents prepared separately to address those project activities.

ACCEPTANCE DOCUMENT

The Calamus Reservoir Resource Management Plan (RMP), dated June 8, 2010 is acceptable to the signatory agencies hereto. This RMP shall be the governing land and water management plan for Calamus Reservoir.

This document has been prepared in accordance with the Lease Agreement Between Bureau of Reclamation And The State of Nebraska Game And Parks Commission, Contract No. 14-06-700-3816-A, effective May 1, 1995, as amended, and with Exhibit A. The Lease document states: "The parties will develop a mutually agreed upon portion of the RMP as to the reservoir area included in the leased premises recited in said Exhibit A. The RMP's may be periodically amended or supplemented".

NEBRASKA GAME AND PARKS COMMISSION

Rex Amack — June 1, 2010

Director — Date

BUREAU OF RECLAMATION

Aaron M. Thompson — 6/8/2010

Area Manager — Date

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CHAPTER 1- LAND-USE PLAN

Introduction

The U.S. Bureau of Reclamation (Reclamation) has developed this Calamus Reservoir Resource Management Plan (RMP) to guide land use and resource management decisions. The RMP will help ensure public resources are used wisely while considering project purposes and the needs and desires of the public. Calamus Reservoir water level management is outside the scope of this RMP and therefore will not be addressed. Reclamation and the Twin Loups Reclamation District entered into a water service contract on June 4, 1976. The District's available water supply consists of the natural flows of the Calamus River, Calamus Reservoir water stored for release above the established reservoir shutoff elevation, and diversions from the North Loup River at the Kent Diversion Dam. Reclamation is required by the Reclamation Act of 1956 to provide irrigation districts that hold long-term water service contracts the first right to a stated share of the available water supply. See Chapter 5 for additional information concerning project water supply operations.

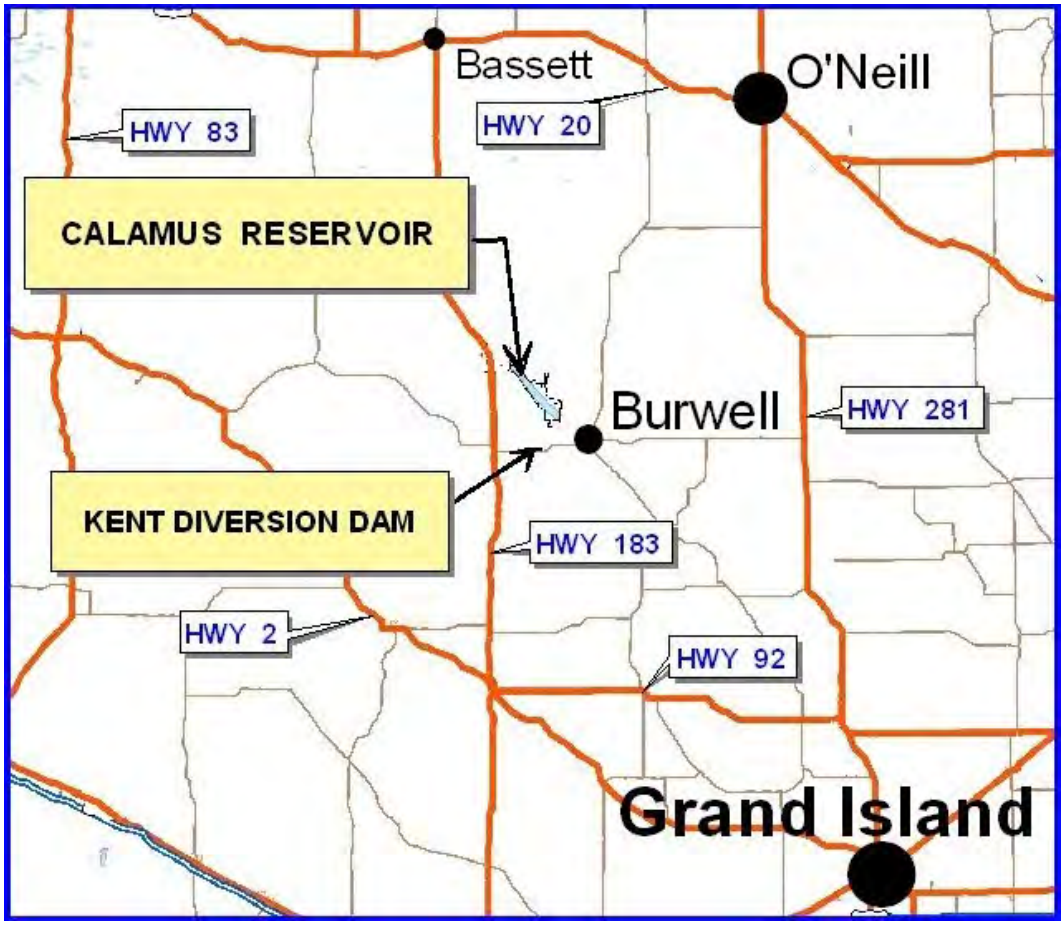


Figure 1 – Calamus Reservoir and Kent Diversion Dam Location Map

Purpose and Scope

The purpose of the RMP is to establish a 10-year plan for the conservation, protection, enhancement, development and use of resources at Calamus Reservoir and Kent Diversion Dam. The RMP describes environmental, biological, and social aspects at the reservoir and its surrounding regional area. Reclamation intends for the land and water resources to be used according to current standards, therefore, this plan should be updated and amended as necessary to meet current needs.

To meet requirements of National Environmental Policy Act, a Categorical Exclusion Checklist has been prepared to address the implementation of this RMP, (See Appendix C1).

The area considered in this RMP is comprised of 11,477 acres acquired for the Calamus Reservoir project area, and the 194 acres for Kent Diversion Dam, and associated facilities. Land use, recreation, fish and wildlife management and administration, agency responsibilities, reservoir operations, and current Reclamation policy, directives and standards are discussed in the RMP. The specific land uses for Calamus Reservoir are recreation, wildlife, and reservoir operations. The land at Kent Diversion Dam is managed for wildlife management purposes and water control operations.

Authority

The North Loup Project received basic congressional approval through the Flood Control Acts of 1944 and 1946. The North Loup Division was authorized by the Reclamation Project Authorization Act of 1972, Public Law 92-514, on October 20, 1972.

Construction of the features and facilities of the North Loup Division began in 1976 and completed in 1994. The North Loup Division project facilities includes; 2 multipurpose dams and reservoirs (Davis Creek Dam and Reservoir, and Virginia Smith Dam and Calamus Reservoir), Kent Diversion Dam, canals, laterals, and drainage system. The project is operated and maintained by the Twin Loups Irrigation District, and the Twin Loups Reclamation District, (Twin Loups) based in Scotia, Nebraska. Benefits from the North Loup Division include irrigation, recreation, fish and wildlife.

Public Law 102-575, Title 28, Section 2805 (106 Stat. 4690, Reclamation Recreation Management Act of October 30, 1992), provides Reclamation with authority to prepare RMPs.

Agency Coordination

Preparation of the Calamus Reservoir RMP is a cooperative effort between Reclamation and the Nebraska Game and Parks Commission (Commission). According to Lease Agreement #14-06-700-3816-A (See Appendix A1), the Commission is the managing agency for recreational facilities and activities of

Calamus Reservoir State Recreation Area, wildlife management activities of the Calamus Wildlife Management Area (WMA), and wildlife management at Kent Diversion Dam. In addition, the Commission is responsible for the operation of the Calamus Fish Hatchery and management of the reservoir fishery. The lease agreement was executed May 1, 1995 and is in effect for a term of 25 years, with an option for another 25 year renewal. Both agencies will work together to ensure the RMP remains current, as resource management standards may change over the remaining term of this lease.

The Commission's Wildlife Division has developed WMA plans for Calamus and Kent Diversion Dam, (See Appenidx A2). A fisheries management plan for Calamus and the 2007 Calamus Reservoir data summary and fishing outlook have also been prepared, (See Appendix A3). These plans contain resource management objectives and strategies for implementation.

Public Involvement

The Commission conducted a user survey at Calamus State Recreation Area from May 26, 2007 until July 10, 2007 to gather public input regarding recreational activities, use patterns, and importance of recreational opportunities. The survey was distributed at the park office, handed out to park visitors, and placed in strategic locations throughout the park. Participants could turn the survey card in at the park office, return them to a campground host, or return by mail. Survey cards and information were finalized in a report assembled by the Commission. These types of surveys will be conducted periodically to provide current recreational use information to the Commission and Reclamation.

Initial RMP development scoping letters were sent to appropriate local, state, and Federal agencies, Native American tribes, organizations and other interested groups soliciting comments regarding management of Calamus Reservoir, Kent Diversion Dam, and their surrounding lands, resources, and facilities.

A notice of availability of the "Draft Calamus Reservoir RMP" (draft) for review and comment was posted on Reclamation's website. A copy of the draft was available through request to Reclamation's Nebraska - Kansas Area Office (NKAO). The public was invited to send written comments to the NKAO.

Maintaining effective public relations is a high priority of both Reclamation and the Commission. The Commission uses a wide variety of methods to promote the Calamus Reservoir area to the public and provide information and education. Public outreach efforts include, weekly news releases, a monthly magazine, video productions, regulations and informative brochures, special publications, special events, and media liaison functions are conducted on a statewide basis. In addition; newsletters, public surveys, weekly hunting and fishing reports, and public land area maps are available on the Commission website. As demand and variety of recreational opportunities increases, information and education efforts will also increase.

Environmental Setting and Conditions

Location and General Description

Virginia Smith Dam and Calamus Reservoir are located on the Calamus River in Loup and Garfield Counties, approximately 5 miles northwest of Burwell, Nebraska. Initially Virginia Smith Dam was named Calamus Dam but later renamed through Congressional legislation to honor Congress Woman Virginia Smith who was a strong proponent of the North Loup Project. The dam is a rolled earthfill embankment with a structural height of 96 feet above the streambed and a crest length of 7,295 feet. Top of the conservation pool is elevation 2,244 feet above mean sea level. The dam was completed by Reclamation in 1985.

Virginia Smith Dam is operated and maintained by Twin Loups. A Twin Loups employee, who resides at the dam, is responsible for the day-to-day operation of the dam.

Kent Diversion Dam is located 6 miles east of Taylor, Nebraska on the North Loup River. It has a structural height of 9 feet above the original streambed and is 1,000 feet long.

The location of Calamus Reservoir and Kent Diversion Dam are shown on Figure 1.

Calamus Reservoir	
Shoreline	35 miles
Recreation Land Area	1,188 acres
Wildlife Land Area	4,818 acres
Fish Hatchery Land Area	140 acres
Operations Land Area	207 acres
Total Land Area	6,353 acres
Total Water Surface Area Top of Conservation Pool	5,124 acres
Total Project Land and Water	11,477 acres

Table 1 - Calamus Reservoir Project Area Statistics

When the reservoir is at the top of the conservation pool, water backs upstream approximately nine miles from the dam. The reservoir has a shoreline length of approximately 35 miles with a water surface area of 5,124 acres at elevation 2244 feet above mean sea level, which is known as the “top of conservation pool”. The total controlled storage of Calamus Reservoir is 127,400 acre-feet. See Table 1 for additional reservoir statistics. Figure 2 contains additional reservoir capacity information.

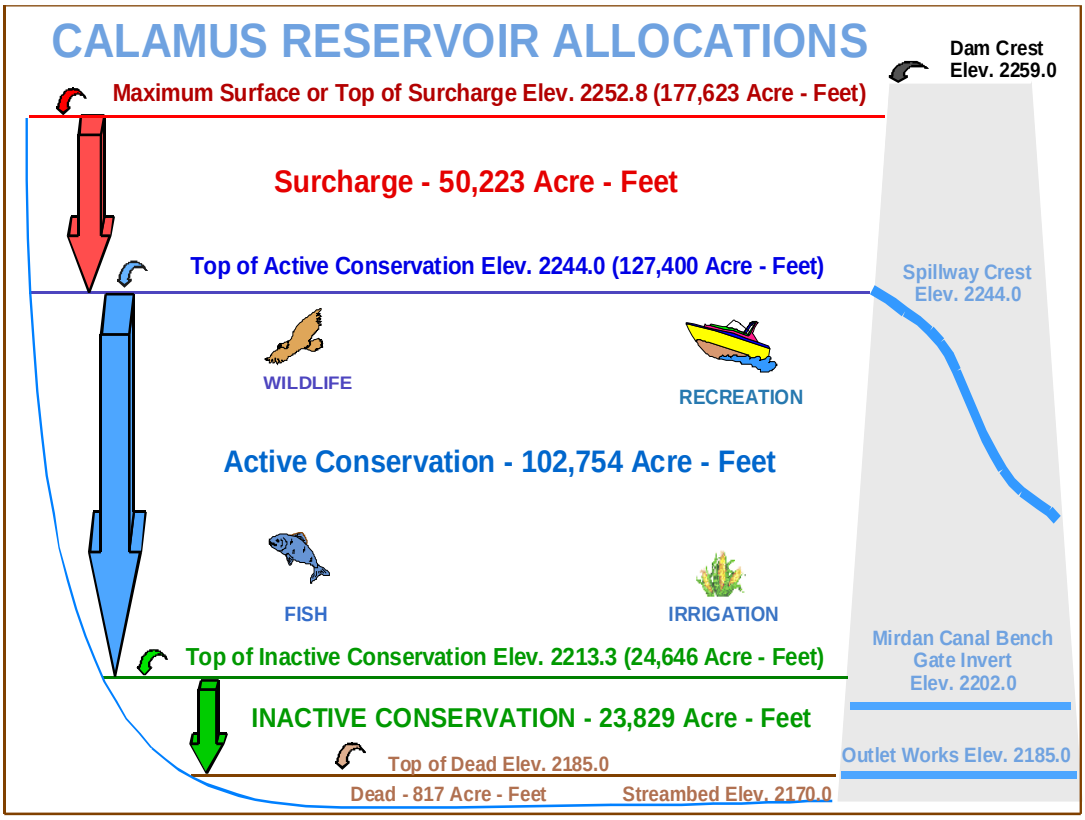


Figure 2 – Calamus Reservoir Allocations

Environmental Characteristics and Local Conditions

Climate

The climate of Calamus Reservoir area is sub-humid, marked by seasonal fluctuations in temperatures ranging from a minimum of -34° F to a maximum of 112° F. The average daytime high temperature ranges from 23°F to 85° F. The average growing season is 150 days which extends from late April to early October.

Annual precipitation averages about 24 inches, see Figure 3. Eighty percent of the precipitation occurs in April through September; however, it is often erratic and poorly distributed. Prevailing winds are generally from the northwest in winter and from the south during the rest of the year. Thunderstorms occur approximately 50 days per year and are capable of causing localized wind and/or hail damage. The average annual snowfall for the area is about 30 inches.

PRECIPITATION AT CALAMUS RESERVOIR
IN INCHES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1982	0.01	0.18	0.54	2.34	6.04	1.14	1.82	3.95	1.07	3.12	2.33	0.69	23.23
1983	0.11	0.17	1.88	0.51	3.39	5.31	2.96	2.32	1.18	1.38	1.06	1.58	21.85
1984	0.17	0.82	1.25	4.36	2.53	3.11	1.85	2.64	0.84	4.25	2.00	0.04	23.86
1985	0.05	0.07	0.10	4.21	4.42	3.07	4.63	1.59	3.22	1.01	0.23	0.17	22.77
1986	0.00	0.93	1.24	2.79	3.02	2.97	5.46	4.41	3.58	1.86	0.20	0.18	26.64
1987	0.02	1.46	5.77	0.98	5.35	1.79	2.18	2.69	2.53	0.50	1.45	0.46	25.18
1988	0.80	0.22	0.22	2.07	5.63	3.29	5.59	2.89	3.20	0.17	0.53	0.29	24.90
1989	0.80	0.59	0.62	0.87	1.76	7.12	5.56	2.74	1.74	2.01	0.04	0.35	24.20
1990	0.98	0.15	2.12	1.32	3.98	3.25	1.16	3.16	1.43	2.14	1.96	0.68	22.33
1991	0.79	0.58	0.92	3.89	3.89	2.91	0.93	1.20	5.13	2.53	2.24	0.62	25.63
1992	2.04	0.93	2.51	0.76	2.63	4.74	4.24	6.25	2.78	2.08	1.00	0.86	30.82
1993	0.92	1.00	0.62	2.46	6.11	7.89	9.48	1.53	2.72	1.52	1.76	0.54	36.55
1994	0.49	0.67	0.03	2.06	1.33	4.71	7.24	1.45	3.22	1.48	1.47	0.77	24.92
1995	0.59	1.02	3.25	3.46	7.7	3.62	1.5	3.21	4.65	2.12	0.71	0.29	32.12
1996	0.81	0.05	0.28	1.74	7.61	0.81	2.49	5.30	5.52	0.44	0.59	0.13	25.77
1997	0.15	0.55	0.39	2.77	2.43	2.54	3.04	6.69	3.69	2.96	0.05	0.33	25.59
1998	0.10	0.29	2.19	2.18	3.38	6.57	1.55	1.64	0.48	4.12	1.94	0.23	24.67
1999	0.31	0.97	1.90	4.16	5.76	4.57	1.95	2.88	1.86	0.22	0.18	0.44	25.20
2000	0.30	0.59	0.86	1.26	2.91	2.50	6.46	1.94	1.34	1.81	1.25	0.18	21.40
2001	1.05	1.47	0.65	6.14	3.62	1.29	2.00	3.83	3.67	0.24	1.55	0.12	25.63
2002	0.11	0.14	1.62	1.37	1.86	2.23	1.18	3.59	0.11	3.08	0.18	0.16	15.63
2003	0.52	0.82	0.60	4.46	2.88	1.86	1.88	0.67	1.00	0.75	0.68	0.00	16.12
2004	0.00	0.85	2.43	1.26	3.43	3.36	1.44	1.63	4.63	0.22	1.57	0.04	20.86
2005	0.32	0.94	2.50	2.86	3.10	5.48	0.55	3.60	0.30	0.50	1.39	0.45	21.99
2006	0.00	0.05	2.26	1.66	0.21	2.66	0.51	3.19	3.72	1.24	0.00	2.30	17.80
AVG	0.46	0.62	1.47	2.48	3.80	3.55	3.11	3.00	2.54	1.67	1.05	0.48	24.23
MAX	2.04	1.47	5.77	6.14	7.70	7.89	9.48	6.69	5.52	4.25	2.33	2.30	36.55
MIN	0.00	0.05	0.03	0.51	0.21	0.81	0.51	0.67	0.11	0.17	0.00	0.00	15.63

Figure 3 – Calamus Reservoir Precipitation 1982 - 2006

Physiography and Geology

The Calamus Reservoir project area is located at the southeastern edge of the Nebraska Sandhills. The soils are primarily formed from sandy eolian material. Sand dunes form rolling hills and valleys lying in a generally northwest to southeast orientation. The dunes are typically 10 to 100 feet above the valley floor and are stabilized by vegetation.

Elevations at the reservoir range from 2,170 feet along the Calamus River below the dam to 2,420 feet at the ridge tops in the southeastern reservoir project land area.

The region's underlying bedrock is part of the Ogallala Formation. The Ogallala Formation consists of beds of sand, sandstone, gravel, and silts. Unconsolidated deposits consist of loess, sandy eolian material and alluvium. (Soil Survey of Loup County, Nebraska, 1990)

Soils

As described in the previous section, the soils in the reservoir area have been developed from sandy eolian material. The majority of soil associations are comprised of loose fine sands with topsoil zones of five inches or less with transitions zones of loose fine sands seven inches or less in depth. A few soil associations found in the low lying areas are classified as loamy sands.

Nearly half of the soil associations are located on slopes of zero to sixty percent and have the potential to form blowouts. A majority of the soil types are moderately to excessively drained. Proper range management is critical in maintaining sufficient cover to prevent these extremely sandy soils from wind erosion.

A soil association map, Map # 1 (See Tabbed Map Section) provides more information.

Figure 4 – Active Blowout at Calamus Reservoir

Regional Land Use

Over 90 percent of the land base in the Calamus Reservoir region is grass covered and is utilized as range or hayland. The primary use of rangeland is for beef cattle production. Approximately six percent is used as cropland. Irrigated cropland has increased steadily over the last 40 years with corn being the primary crop produced.

Prairie

The native grass prairie around the reservoir is a blend of tall and short grass species. Grass species composition is affected primarily by available moisture and soil type which are in many cases directly related to topography. The tops of dune ridges tend to hold coarse soil with little organic material while the valley areas have finer textured soils with higher levels of organic matter and water retention.

Common grass species include, little bluestem, needle-and-thread, prairie sandreed, sand bluestem, switchgrass, blue grama, junegrass, sand lovegrass, and big bluestem. Common forbs found include annual sunflower, heath aster, milkweeds, penstemons, shepardspurse, silverleaf scurfpea, and ragweeds.

Woodland and Shrub Habitat

Woodland vegetation at the reservoir is comprised of both naturally occurring stands and in groupings planted during reservoir development. Mature stands of cottonwoods that were not inundated are found at the upper end of the reservoir. Dense stands of cottonwoods and willows 20 to 30 years of age are found along the perimeter of the reservoir, and are also becoming established around the wetland areas at the fringes of the reservoir. Other naturally occurring species include elm, boxelder, green ash, eastern red cedar, and hackberry. Naturally occurring shrubs and other woody plant species are composed of prairie wildrose, western snowberry, American plum, smooth sumac, yucca, leadplant, buffalo berry, and chokecherry.

Trees that were planted in shelterbelts as part of initial habitat establishment during reservoir development include eastern red cedar, green ash, jack pine, Russian olive, hackberry, honey locust, mulberry, ponderosa pine, diamond willow, golden willow, and scotch pine.

Shrub plantings include American plum, skunkbush sumac, sandcherry, caragana, and chokecherry. In addition, bald cypress trees were planted along the reservoir shoreline.

Terrestrial Ecosystem

The diverse habitats, in the vicinity of Calamus Reservoir support a variety of wildlife species. Big game species in the area include white-tailed deer, mule deer, and wild turkeys. Common small game species include the ring-necked pheasant, greater prairie chicken, sharp-tailed grouse, mourning dove, bobwhite quail, cottontail rabbit, and fox squirrels.

A number of furbearer species inhabit the area surrounding the reservoir. Raccoon, coyote, badger, fox, skunk, opossum, and mink are common. Beaver and muskrats occur in the perennial streams, reservoir backwaters, and willow covered overflow areas.

The reservoir is located within the central flyway for waterfowl and shorebirds. Large concentrations of waterfowl, shorebirds, and other aquatic birds use the area during spring and fall migrations.

Aquatic Ecosystem

The Calamus Reservoir aquatic ecosystem is typical of mid-west artificial impoundments. Sport fish populations are based on a healthy forage base, suitable spawning habitat, regulated harvest, water level stability, with management activities developed accordingly. The lake contains walleye, white

bass, wipers (cross between white and striped bass), largemouth bass, drum, bluegill, perch, northern pike, crappie, catfish, carp, and gizzard shad. Chapter 2 contains a detailed discussion of the fishery resource.

Wetlands and marsh areas are found adjacent to the reservoir, along stream corridors, and along the North Loup and Calamus Rivers. These areas are an important ecological niche habitat supporting a diverse community of both game and non-game species. Plant species common to these areas include cattails, sedges, cordgrass, rushes, and smartweed.

Water Resources

The High Plains aquifer in north central Nebraska is represented by the Ogallala Formation which underlies the reservoir region. Groundwater can be present at or near the soil surface in the river valleys, or at depths of 50 to 200 feet below the surface in surrounding areas depending on topography. The saturated thickness of the aquifer in the Calamus Reservoir area ranges from 300 to 500 feet thick.

The Calamus River and the North Loup River are the major river systems in the reservoir area. The Calamus River arises in Brown County, Nebraska flowing southeast across Brown and Loup Counties, ending in Garfield County approximately 3.5 miles downstream of Virginia Smith Dam where it joins the North Loup River. The North Loup River originates in Cherry County, Nebraska flowing southeast across the sandhills until it reaches its confluence with the Middle Loup River forming the Loup River in Howard County, Nebraska.

Two perennial streams flow into the north side of Calamus Reservoir, Gracie Creek and Dry Creek. Gracie Creek flows into the upper end of the reservoir flowing through a water control structure under State Highway 96 which impounds Gracie Creek forming a small pond. Dry creek flows into the central part of the reservoir. The flows of the sandhill streams and rivers are primarily fed from groundwater discharge rather than runoff events. Approximately 3.5 miles of naturally flowing Calamus River exists within the project area boundary at the upper end of the project area.

Social and Economic Conditions

The sandhills region of Nebraska is one of the most sparsely populated areas in the United States, recent census data shows that population continues to decline across the area. Loup County's population peaked nearly 100 years ago in 1910 with a population of 2,188 people. Loup County year 2000 population was 712 people and by 2006 it had lost another 7.9 % with a population of 656. Garfield County year 2000 population was 1,902 but by 2006 the population was down to 1,790 for a loss of 5.9 %. The Garfield County population peaked in 1940 at 3,444 (U.S. Census Bureau). Population losses across the area are expected to continue due to the consolidation of ranch and farming operations and the pursuit of employment in urban settings.

The following illustrates the percentage of population loss in the counties surrounding the Calamus Reservoir project area between 2000 and 2006.

Loup - (7.9%)	Garfield - (5.9%)	Rock - (12.1%)
Holt - (8.1%)	Blaine - (15.6%)	Custer - (4.7%)
Greeley - (9.6%)	Wheeler - (7.1%)	

Access

Grand Island, Nebraska, approximately 95 miles to the southeast of the reservoir, is the closest city with regularly scheduled commercial airline service. The reservoir is readily accessible from State Highway 96 which parallels the northern side of the reservoir project area. Highway 96 intersects State Highways 11 and 91 which intersect near Burwell, Nebraska. Highway 96 also intersects U. S. Highway 183 approximately two miles to the west of the upper end of the reservoir. The southern side of the reservoir is accessible by a two lane asphalt surfaced county road. The south side of Kent Diversion Dam is accessible from State Highway 91, gravel surfaced county roads provide access to the north side of diversion dam.

Compliance Activities

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) and the implementing regulations of the Council on Environmental Quality require an analysis of environmental impacts for Federal actions which may have a significant impact on the human environment and/or are controversial.

Reclamation utilizes three different types of documents to assess and analyze potential environmental impacts. In ascending order of complexity and importance they are: categorical exclusion checklists (CEC), environmental assessments, and environmental impact statements.

The RMP development process is integrated with the NEPA process. It is used to ensure protection of resources and determine the best use of those resources by evaluating potential impacts associated with resource use. It has been determined that a CEC is the appropriate NEPA compliance document for the development of this RMP. The CEC can be found in Appendix C1.

A listing of other environmental statutes is included in Appendix B1.

Cultural Resources

Prior to the 1960s, no professional archeological or paleontological work was conducted in the Calamus Dam and Reservoir area. In 1963, the Nebraska State Historical Society conducted an archeological survey of the Calamus Reservoir area. The archeological survey resulted in the discovery of three archeological sites. Two sites have now been inundated and the third site is adjacent to a road relocation project necessitated by the reservoir construction.

Of the sites recorded, all three sites are of prehistoric origin with an unknown cultural affiliation. Site types are identified as artifact scatters. At that time, no historic sites were recorded. None of the cultural resource sites recorded in 1963 within the Calamus Reservoir area was listed on the National Register of Historic Places.

In 1976, in compliance with Executive Order No. 11593 and 16 U.S.C. 470h-2 (section 110), Reclamation entered into a cooperative agreement to complete an extensive archeological and paleontological survey of all Federal lands to identify and evaluate all cultural and paleontological resources at Calamus Reservoir. This project was completed in 1981 and identified a total of forty six (46) archeological sites (including the three previously recorded sites from 1963) and no significant paleontological sites. Of the forty six (46) archeological sites, twelve (12) sites contain prehistoric components, 32 sites contain historic components and two (2) sites contain both prehistoric and historic components. Fourteen (14) of the archeological sites, all the prehistoric components, required additional National Register eligibility testing. As a result of the eligibility testing, six archeological sites were identified to form the Dry Creek Archeological District. Three of the six sites from the Dry Creek Archeological District required mitigation prior to inundation. Prior to project completion in 1981, there were no other sites or districts on or nominated to the National Register of Historic Places.

Under current legislation (16 U.S.C. 470f), any Federal undertaking requires some form of cultural resource activity. This includes all major maintenance and development activities at the reservoir. As a result of this, several additional small scale survey projects have been conducted in association with construction projects. These small surveys have led to the discovery of additional sites containing prehistoric and historic components.

While this project and several other reservoir projects in the area were nearing completion, the prehistoric occupation of the Central Plains of Nebraska was beginning to be better identified. While no direct evidence has been found in the project area for Paleoindian occupation (10000-7000 B.C), it has been suggested based on the proximity to other nearby known sites. With this evidence, it is also suggested that prehistoric people inhabited the area through historic times. Possible evidence of occupation during the Archaic Period (ca. 7000-500 B.C.), the Plains Woodland Period (ca. 500 B.C.-A.D. 1000) and the Central Plains tradition (A.D. 900-1500) have been found nearby. Additionally, several late prehistoric and historic sites have been identified at or near Calamus Reservoir.

Cultural Resource Management

All historical, paleontological, and archaeological sites are protected by the Antiquities Act of 1906, the Archaeological Resources Protection Act (ARPA) of 1979, the National Historic Preservation Act (NHPA) of 1966, the Native American Graves Protection and Repatriation Act of 1990, and all other

applicable Federal and State laws, regulations, and executive orders pertaining to the preservation of cultural resources. The locations of the cultural resource sites are not public information (not subject to the Freedom of Information Act). There are known cultural resources areas at Calamus Reservoir. Any request for information on the location of sites should be directed to the NKAO Archeologist. During normal reservoir operations, damage to cultural resources sites could potentially occur. Any observance of damage of cultural resource sites should be reported so action can be taken to mitigate potential further damage. In addition, any discovery, damage or removal of a cultural resource item should be reported to the NKAO Archeologist, except discoveries of human remains which should be treated as described below.

Any person who discovers human remains on Reclamation land shall immediately provide an oral notification to Reclamation's Area Manager. The person shall forward a written report of their findings to Reclamation's Area Manager within 48 hours by certified mail. If the discovery occurs in connection with an ongoing authorized activity, the person shall cease the activity, and stabilize, and protect such discoveries until authorized to proceed by the Area Manager. Protective and mitigative measures specified by the Area Manager shall be the responsibility of the entity conducting the activity which resulted in the discovery.

Reclamation must complete consultations required by the NHPA prior to any major ground disturbing activities at Calamus Reservoir and prior to any modifications to Virginia Smith Dam (the dam itself is potentially eligible for inclusion in the National Register of Historic Places). The NKAO Archaeologist must be notified far enough in advance of any ground disturbing activities or any modifications to the dam so that those consultations can be completed. Consultations could require several months or more depending on the nature of the project. Any new cultural site that is discovered, especially in the elevations where the water level varies yearly, should be reported to the NKAO Archeologist.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in assets held in trust by the United States for Indian tribes, nations, or individuals. Assets can be considered as anything that has monetary value and can include real property, physical assets, or intangible property rights. Examples of resources that could be an ITA include lands, minerals, hunting and fishing rights, water rights, and instream flows.

The United States has a trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or individual Indians by treaties, statutes, and executive orders. All Department of the Interior agencies, including Reclamation, share the Secretary of the Interior’s duty to act responsibly to protect ITAs.

Reclamation established policy concerning the protection of ITAs in 1993. This policy states Reclamation will carry out activities in a manner which protects ITAs and avoids adverse impacts where possible.

When adverse impacts cannot be avoided, Reclamation will provide appropriate mitigation or compensation.

Reclamation has determined that there are no ITA's associated with any of the North Loup Division's project area, features, or facilities.

Chapter 2

Fish and Wildlife Management And Administration

CHAPTER 2 - FISH AND WILDLIFE MANAGEMENT AND ADMINISTRATION

Managing Agency Policy

Under the U.S. Fish and Wildlife Coordination Act, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq., the Secretary of the Interior and the Nebraska Game and Parks Commission have determined that certain lands and waters at Calamus Reservoir and Kent Diversion Dam are to be administered by the Commission for management of fish and wildlife resources. The Calamus Reservoir project area encompasses 11,477 acres of land and water, with an additional 194 acres of land and water at Kent Diversion Dam.

The Fish and Wildlife Coordination Act states that, cooperative programs for developing, protecting, rearing and stocking all species of wildlife, resources thereof, and their habitat; controlling losses from disease or other causes; minimizing damages from overabundant species; providing public shooting and fishing areas will be pursued. Wildlife resource management includes management programs on project wildlife lands and waters to benefit birds, fish, mammals and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependant. Resource management programs and activities are conducted by Commission personnel from either the Wildlife or Fisheries Divisions.

Resource Management

Wildlife

Animal Species Overview

The following is excerpted from the Nebraska Game and Parks Commission's Nebraska's Natural Legacy Project. This narrative provides an overview of the animal diversity found in the Calamus Reservoir region. The Natural Legacy Project is a blueprint for conserving wildlife and their habitats.

"More than 300 species of resident and migratory birds have been documented in the sandhills. The region is a stronghold for sharp-tailed grouse and greater prairie chicken and is considered to be an important breeding site for the world's largest sandpiper, the long-billed curlew. The sandhills contain substantial breeding populations of upland sandpiper, vesper sparrow, lark bunting, grasshopper sparrow, and western meadowlark. The American Bird Conservancy has described the Nebraska Sandhills as the "best grassland bird place in the United States". The sandhills host the highest concentrations of northern harriers in the state and ferruginous hawks are common breeders in the western sandhills. Over a quarter million waterfowl have been recorded during May surveys and the area is

the most important breeding area for mallards, blue-winged teal, and pintails south of the prairie pothole region. Other waterbirds that are common breeders in the sandhills include Wilson's phalarope, American avocet, western grebe, and black tern. Although woodlands are mostly confined to stream corridors woodland species such as black-billed magpie, Bell's vireo, black-and-white-warbler, and rose-breasted grosbeak are known to nest in the sandhills.

The sandhills are home to 55 species of mammals. Many mammals found in the sandhills ecoregion are widespread with no distinct affiliation to the region. Small mammals include upland species such as the plains pocket gopher, white-tailed jackrabbit, Ord's kangaroo rat, and prairie voles. Species such as the masked shrew, jumping mouse, and meadow vole can be found associated with wet meadows and other wetlands. The most abundant large mammals include mule deer and white-tailed deer. Relatively small numbers of pronghorn can be found particularly in the western sandhills and elk occasionally can be found. Although free roaming bison no longer occur in the sandhills, The Nature Conservancy's Niobrara Valley Preserve maintains two pseudo-natural herds on their 56,000-acre preserve along the Niobrara River. Coyotes are common throughout the ecoregion and bobcats can be found in many riparian areas. In recent years several confirmed sightings of mountain lions have been made. One of the rarest mammals of the sandhills is the Bailey's eastern woodrat, a subspecies found only in middle Niobrara River valley woodlands.

Sandhill streams and lakes are home to 75 species of fish. Many common species are big river generalists, which can withstand a wide variation of environmental extremes. Among these are the channel catfish, flathead chub and river carpsucker. Most rare sandhills fish species, including the blacknose shiner, pearl dace, northern redbelly dace, and finescale dace are northern species with their sandhills populations being disjunct from their principal range. These species are less tolerant of habitat change and are now restricted to the fairly stable headwaters of sandhill streams. Game fish, primarily yellow perch, northern pike, largemouth bass, bluegill, and carp, have been introduced to many sandhill lakes and trout have been introduced to several coldwater streams.

Twenty-seven species of amphibians and reptiles are found in the sandhills, including one salamander, three toads, four frogs, six turtles, four lizards, and nine snakes. The Great Plains toad, spade foot toad, and Rocky Mountain toad use sandhills wetlands for breeding while spending most of their adult life in the uplands. The ornate box turtle is probably the most well known sandhills reptile and can often be seen crossing roads. Blanding's turtle, a northern species whose range extends to New England is rare over much of its range but appears to be fairly abundant in sandhill lakes and marshes. Three small lizards are common on the sand dunes. The six-lined race runner seems to prefer denser vegetation while the lesser earless lizard prefers more sparely vegetated open sand. The northern prairie lizard commonly forages in blowouts. The bullsnake and western hognose snake are probably the sandhills' most common snakes. The prairie rattlesnake is

the region's only venomous snake and lives primarily in areas with rock outcrops and prairie dog towns.

Insects are the most diverse, abundant, and least studied animal group in the sandhills. They may also be the most important group ecologically and economically playing vital roles as pollinators, decomposers, grazers, and food for other wildlife. Insect diversity is enormous in the sandhills. Seventy species of scarab beetles have been documented for Thomas County alone, and numerous species of butterflies are known to inhabit the sandhills. Possibly, the rarest insect in the sandhills is the federally and state endangered American burying beetle. The sandhills are one of the last known strongholds for this species that once ranged over much of the eastern United States.

Rich in flora and fauna, the Nebraska Sandhills remain as one of the best examples of a functioning prairie landscape in the country. Although the region has not completely escaped the impacts of the modern world, it will likely continue as a center of Great Plains biological diversity well into the future". (Nebraska Game and Parks Commission's Nebraska's Natural Legacy Project)

Existing Wildlife Habitat – Land Cover

The cover types at Calamus Reservoir can be identified broadly as prairie, woodland, open water, wetland, shrubland, and agricultural fields. The land cover map, Map # 2 (See Tabbed Map Section) shows the broad categories of the various types of land cover areas at Calamus Reservoir and the surrounding area.

Wildlife Water Sources

The water surface elevation at Calamus Reservoir drops annually due to irrigation releases and evaporation. This fluctuation reduces the overall volume and amount of surface water available for wildlife use. Typically the reservoir elevation is at its highest level near the end of May. The water level decreases throughout the summer reaching its lowest elevation in September. Between the years of 1998 - 2007 the water level has been drawn down as much as 20.26 feet and as little as 9.25 feet. The average annual drawdown is approximately 14.7 feet.

The water level fluctuations appear to have minimal effects on most wildlife species and can provide some benefits to species such as shorebirds, and wading birds.

Management Objectives

Under the terms of the lease agreement, the Commission's Wildlife Division is responsible for the conservation and management of all wildlife resources and habitat enhancement projects on 4,818 acres of land at Calamus Reservoir. These lands are designated as a State Wildlife Management Area (WMA). The land and water use map, Map # 3 (See Tabbed Map Section) for a depiction of the lands managed for wildlife purposes.

The Commission's goal for management of WMA's is: "To provide outdoor recreational and educational opportunities while protecting, enhancing, and sustaining diverse wildlife, fish, and plant resources". (Focusing on the Future… A Plan for Nebraska's Fish, Wildlife and Parkland Resources)

Habitat Development Planning

Calamus WMA plans are completed by the Commission Wildlife Division and updated or amended every 5 to 10 years as needed. The current plan was developed in 2009, (See Appendix A2). This management plan includes techniques and practices described below.

Wildlife Management Practices

Techniques and practices used by the Commission stress habitat management for game species including: migratory waterfowl, ring-necked pheasants, northern bobwhite quail, greater prairie chickens, sharp-tailed grouse, wild turkeys, white-tailed deer, mule deer, mourning doves, and cottontail rabbits. Game species benefit from habitat enhancements such as (a) maintenance and protection of existing tree and shrub plantings, (b) planting food and cover plots, (c) promoting growth of native plant food sources, (d) re-establishment of native grasses and forbs. These habitat management efforts also benefit many non-game species.

Habitat management techniques for undisturbed native grassland communities focuses on returning natural events in an effort to rejuvenate native plant species, reduce exotic vegetation, and increase species diversity. Prescribed burning and grazing programs are utilized at pre-determined tracts around the reservoir to maximize native plant and animal diversity.

Food Plots Agricultural plots are utilized at Calamus Reservoir in areas where soil conditions are suitable and erosion is not a concern. Wheat, corn, milo, cane, millet, sunflowers, and alfalfa have all been planted with the goal of maximizing wildlife production. Agricultural plots can be used to provide wildlife with food, cover, and nesting areas. Food plot plantings are often rotated to promote the growth of beneficial plants such as annual sunflowers, foxtail, and kochia, etc. increasing wildlife viewing and hunting opportunities. Figure 5 depicts an example of a typical food plot.

Figure 5 – Wildlife Food Plot

Tree and Shrub Plantings / Natural Woody Vegetation By selecting native and adapted species and arranging them for maximum wildlife use, tree and shrub plantings provide food and cover for a variety of wildlife species. As previously noted there are areas that were planted to trees and/or shrubs intended to serve as wildlife habitat sites. Generally tree and shrub plantings for wildlife development purposes were planted either in blocks to form shelterbelts or in strips along field edges or along property boundaries. These habitat areas are protected by fire breaks during prescribed burns. Maintenance of these areas generally consists of thinning overly dense stands and selective removal of female eastern red cedars to reduce the cedar seed source.

Calamus Reservoir has areas of naturally occurring tree growth covering a wide range of age classes. Cottonwoods and willows are the most common species in naturally occurring wooded areas. These tree species readily germinate and rapidly colonize moist soils that are in an early successional or freshly disturbed condition. The newly inundated lands around the edge of the reservoir provided a prime opportunity for the establishment of these species around the perimeter of the reservoir. Other common species include eastern red cedar, box elder, green ash, and hackberry. Eastern red cedars are the primary focus of woody plant control efforts at the reservoir due to their ability to spread into and dominate grassland habitat areas. Cedars are controlled through prescribed burning and mechanical shearing.

The naturally occurring brush and low growing woody plant communities occur in areas favorable for their growth. These plant communities are commonly found along the side slopes of dune ridges and hillsides with gentle or moderate gradients. Common species include skunkbush sumac, leadplant, western snowberry, American plum, and chokecherry. (Figure 6)

Figure 6 – Brush / Low Growing Woody Plant Community

Prescribed Grazing A high intensity grazing program can be an effective management technique to improve native plant and animal communities. Cattle are stocked at high rates for relatively short duration for maximum effect. When properly timed, this type of intensive grazing system improves plant vigor, reduces litter, causes retrogression, reduces unwanted vegetation, and improves or maintains desired plant and animal community composition. The Commission intends to use prescribed grazing on an as needed basis.

Prescribed Burning A prescribed burning program is an effective management technique to maintain or improve native grassland communities. Controlled burns remove accumulated plant litter, recycle nutrients, reduce unwanted vegetation, and diversify vegetation. The burning program at the reservoir is carefully planned and coordinated by the Commission with cooperation from local fire and emergency personnel. Burning usually takes place in late spring (Figure 7 & 8).

Figure 7 - Prescribed Burn In Progress

Figure 8 - Prescribed Burn Area – Dead and Damaged Cedar Trees

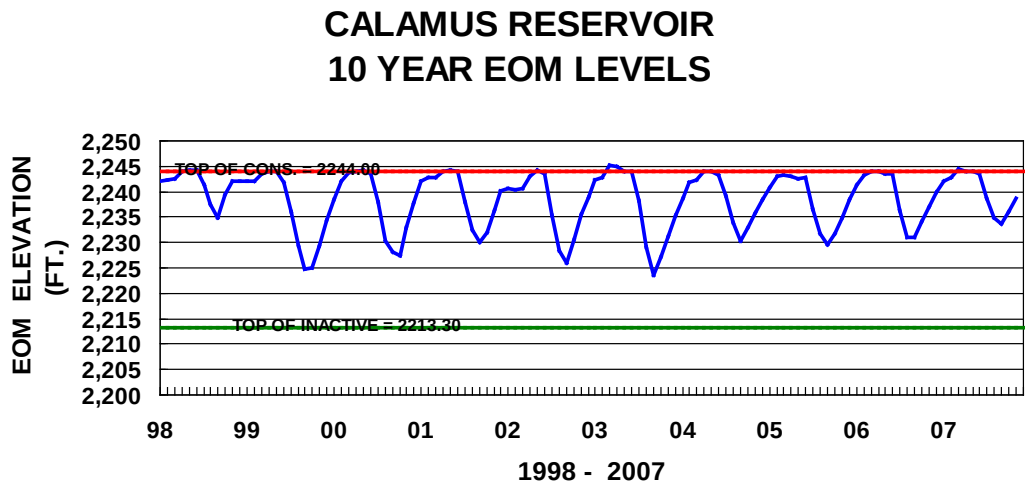


Figure 9 - Calamus Reservoir End of Month (EOM) Elevation 1998 - 2007

Water Level Fluctuations

The Calamus River flowing from the sandhills provides a plentiful and stable flow into Calamus Reservoir. The timing and amount of water releases for irrigation purposes and evaporation determine the extent to which the reservoir declines over the summer months. The chart above (Figure 9) depicts the water fluctuations for a 10 year span highlighting the fact that the Calamus River inflow is sufficient to refill the reservoir every year. The stable water supply allows wildlife and fisheries managers a reasonably consistent baseline to operate from for resource management planning and program purposes.

Kent Diversion Dam

Location and Access The Kent Diversion Dam, (KDD) a feature of the North Loup Division, is located on the North Loup River approximately 6 miles east of Taylor, Nebraska in southern Loup County. KDD encompasses 194 acres of land and water on the north and south sides of the North Loup River. The south side of KDD is accessible from State Highway 91 and via gravel surfaced county roads on its north side. There are three public parking areas, two on the north side and one on the south side. The diversion dam also provides fishing access from the diversion dam which is described in more detail in the following Fisheries section.

Land Management The land management of KDD is accomplished by the Commission and Twin Loups. The Commission manages 114 acres as a WMA and Twin Loups manages 80 acres for operations purposes. The majority of the land the Commission manages lies upstream of the diversion dam on the north and south sides of the river, while the operations land managed by Twin Loups is located on the north side of the river along the Kent Canal. The Kent Diversion Dam Land Use map, Map # 4 (See Tabbed map Section) shows the land use designations for KDD.

Habitat KDD contains a mixture of habitat types including riverine wetland and marsh, upland areas of native grass prairie, and mixed tree and shrub species growing in shelterbelt plantings and scattered natural growth areas.

Fisheries

The Commission's Fisheries Division goal for management of reservoir fisheries resources is: "Create, enhance, and promote angler opportunities at Nebraska Reservoirs by improving management of fishery resources and public information and education services". (Focusing on the Future… A Plan for Nebraska's Fish, Wildlife and Parkland Resources)

Calamus Reservoir is capable of supporting an outstanding fishery. In particular, there are harvestable populations of walleye, white bass, wipers (white bass/striped bass hybrid), drum, and catfish. The Commission stocks various fish species annually in accordance with agency fisheries management plans. Walleye, catfish, wipers, and muskellunge, are stocked at varied densities and frequencies as specified in the plans. Gizzard shad are the primary prey species in the reservoir.

In the years after initial impoundment, Calamus Reservoir provided an outstanding northern pike fishery due to an influx of naturally occurring northern pike from the Calamus River drainage. The northern pike fishery has peaked, but anglers still occasionally land a large northern. Carp are abundant in the reservoir and are utilized by anglers for sport fishing, archery fishing, and spearing. There are usually a couple of organized carp derbies held at the reservoir annually.

Gracie Creek flowing into the upper end of the reservoir is bisected by State Highway 96 forming the Gracie Creek Trout Pond. The pond is approximately 4 acres in size and is a popular put and take rainbow trout fishery. A floating handicapped accessible fishing dock provides fishing access to the pond. The pond is stocked with rainbow trout by the Commission on a frequent basis. The fisheries management plan for Calamus is included in Appendix A3.

Figure 10 – Gracie Creek Handicapped Accessible Fishing Dock

Figure 11 – Kent Diversion Dam Fishing Access

Kent Diversion Dam provides fishing access on the North Loup River above and below the diversion dam. Anglers can fish directly off of the diversion dam structure (Figure 11) or along the north and south banks of the North Loup River upstream of the dam and on the north bank of the river below the dam. The most common fish caught are catfish and carp, however, an occasional northern pike is taken.

Calamus Fish Hatchery

The Calamus State Fish Hatchery is located on 140 acres below Virginia Smith Dam situated between the Calamus River and the Mirdan Canal. The hatchery was constructed under the terms of the Federal Water Project Recreation Act (P.L.89-72). Federal funds for construction of the hatchery were provided by the U. S. Fish and Wildlife Service through the Federal Aid to Sport Fish Restoration Program. Under this program Federal excise taxes paid by anglers on fishing equipment and boat fuel are used to fund state fisheries enhancement programs on a 75 % Federal to 25 % State fund cost share basis. The State of Nebraska provided $ 2.15 million of the $ 8.6 million for construction of the hatchery. This funding was gained through a small increase in the cost of a Nebraska annual fishing license. The hatchery was completed in the fall of 1991.

The hatchery has two available water sources from either groundwater wells or water supplied by Calamus Reservoir. The hatchery has 40 one acre, and 11 half acre polyethylene lined ponds, and 24 concrete raceways. Other fish production facilities are housed in the main hatchery building and include, numerous fish rearing tanks, troughs, and hatching jars. There is also a visitor center in the main building that is open seven days a week from 10 am to 4 pm, after Memorial Day until Labor Day and Monday through Friday the rest of the year. The visitor center has educational exhibits on display and group tours are available by advance request. Two residences on the hatchery grounds allows fisheries personnel the capability to provide 24 hour response to potential hatchery emergencies.

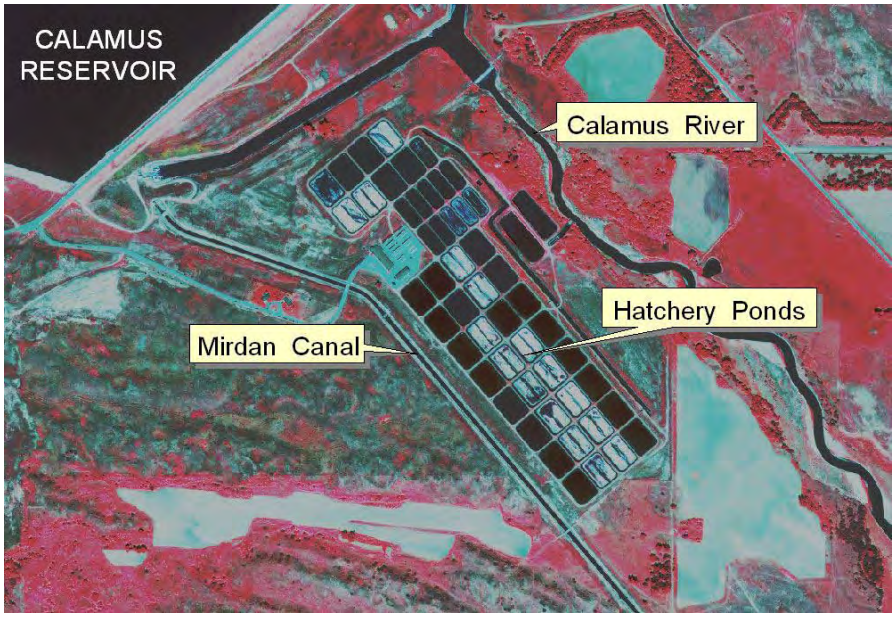


Figure 12 - Calamus Fish Hatchery – Aerial Image

The hatchery is currently involved in the annual production of approximately 40 million cold, cool, and warm water fish. In the years since it began operation the hatchery has produced approximately 65 million fry, 22 million fingerlings, and 5 million catchable fish that were stocked in Nebraska waters. Based on American Fisheries Society standards the monetary value of these fish is $ 11.1 million, not including associated economic benefits gained by local economies where sport fishing takes place. In addition, the hatchery has also collected and produced eggs and fish stock that were provided to other states with a value of over $ 5 million, and received in return, eggs and fish stock produced by other states with a value of nearly $ 7 million.

Threatened and Endangered Species

There are five species that are either Federally-listed or listed by the State of Nebraska as threatened or endangered that have the potential to utilize the Calamus Reservoir and Kent Diversion Dam project areas as residents or during part of the year. The American Burying Beetle *(Nicrophorous americanus)* and the Whooping Crane *(Grus Americana)* are listed as endangered by the State, and also by the Federal Government under the Endangered Species Act (ESA). The Western Fringed Prairie Orchid *(Platanthera praeclara)* is State and Federally listed as threatened. The Bald Eagle *(Haliaeetus leucophalus)* and the River Otter *(Lutra Canadensis)* are both listed by the State as threatened.

The bald eagle was officially removed from the Federal list of threatened and endangered species in 2007. The bald eagle is still protected under the Migratory Bird treaty Act and the Bald and Golden Eagle Protection Act. There are no species under review (candidate species) at this time in Nebraska. There is no threatened or endangered species critical habitat in the Calamus Reservoir region.

Species	Federal Status	State Status
Bald Eagle	De-listed	Threatened
Whooping Crane	Endangered	Endangered
American Burying Beetle	Endangered	Endangered
Western Prairie Fringed Orchid	Threatened	Threatened
River Otter	Not Listed	Threatened

Table 2 – Calamus Reservoir Area – Threatened and Endangered Species

Ecology and Status of Species

Bald eagle Bald eagles are large opportunistic birds of prey that feed primarily on fish and waterfowl. Eagles tend to use areas along rivers, lakes, and reservoirs where large trees provide perch sites for roosting and for locating and securing prey. Migrant and wintering bald eagles begin to arrive in the Calamus Reservoir area in early to mid-October. Winter die-offs of shad at reservoirs such as Calamus provide readily available forage. Adult migrants tend to winter repeatedly in the same area but remain mobile when seeking food during changing winter weather conditions. Under adverse conditions, bald eagles will search for prey in upland areas and feed on carrion. If severe conditions persist, eagles will concentrate in areas with open water or migrate further south. As many as 75 eagles have been counted at Calamus in the winter.

Nesting eagles are found near water that provides a reliable food source and in areas providing isolation from human activities. Calamus Reservoir has been a successful bald eagle nesting site for a pair of eagles nearly every year since 1992. Cottonwood trees are the preferred nesting trees found in central Nebraska. Nests are large and are re-used annually. Nesting activities begin in March; eggs are laid in late March to early April, and both adults incubate the eggs. Eggs hatch in mid-May and fledging takes place after 10 - 11 weeks, with immature birds remaining near the nest for another six weeks. Eagles also utilize Kent Diversion Dam but are not known to nest there.

Figure 13 - Bald Eagle Perched Near Its Nest – Calamus Reservoir

Whooping crane The whooping crane is among the rarest North American birds. The whooping crane is the tallest North American bird standing approximately five feet tall with a wingspan approaching eight feet. The population breeds in Wood Buffalo National Park in the Northwest Territories and winters in Aransas National Wildlife Refuge and along the Gulf Coast of Texas. Whooping cranes are known to migrate through central Nebraska stopping to forage for invertebrates, roots, and tubers, in wet meadows and wetlands and for left over grain in agricultural fields. The whooping crane is a regular spring (March-April) and fall (October-November) migrant through Nebraska.

There have been several confirmed sightings of whooping cranes at Calamus Reservoir and in areas close to the reservoir. In 1992 two adult whoopers were sighted at the reservoir and in 1997 two adults and one juvenile were observed for four days. In December of 2007 a record number of 266 whooping cranes reached the wintering grounds in Texas. There are no documented whooping crane sightings at Kent Diversion Dam. (U. S. Fish and Wildlife Service, 2007)

Western Prairie Fringed Orchid Western prairie fringed orchid is a perennial wildflower typically found in undisturbed moist tallgrass, or sedge meadow, native prairie habitats. Prairie species commonly associated with the orchid are switchgrass, big bluestem, little bluestem, and indiangrass. The orchid has showy white flowers borne on a tall smooth stalk that can reach up to four feet in height. This plant was listed as a threatened species in 1989 under the Endangered Species Act. Conversion of large areas of native prairie to agricultural fields, herbicide use, competition from non-native plants, and use of grassland for haying and grazing have reduced this species habitat dramatically. Records show that this plant could once be found in 102 counties in nine states but is now only found in 34 counties in seven states and one Canadian province. (U. S. Fish and Wildlife Service, 1996). This species has not been observed at Calamus Reservoir or Kent Diversion Dam.

American Burying Beetle The American burying beetle is the largest carrion beetle in North America reaching up to 1.5 inches in length. The beetle is a shiny black color with bright orange markings. American burying beetles utilize the carcasses of small mammals and birds for food and reproduction purposes. These insects are nocturnal and capable of detecting finding dead animals within an hour of death from up to two miles away. When a mating pair has found a suitable animal carcass it is buried and used to feed and rear their offspring. American burying beetles were listed as an endangered species in 1989 under the ESA. Habitat alterations, land use changes, human activity, and increased competition for its food sources have likely caused the widespread decline of this species. This insect was once found throughout the entire eastern half of the United States but is now only found in Nebraska, Oklahoma, Arkansas, and Rhode Island. The American burying beetle habitat found in the Nebraska sandhills is possibly the largest undisturbed and important ecosystem remaining for this species. The American Burying beetle has been found through trapping by the Commission at

Calamus Reservoir but was not found at Kent Diversion Dam lands. (Ratcliffe, 1996)

River Otter River otters are found in all major waterways of the United States and Canada. Many states and Canadian provinces have large otter populations, however, they were extirpated from Nebraska around 1900 after unregulated harvest depleted their numbers. Otters are three to four feet long, brown in color, and weigh up to 25 pounds. Their preferred food is fish but they will eat a wide variety of other foods including, crayfish, amphibians, insects, mammals, and birds. Otters require large habitat areas to sustain their populations. The home range of an otter may encompass 50 miles or more of a stream or river. In 1986, the river otter was listed as a State of Nebraska endangered species by the Nebraska Game and Parks Commission. Between 1986 and 1991 otter were re-introduced at seven areas in Nebraska. One of the release sites was on the Calamus River above Calamus Reservoir. Currently, the otter population in Nebraska appears to be doing well and otter sightings at Calamus Reservoir have been reported. There are no confirmed sighting of otters at Kent Diversion Dam, but there are likely well established otter populations on the North Loup River in the vicinity of the diversion dam.

Visitor Management

Visitor Use

Visitor use activities in the WMA consist mainly of hunting, fishing, wildlife observation and nature photography. The WMA designated use access points are as follows: Dry Creek, Windmill Hill, Gracie Creek, Inlet Outlook, Ash Grove, and Dry Valley. There are several other WMA parking areas around the reservoir. Map # 5 depicts these access point locations (See Tabbed Map Section). Map # 5 is a production of the Commission and is the base map of the Commission's Calamus Reservoir State Recreation Area brochure.

Interpretive Program

No interpretive program is proposed for the WMA. The Commission does, however, maintain a bald eagle viewing area near the upper end of the reservoir. In addition, WMA information is provided on the Commission website and through annual Commission publications and maps. As previously noted, the Calamus Fish Hatchery has a visitor center with aquatic habitat and fisheries management related information and exhibits.

Visual Resource Management

Visual resource management, according to Reclamation, is the art and science of planning and administering the use of Reclamation lands so the visual effects maintain or upgrade man's and nature's welfare through a compatible coexistence.

Visual resource management in the wildlife area should include minimizing the human impacts such as unneeded structures and excessive vehicular use. Undesirable and/or unauthorized vehicle trails will be closed by installing barriers and/or signs.

Future development and construction activities in wildlife areas might include:
(1) Developing or enhancing wildlife or fishing access areas
(2) Improvement or maintenance of existing facilities. To maintain visual quality, the design of such facilities and the materials used must be compatible with the landscape.

Public Use, Regulations, and Enforcement

All hunting and fishing regulations are established by the U.S. Fish and Wildlife Service and the Commission. Recreation lands are open to hunting with certain restrictions. It is illegal to hunt within 200 yards of occupied campsites, concessions, or residences.

Park permits are required year round to enter developed recreational areas as established by the Nebraska State Legislature. A valid sticker must be displayed on each vehicle. A daily permit can be purchased for periods of day use or a season-long permit can be obtained.

A five mile per hour, no wake zone has been established for the upstream half of the Calamus Reservoir water surface beginning just west of the Nunda Shoal boat ramp. This no wake zone was established to reduce safety issues associated with the numerous underwater obstacles present in this portion of the lake resulting from flooded stands of mature trees. This zone also creates a buffer between fishing and power boating/skiing areas. The no wake zone is marked by a series of buoys across the reservoir. In addition, watercraft and flotation devices are prohibited on the water control channel area below the dam as shown on Map # 8. (See Tabbed Map Section).

The area conservation officer is responsible for enforcing all game, boating, water regulations, and local laws. Game violations and acts of vandalism on recreational and wildlife lands are investigated by the conservation officer or county sheriff's department officers. The Loup and Garfield County sheriff and Nebraska State Patrol have jurisdiction and the authority to investigate all cases of personal injury or property damage. The local conservation officer also has law enforcement responsibilities and assists in emergency situations.

Off-Road Vehicle Use

All Reclamation lands are closed to Off-Road Vehicle (ORV) use, except for areas or trails specifically opened to use of ORV in accordance with Code of Federal Regulations (CFR) Section 420.21 and Executive Order No.11644. There are currently no ORV use areas designated at Calamus Reservoir or Kent Diversion Dam. ORV's such as quad runners and snowmobiles may be unloaded

in the boat ramp parking areas and be used on the frozen water surface of Calamus Reservoir.

Any unauthorized and undesignated vehicle trails created will be closed immediately by Reclamation and the Commission to minimize the environmental effects to soils, vegetation, wildlife, wildlife habitat, and cultural resources. In the event designated roads and parking lots become safety hazards due to shoreline erosion or other natural events, these areas will be closed until conditions can be corrected.

Special Uses

In an effort to provide high quality hunting opportunities, the Commission currently offers several types of special hunting opportunities commensurate with area wildlife resources. Youths under 16 are able to participate in early pheasant, waterfowl, and turkey hunts typically held the weekend before the regular season opening date. The Commission also offers a free fishing day and free park entry permit day during the summer.

Safety and First Aid

All State vehicles in the wildlife and recreation areas are equipped with first aid kits. Conservation officers are well trained in first aid procedures while seasonal employees receive some training. No visitor safety awareness campaign is presently being implemented.

Chapter 3

Recreation Management and Administration

CHAPTER 3 - RECREATION MANAGEMENT AND ADMINISTRATION

Managing Agency Policy

Recreation lands totaling 1,188 acres at Calamus Reservoir are managed by the Commission's Park Division as a State of Nebraska Recreation Area - Calamus State Recreation Area (SRA). The goal of the Park Division for the management of State Recreation Areas is: "Preserve and protect Nebraska's recreation area resources and provide high quality outdoor recreational opportunities for visitors." (Focusing on the Future… A Plan for Nebraska's Fish, Wildlife and Parkland Resources)

In accordance with the lease agreement between Reclamation and the Commission, the Commission has the responsibility for the administration of recreation, wildlife, and related uses within the leased premises at Calamus Reservoir and Kent Diversion Dam. This lease agreement gives the Commission the authority to collect and retain recreation related fees and use them for the development, operation, maintenance, and replacement of the wildlife and recreation areas and facilities within the lease area. A copy of the lease agreement can be found in Appendix A1.

Figure 14 – Recreational use area entrance sign

Recreational Use Areas

Park Office

The park office is located just off of the Little York Point access road. The office is open seasonally from mid May until mid September, seven days a week. Park entrance permits can be purchased and a variety of regional and reservoir informational pamphlets and brochures are available. Map # 5 shows the locations of the recreational use areas. (See tabbed Map Section)

Figure 15 – Homestead Knolls Campground

Little York Point

Little York Point is a day use area located adjacent to the reservoir near the north end of Virginia Smith Dam. Amenities found at this area include picnic facilities, picnic shelter, drinking water, vault toilets, and a dump station.

Homestead Knolls

Homestead Knolls is a modern campground area located on the north side of the reservoir. The campground has 83 hard-surfaced camping pads that have either 30 or 50 amp electrical hookups, modern toilets and shower facilities. The boat ramp has two lanes and a courtesy dock. There is also a fish cleaning station in this area.

Valleyview Flat

Valleyview Flat is a primitive camping area located near the upper end of the reservoir on the north side. There is drinking water available and vault toilets. There is also a boat ramp with a protective jetty for wind protection and a courtesy dock.

Hannaman Bayou
Hannaman Bayou is located at the upper end of the reservoir on the south side. A single lane boat ramp can be utilized for portions of the year during high reservoir water levels. Primitive camping, drinking water and vault toilets are available.

Nunda Shoal
Nunda Shoal is located near the mid point of the reservoir on the south side. Nunda Shoal has 39 hard-surfaced camping pads with either 30 or 50 amp electrical hookups. The area also has a two lane boat ramp, vault toilets, drinking water and a fish cleaning station.

Buckshot Bay
Buckshot Bay is located in the southeastern area of the reservoir. This area's features include modern restrooms, drinking water, and a boat ramp. Buckshot Bay is protected by a large rock jetty which provides wind and wave protection for boat launching and recovery. There is no camping allowed in this area.

Visitor Management

Visitor Use
Recreational use of Calamus SRA ranges from approximately 405,000 to 500,000 visitors annually. Based on the 2007 park user survey conducted by the Commission, Calamus SRA has become a very popular overnight camping destination. The survey showed that 96% of visitors were planning to camp. Visitors camping two or three nights made up 51% of survey respondents. The high percentage of visitors that intended to camp at Calamus SRA support the survey findings showing 86% of respondents indicating that electrical hookups are "very important" followed closely by 80% of user rating showers as "very important". The survey also showed that fishing is the number one reason people visit Calamus followed by the lake's natural sand beaches. Boating was rated as "very important" to 72% of recreationists. (Nebraska Game and Parks Commission 2007 Park User Survey)

Interpretive Program
The purpose of an interpretive program is to explain the natural, historical, and/or cultural values of the reservoir area and the surrounding lands through various means. It provides the visiting public with information making their visits more meaningful and enjoyable. Often the best means of interpreting the historical and cultural values of the reservoir area is an unmanned visitor contact point (interpretive kiosk).

Organized Group Camps - Reservations
The Commission allows reservations of approximately one half of the modern campsites at Homestead Knolls and Nunda Shoal. Reservations can be made by either telephone or on the Commission's website for a small fee. The primitive

campsites at Valleyview Flat can be reserved under a "community camp" option, with blocks of either four or eight campsites reserved for groups of campers. In addition, the picnic shelter at Little York Point can also be reserved.

Special Uses and Events

Special uses include equestrian use, and special event use. Equestrian use is allowed at Calamus Reservoir; however, equestrian use is restricted to use by individuals and is not allowed as an organized group event. The Commission hosts many special events each year including fishing tournaments, family reunions, kids' fun days, ceremonies, and special hunts at the reservoir. These special events may be regulated, subject to permit requirements, or require prior approval from the Commission.

Exclusive Use

Reclamation defines exclusive use as any use that excludes other appropriate public recreation use or users for extended periods of time. Exclusive use includes, but is not limited to, boat docks, cabins, trailers, manufactured or mobile homes, structures, roads, or other amenities that are determined by Reclamation to be exclusive use. In accordance with federal regulations and Reclamation directives, the development of exclusive uses on Reclamation property at Calamus Reservoir will not be permitted.

Future Recreational Facility Development

Future development of recreational facilities at Calamus Reservoir will consist primarily of upgrades and/or replacement of existing facilities in established recreational use areas. Based on the amount of land and water surface area, and recreational user carrying capacity of the project area, Reclamation and the Commission consider Calamus SRA to be fully developed. There are no plans or funding identified for large scale recreational use area development or expansion. There is the potential for limited additions of recreational amenities adjacent to, or contained within existing recreational use areas if funding is available, and the resource can accommodate such an addition, such as increasing parking space for example. An uncrowded and quality recreational experience is important to both Reclamation and the Commission. According to the 2007 park user survey, 84% of visitors rated their satisfaction with Calamus SRA as better than average or excellent.

Public Use, Regulations, and Enforcement

The Commission's rules and regulations concerning public behavior apply to Calamus SRA. The park division staff monitors visitor use and conduct and respond accordingly. Loup and Garfield County Sheriff Departments, the Nebraska Highway Patrol and Commission Conservation Officers are available law enforcement support if needed. Reclamation regulations governing public conduct are contained in 43 CFR part 423, Public Conduct on Bureau of Reclamation Facilities, Lands, and Waterbodies.

Reclamation is a partner and sponsor for the Federal Crime Witness Program, this program, is designed to heighten public awareness of the serious impacts of crime within and around dams, reservoirs, and other Federal facilities. It features a nationwide toll-free hotline (1-800-437-2744) which allows anyone to confidentially report any illegal activity that they witness against Reclamation property or personnel. This number is posted on signs placed around the facilities at Calamus Reservoir and Kent Diversion Dam.

Figure 16 – Federal Crime Witness Program Sign

Safety and First Aid

All Commission vehicles are equipped with radios and first aid kits. Park personnel and conservation officers are trained in first aid procedures while seasonal employees receive some training. No visitor safety awareness programs are presently being conducted.

ADA Accessibility

Reclamation and the Commission are required to comply with the Americans with Disabilities Act of 1990 (ADA) to ensure equal opportunities for individuals with disabilities to experience our facilities and natural resources. ADA requires that, to the maximum extent feasible, facilities must be accessible to, and usable by, the disabled. The Code of Federal Regulations (CFR) requires that for new construction, each facility or part of a facility constructed by, on behalf of, or for the use of a public entity be designed and constructed so the facility is readily accessible to and useable by disabled individuals. The CFR also require that for alterations, each facility, to the maximum extent feasible, be altered to make it readily accessible to and usable by the disabled.

Reclamation has evaluated all facilities at Calamus Reservoir and the Kent Diversion Dam for accessibility, and developed an action plan to guide future retrofits. Reclamation and the Commission are working cooperatively to perform all required retrofits to the existing facilities at the reservoir and construction of new ADA compliant facilities as needed. All of the facilities are scheduled to be ADA compliant by 2010. A number of facilities at Calamus Reservoir and Kent Diversion Dam are already accessible.

Chapter 4

Agency Responsibility

CHAPTER 4 - AGENCY RESPONSIBILITY

This chapter describes the roles and responsibilities associated with the management of the lands and waters under jurisdiction of Reclamation and being managed for recreation and fish and wildlife by the Commission. This chapter also provides information regarding the management of operations areas performed by Twin Loups.

Agreements

The lease agreement between the United States and the State of Nebraska Game and Parks Commission, dated May 1, 1995, and all amendments, formalizes the administration and management of Calamus Reservoir, and surrounding lands. This document is included in Appendix A1.

Responsibilities

This section highlights portions of the lease between the United States and the Commission.

Maintenance

Facilities

The Commission may construct or modify facilities as needed for the purposes of administration and management of recreation, wildlife and related uses within the areas of the leased premises. The Commission will operate and maintain the leased premises, including all improvements of Reclamation facilities and those constructed by the Commission in a good and reasonable state of repair at its own cost and expense as may be supplemented by Reclamation funds, when available.

The development of recreational areas and facilities is planned in accordance with reservoir water storage capacity, operating plans and proper flood plain management. Calamus Reservoir is not designed with flood control storage capability, therefore, limitations on the location of recreational facilities depends upon the top of conservation pool elevation. Recreational facilities utilized for human habitation will not be developed below elevation 2244 which is the top of conservation pool at Calamus Reservoir. For further information and specific guidelines, refer to Executive Order No. 11988, WRC Flood Plain Management Guidelines (43 CFR 6030), and Water and Power Flood Plain Final Procedures (45 CFR 1693).

Potable water source development, well construction, toilets, and sewage disposal systems will be constructed and operated under the requirements of local and State environmental and/or public health departments and Federal health agencies. All garbage and trash collected is to be hauled to a permitted landfill facility. Dumping, burning, or burying refuse on Reclamation property is prohibited.

The need for upgrades and/or construction of new boat ramps, electrical systems, sanitary facilities, camping pads, and similar facilities at the reservoir is recognized. Plans showing proposed construction of recreation facilities and their location will be submitted to Reclamation for the appropriate clearances and approval before construction.

Fencing

Reclamation is responsible for initial boundary fence construction around reservoir lands. The Commission is thereafter responsible for repair and replacement of boundary fence. The Commission is also responsible for constructing and maintaining any interior fences needed for wildlife and/or recreation management purposes. Reclamation may provide the Commission with fencing materials, or funding if available, for the maintenance, and replacement of boundary fence. If a Reclamation action necessitates the relocation of a boundary fence, Reclamation will assume responsibility for fence replacement.

Signing

The Commission will install and maintain boundary and recreational user signs on Calamus Reservoir. The main entrance sign should reflect the collaborative management effort between Reclamation, the Commission, and Twin Loups. Wildlife Management Area boundary signs are placed at intervals on the boundary fence, and at most property corners to identify project lands. The Parks Division is responsible for installing and maintaining signs that provide recreation and regulatory information. Signs identifying all major use areas are located at the area entrance point, and have universal recreational symbol signs attached to them identifying which uses and facilities are available in the area.

Roads

Maintenance, reconstruction, or improvement of access roads, except State and county maintained roads and highways, within the reservoir area for recreation and/or wildlife purposes is the responsibility of the Commission. Reclamation may provide financial assistance to the Commission for road maintenance as funding allows. Routine maintenance should be restricted to primary access roads and designated use areas. Maintenance or improvements to undesignated roads and off-road vehicle (ORV) trails is not permitted without Reclamation's approval.

The Nebraska Department of Roads is responsible for maintaining State Highway 96 which provides access along the northern side of the reservoir. Loup County is

responsible for the maintenance of the asphalt surfaced road that provides access along the south side of the reservoir and gravel surfaced county roads. Garfield County is responsible for the maintenance of the asphalt crest road across the top of Virginia Smith Dam.

Shoreline Erosion

The Commission is responsible for control of shoreline erosion near recreation use areas which may threaten public safety. The Commission is responsible for erecting signs notifying the public of erosion hazards if they exist. Reclamation may provide shoreline erosion control measures, such as rip-rap and planning assistance as funding allows. The Commission will be responsible for obtaining any regulatory permits associated with erosion control projects such as U. S. Army Corps of Engineers section 404 permits.

Public-Use Regulations

The Commission's Wildlife and Parks Divisions, administer both the land and water surface, and the Law Enforcement Division assumes the responsibility for the enforcement of all game, fish, and boating laws and regulations. The Parks Division is responsible for enforcing park regulations. The Commission is also responsible for identifying trespass and violation of Federal regulations covering ORV use and other related natural resource use on the leased premises. The Commission will take all reasonable precautions and assist in the prevention, control, and suppression of fires on the leased premises. The Commission does not engage in, permit, or allow any activity within the leased premises which will interfere with the safety, protection, and operational aspects of the reservoir utilized for flood control and/or water delivery.

The Commission, at its own cost and expense as may be supplemented by Federal funds when available, will use erosion, noxious weed, and land and water pollution control measures as needed to ensure proper resource management. The Commission also requires contractors, permittees, and licensees to comply with these control measures by express provisions contained in the contract, permit, and licenses.

Reclamation and Twin Loups will be responsible for management of all lands designated as operations areas. The management of these areas is primarily to ensure proper operation and protection of the dam and reservoir. However, this will not preclude recreation, fish and wildlife, and related-use administration and development of these areas by the Commission if determined by Reclamation and Twin Loups to be compatible with project purposes.

Health and Safety

It is the responsibility of the Commission to report all health and safety hazards observed at Calamus Reservoir and Kent Diversion Dam to Reclamation. Examples would include substandard toilets and sewage disposal systems, contaminated water systems, unsafe roads, dangerous boat ramps, poor electrical wiring, and unsafe bridges. Hazards or deficiencies reported by the Commission

which fall within their responsibility will be corrected or eliminated as soon as possible. Likewise, Reclamation will correct health and safety hazards and deficiencies on the lands they administer as soon as possible.

Reports of Serious Accidents and Damages

The Commission will provide Reclamation, within 30 days of occurrence, one copy of all incident reports concerning damage to property, resources, and serious accidents occurring within the reservoir area. Reportable incidents include: security breaches, wildfires, vandalism to structures, buildings, or other recreation facilities. Serious accidents involving the public include fatalities, permanent injuries, and all cases when a claim for injury is filed. In addition, Reclamation will complete a "Security Incident Report".

Land Use Designation

Land-use classification, land-use changes, and re-designations will be the responsibility of Reclamation and the Commission. Map # 3 shows the designated land and water use areas at Calamus Reservoir, Map # 4 shows the land use designations for Kent Diversion Dam. Map # 7 shows the land use designations for the land areas located near the Virginia Smith Dam. (See Tabbed Map Section).

Changes in Resource Management Plan

The Commission or Reclamation may find that certain conditions or situations at Calamus Reservoir and Kent Diversion Dam develop, which require a revision to this RMP. This plan is based on mutual approval of purposes and objectives of the agencies responsible for management of the area. Changes approved by Reclamation require agreement by all agencies concerned. If Reclamation or the Commission fails to approve the RMP or any revisions within 90 days, an additional 90 days can be obtained on written agreement by Reclamation and the Commission.

A revision of the RMP may be proposed by any agency directly involved in the administration and management of the area. The suggested RMP revision should be submitted to Reclamation in a letter outlining the issue and the proposed changes needed to correct the problems identified. To ensure uniformity and simplicity in handling the revisions or supplements to the RMP, all proposals should be sent to Reclamation. A final revision will be prepared by Reclamation after consultation with all affected agencies. Reclamation will then forward the revision proposal to the Commission and will seek their approval. After approval, Reclamation will furnish copies of revisions or supplements to all agencies given copies of the original RMP.

Recreation Use Data Report

The Commission will submit to Reclamation a "Recreation Use Data Report" no later than February 1st each year during the term of the lease for each separate reservoir area. The report contains two parts. Part 1 is to be completed by the

Commission for each reservoir area. Part 2 is to be completed by the concessionaire, if one exists. Instructions are provided at the end of the report.

The report form will be supplied by Reclamation. The purpose of this report is to keep a current inventory of recreation facilities available for public use, to record annual visitation by principal interest and water-craft use, and record fish and wildlife use. Reclamation will collect all information and enter it into a database.

Reservoir Reviews

At the request of either Reclamation or the Commission, both parties will meet biennially to review the administration and management of the reservoir area. Local representatives will meet annually to review reservoir activities and issues. Reclamation will prepare and submit a report of the biennial review to all participating agencies within 60 days after the field review is completed. The review and report will cover conditions of the lands and facilities, accomplishments, problems, coordination of areas of dual responsibility, and recommendations. Recommendations requiring action by the Commission will be completed within a specified timeframe.

Shoreline Lands Management

The designation of lands at reservoirs with fluctuating shorelines resulting from irrigation drawdown or increased storage will be based on the top of active conservation pool. Lands exposed below this level are to be administered by the respective divisions of the Commission, Reclamation and/or Twin Loups in the case of operations areas. The Parks Division retains jurisdiction of shoreline in front of recreation lands as the water recedes. The Wildlife Division retains jurisdiction of the shoreline in front of the WMA. However, the water surface carries a Wildlife designation. Consequently, the Commission will follow this policy on lands they administer, and Reclamation and Twin Loups will comply on areas they administer. Exceptions will be mutually agreed upon between the parties.

Shoreline and Upland Erosion

As described in Chapter 1, the majority of soils found at the Calamus Reservoir project area are comprised primarily of very sandy material offering minimal resistance to erosive forces. The shoreline at Calamus is extremely susceptible to water, wind, and ice erosion. Artificial impoundments such as Calamus generally experience rapid wave induced erosion of shoreline areas after filling. During initial reservoir construction and development, the recreation area shorelines were covered with a soil cement material to protect the recreation facilities from wave erosion. The soil cement has performed fairly well in most areas since initial reservoir filling. There are areas, however, where the soil cement is in need of being repaired or replaced. Wind erosion occurs along un-vegetated reaches of shoreline exposed during periods of low reservoir levels. Large blocks of ice are often driven ashore after breaking up on the reservoir surface at the end of winter. These large sheets of ice are capable of scouring off shoreline topsoil and

vegetation that holds soil leaving the reservoir banks susceptible to wind and/or water erosion.

Figure 17 – Ice sheets pushed ashore at Calamus Reservoir.

The Commission is responsible for the control of shoreline erosion near recreation use areas which may threaten public safety. They are also responsible for erecting signs notifying the public of erosion hazards. The Commission has constructed wave breaking jetties at Buckshot Bay and Valleyview Flat boat ramp areas to reduce shoreline erosion, lateral transport of sediment, and to protect the boat launching area (Figure 18). Reclamation may provide erosion control material or planning assistance as funding allows for improvement of site conditions at erosion areas.

Vegetative cover, capable of limiting erosion on the uplands, is generally in excellent condition. Erosion in upland areas is minor due to range management practices employed by the Commission and restrictions on off road driving. Occasionally blow outs form from natural sandhills geologic processes. These areas are stabilized by placing mulch materials in the active blow out area.

Figure 18 – Wave breaking jetty at Valleyview Flat.

Noxious Weed and Nuisance Plant Species Management

As the Federal landowner, Reclamation is ultimately responsible for the identification and proper management of noxious weed species on Reclamation lands and at Reclamation-owned facilities in accordance with the laws and policies set out in the Federal Insecticide Fungicide and Rodenticide Act, Federal Noxious Weed Act, Carlson-Foley Act, and applicable State and local laws and standards. This responsibility is addressed through the Lease agreement, cooperative agreements, and activities involving both Reclamation and the Commission.

The lease between Reclamation and the Commission identifies the management responsibilities of the Commission. As part of their land management program at the reservoir the Commission has assumed responsibility for identification and correction of noxious weed infestations within the leased premises. The Commission is responsible for noxious weed control at its own cost and expense, which may be supplemented by Federal funds. Currently, a cooperative agreement is in place which provides Federal funding for chemicals, equipment, and technical assistance to the Commission to assist in these efforts. The Commission shall comply with all provisions of Federal, State, local, and pesticide laws, regulations, and Department of Interior policies on pesticide use and pest management.

An annual report of noxious weed control programs performed at the reservoir areas, their locations, and treatment methods utilized will be provided to Reclamation.

The Commission's noxious weed and nuisance plant species control programs are designed to be holistic and comprehensive in approach. The primary goals of these treatment programs are to achieve effective control of the target species with the least possible hazard to people, property, and the environment. The Commission is responsible for, determining if control programs are needed, when treatment should be initiated, and treatment frequency. The Commission will also determine what physical, cultural, biological, mechanical, and chemical treatments, (or combinations thereof), to implement, and will also evaluate treatment effectiveness.

Twin Loups is responsible for lands at Calamus Reservoir and Kent Diversion Dam identified as operations areas including the responsibility for noxious weed and nuisance plant species control programs involving those lands, water, and facilities.

Aquatic Nuisance Species

Aquatic nuisance species are invasive plant or animal species capable of seriously impacting water bodies, riparian areas, native plant and animal species, and can also threaten the operation of equipment and facilities. Aquatic nuisance species are often transported inadvertently through human activity. Recreational activities such as boating, fishing, or other activities that involve the transport of equipment and/or water from areas harboring a nuisance species to a new water body can create the opportunity for a new infestation.

Reclamation and the Commission are concerned with the spread of aquatic nuisance species to Calamus Reservoir and the surrounding water resources. The Commission has placed signs at all of the boat ramps warning boaters of the potential of spreading aquatic nuisance species and how to take steps to reduce the possibility of transporting these species. In addition, the Commission provides training and information about aquatic nuisance species during boater safety training, boat re-licensing, and provides additional information in the annual boating guide booklet.

Fire Management

Fire Policy

According to the lease between Reclamation and the Commission, "…the Commission shall take all reasonable precautions and assist in the prevention, control, and suppression of wild fires in the vicinity of the areas of the leased premises". Reclamation will provide the Commission with the additional guidance related to fire management in accordance with Reclamation's policy and directives and standards, on an as needed basis.

Fire Prevention

Fire hazards can be greatly reduced by using management techniques, including construction of firebreaks, planting warm season grasses, and reducing accumulation of surface organic litter by prescribed burning, high intensity grazing, haying, and selective removal of fuel sources such as unwanted cedar trees. Firebreaks include hard topped roads and gravel roads, and fallow, hayed, and cropped fields

The Commission prepares firebreaks around all planted tree plots in the reservoir area ahead of prescribed burning activities. Mature tree stands are a valuable natural resource and should be protected by firebreaks wherever possible.

Fire Suppression

Calamus Reservoir and Kent Diversion Dam are within the response area of the Burwell and/or Taylor, Nebraska volunteer fire departments. These volunteer fire departments provide emergency assistance in suppressing wildfires on lands administered by Reclamation and the Commission.

Interagency Cooperative Fire Management Agreement

According to the Federal Water Project Recreation Act of (P.L. 89-72) as amended by the Reclamation Recreation Management Act of 1992 (P.L. 102-575) and the Reclamation Act of 1902, Reclamation has entered into an Interagency Cooperative Fire Management Agreement (See Appendix A4). The agreement documents the commitments to fire protection assistance and cooperation on lands in Nebraska. The agreement identifies authorities, roles, and responsibilities of Federal agencies, State agencies, and local entities responsible for fire management and suppression activities in Nebraska.

Partners of the agreement include:

-National Park Service, Midwest Region
-Bureau of Indian Affairs, Great Plains Region
-Bureau of Reclamation, Great Plains Region
-Fish and Wildlife Service, Mountain Prairie Region
-U.S. Forest Service, Rocky Mountain Region
-Nebraska Emergency Management Agency
-Nebraska Forest Service
-Nebraska Game and Parks Commission
-Nebraska Military Department
-Nebraska State Fire Marshal

Trespass

Boundary Trespass

The Commission will control and prevent illegal trespass on lands and water surface under its lease. On observance by either the Commission or Reclamation, it will be the responsibility of the observing agency to bring this trespass to the attention of the other agency. The agencies will then mutually decide on a course of action. If legal action becomes imminent, Reclamation will have lead responsibility for resolving the trespass.

Unauthorized or Improper Use

Should unauthorized or improper use occur within the boundary of leased lands, correction of the situation will be the responsibility of the Commission. Examples include unauthorized dumping of trash or refuse, unauthorized ORV use, and trespass grazing. Operations areas or any lands not under lease to the Commission will be the responsibility of Reclamation and/or Twin Loups.

Land Use Authorizations and Land Disposal

Land use authorizations include easements, leases, licenses, and permits which allow others to use Reclamation lands, facilities, and water surfaces for a variety of purposes such as: roads, canals, telephone lines and other linear utilities, communication facilities, sporting events, agricultural uses, and organized recreational activities. Issuance of any land use authorization is discretionary and must conform to the requirements contained in 43 CFR 429 and Reclamation Directives and Standards for Land Use Authorizations (LND 08-01). Prior to issuing any land use authorization, Reclamation is required to collect administrative fees and receive fair market value for the use of its lands. Additionally, applicants requesting a land use authorization must complete either a Standard Form 299 (used for energy and utility systems) or Form 7-2540 when requesting other uses (grazing, farming, special events, etc.). See Appendix C2 for these forms.

Land use authorizations will not be issued when it is determined that the proposed use:

-Is incompatible with authorized project purposes
-Poses health and safety concerns
-Results in unacceptable impacts to the environment
-Results in private exclusive uses
-Violates state, Federal, or local laws, regulations, ordinances, or zoning requirements
-Jeopardizes the interests of the United States
-Is an existing unauthorized use
-Will result in other adverse and unacceptable impacts
-Where other alternatives are available

In regard to roads, telecommunication sites, microwave towers, transmission lines, and linear facilities, Reclamation will not issue any land use authorizations for these uses that does not clearly compliment the goals and recommendations contained in this plan. In the event electrical utilities are permitted they shall be buried, or if constructed above ground, they shall be constructed and only permitted if they do not interfere with the visual and aesthetic components of the landscape. All above ground utilities will provide measures of safety for the public and for wildlife species, including protecting raptors from electrocution.

All land use authorizations will be considered on a case by case basis, and issued at the sole discretion of Reclamation. If a use authorization is granted, it is the policy of Reclamation to grant the least estate possible necessary to accommodate the intended use. Generally, this means that Reclamation will only issue a permit or a license, and will not issue leases or easements or other contractual documents that convey an interest in real property.

All Reclamation lands are currently needed for project purposes and are not available for disposal thru sale, lease, or transfer to any other person, agency, or entity. In the event any Federal lands are determined by Reclamation to be excess to project needs, Reclamation will follow standard General Service Administration procedures to dispose of the lands. This process requires that any excess lands be first offered to other Federal or State agencies, then to local counties or municipalities, and lastly thru sale at public auction to the highest bidder.

The Commission has the exclusive permitting, licensing, and subleasing rights within the area of the leased premises at Calamus Reservoir and Kent Diversion Dam. The Commission will not grant leases or easements or enter into agreements that convey an interest in Reclamation lands to a third party. The Commission may issue and administer licenses, permits, and contracts to persons or associations and may grant temporary rights of use agreements that are compatible with land management purposes. However, all new licenses, permits, or contracts, or changes to existing licenses, permits, or contracts containing previously unidentified activities, must be submitted to Reclamation for approval prior to execution. The Commission will furnish Reclamation with a fully executed copy of the contract.

Issuance of Easements, Licenses, Permits, Subleases, or Contracts

Various uses will be made of the lands and water in the reservoir area by third parties, requiring the use of formal documents such as easements, licenses, permits, subleases, and contracts.

Limited surface rights may be granted by the Commission. However, certain use rights, such as easements, can only be granted by Reclamation or another agency of the United States. Requests from third parties for permanent use rights or easements will be directed to Reclamation. When the request is made to the Commission, such a request should be referred to Reclamation. The Commission

should advise Reclamation whether or not it concurs with the request and if such use will be compatible with the present or proposed use of lands and waters.

When the request is made to Reclamation, the proposed use will be discussed with the Commission and its recommendations obtained before granting or denying the use.

Use Rights to be Granted by the Administering Agency

The Commission may not issue any type of use authorization that conveys a real property interest (such as an easement or lease), nor may they dispose of any interest of the United States. The Commission may grant permission to third parties for other use rights. Examples of uses requiring licenses, permits, or contracts are agricultural and grazing privileges, powerlines not in excess of 15 kilovolts, and telephone lines which are directly associated with recreation and wildlife development within the reservoir area. The location and general construction plans for proposed roads, powerlines, pipelines, and telephone lines will be submitted to Reclamation for approval, before granting permission to construct such facilities. This requirement permits Reclamation to determine whether the location and construction may damage, or threaten to damage, the property of the United States, have significant environmental impact, or interfere with the operation of the dam and reservoir. Execution and administration of licenses, and permits is the responsibility of the Commission. However, the Commission will request, and will need to receive approval from Reclamation for the contract prior to executing the contract.

Also, the Commission shall carry adequate public liability insurance customary under the existing circumstances shall require all contractors, permittees, and licensees to carry public liability insurance.

Use Rights to be Granted by Reclamation

Rights Granting an Interest in Land All use rights granting an interest in land, such as an easement which is normally irrevocable and perpetual in nature, may only be granted by Reclamation's Great Plains Regional Director.

Prior Rights Any third party uses which were authorized prior to the transfer of administration of project lands to the Commission will be administered by Reclamation in connection with its existing policy, rules, and regulations. Such authorized uses may be transferred to the Commission for its administration by mutual agreement of both parties, and providing the contract permits such transfer or assignability

Rights Not Directly Related to Development and Administration of the Reservoir Lands for Recreation and Wildlife and Related Uses The administration of lands and water at Calamus Reservoir and Kent Diversion Dam was transferred to the Commission to permit exclusive responsibility, operation,

control, and administration of these lands for recreation, fish and wildlife, and related uses. Use rights not directly related to administration or development of the lands for such purposes may be authorized by Reclamation at its sole discretion. Examples of such use rights are State and county roads, rights involved in serving Reclamation facilities, transmission lines, telephone lines, and other facilities which cross reservoir land, but serve lands or persons outside of the reservoir area.

Removal of Nonrenewable Resources By law, Reclamation cannot allow a State or local agency to sell or permit the removal by others of nonrenewable resources such as sand, gravel, stone, oil, and gas.

Permits for exploration and/or removal of Reclamation-acquired minerals (other than fossil fuels) are the responsibility of Reclamation. Generally, since the private mineral owner maintains a dominate estate to which the surface owner must avoid unreasonably interfering with, Reclamation will not deny development of the private mineral estate.

When private reserved mineral rights are to be exercised, Reclamation will enter into negotiations with the private mineral owner to permit the use of Reclamation's surface estate. Prior to mineral development Reclamation will request a copy of exploration, mining, and drilling plans together with a surface rehabilitation plan from the private mineral owner. Reclamation and the Commission will review these plans and shall jointly prepare stipulations and conditions of use to protect natural resources. These stipulations and conditions will be provided in writing to the private mineral owner.

Prior to the commencement of on the ground work for the development of private minerals, Reclamation will consult with the Field Solicitor's office regarding what restrictions, if any, Reclamation may impose upon the private mineral owner in order to protect the interests of the United States.

Removal of Renewable Resources No trees or shrubs will be cut, removed, or destroyed without the prior approval of Reclamation. No grasses (native or seeded) will be plowed or destroyed without the prior approval of the Commission.

Leasable Minerals

Subject to Reclamation's review, and in coordination with the Bureau of Land Management (BLM), minerals owned by the United States at Calamus Reservoir are generally available for mineral leasing. Although BLM is the lead agency responsible for issuing mineral leases they are required to consult with the surface managing agency prior to issuing any mineral leases. Reclamation requires BLM to attach a copy of Reclamation's GP-135 Special Stipulations to any lease that BLM may issue (See Appendix B2 for GP-135 Special Stipulations). These stipulations require certain setbacks and other restrictions designed to protect

public recreation areas, water resources, and Reclamation project facilities from adverse impacts associated with mineral development. Additionally, it is Reclamation policy to consult with its managing partner and to consider any concerns they may have prior to Reclamation advising BLM whether or not a mineral lease should be issued.

Environmental Compliance

Any action involving Federal funding or approval is subject to the requirements of NEPA and other environmental statutes. Reclamation will determine, on a case-by-case basis, the level of analysis, interagency coordination, public involvement, documentation, and other compliance activities needed before granting such funding or approval. The responsibility for accomplishing such analysis and related activities will be determined by Reclamation in consultation with the administering agency.

Threatened and Endangered Species

The U. S. Fish and Wildlife Service (USFWS) is the lead Federal agency responsible for the protection of threatened and endangered species. However, Reclamation has ultimate responsibility for the protection of threatened and endangered species and critical habitat on lands under its jurisdiction. Under the terms of the lease agreement between Reclamation and the Commission, the Commission is required to comply with the Endangered Species Act. Assistance in protection, enhancement, and enforcement will be available through the Commission's Wildlife Division and Reclamation.

State and Federal law prohibits harassment of threatened or endangered species. The Commission will take all reasonable precautions to assist in the prevention and control of disturbances to threatened and endangered species on Calamus Reservoir and Kent Diversion Dam lands and waters. Any violations shall be promptly reported to the Commission's Wildlife Division, the USFWS and Reclamation. The Commission will not engage in or permit any activity within the leased premises which would allow greater access to areas known to harbor threatened or endangered species or critical habitat.

Currently, no critical habitat has been designated within the leased area. If at some time critical habitat is designated by the USFWS, Reclamation must concur with any plans to provide for additional protection or enhancement by the Commission. Reclamation will assist with planning or implementing protective measures, if needed.

Cultural Resources

The Commission will control and prevent damage to cultural resources on lands, reservoir waters, and stream bottoms under its respective lease. Cultural resources are historical, archeological, or paleontological (fossil-bearing) sites. Intentional and incidental vandalism (unauthorized excavation or other ground altering activities) and removal of any item, object, or material of cultural or scientific

significance from its position on the ground are prohibited. This includes removing arrowheads and other prehistoric artifacts, wood from decayed structures, bottles, ceramics and fossils. Vandalism includes not only surface removal of artifacts, but also the excavation of cultural resource sites such as digging holes in cultural resource sites for the removal of artifacts or paleontological material.

Upon observance by representatives of either the Commission or Reclamation of damage to cultural resources previously unknown or undiscovered, it shall be the responsibility of the observing agency to bring this violation or discovery to the attention of the other agency. Through mutual effort, the agencies will decide on a course of action. If legal action becomes imminent, Reclamation will have sole responsibility for resolving the problem. Any surface disturbance will require written cultural resource clearance from Reclamation's area office archeologist.

In addition, all Federal agencies are directed to assume leadership in protecting and preserving the cultural resources of the nation. This authority was first mandated by the Antiquities Act of 1906 (16 U.S.C. 431). Subsequent legislation includes the following:

- Historic Sites Act of 1935 (16 U.S.C. 461)
- Reservoir Salvage Act of 1960 as amended (16 U.S.C. 469)
- National Historic Preservation Act of 1966 as amended (16 U.S.C. 470)
- National Environmental Policy Act of 1969 as amended (42 U.S.C. 4321)
- Archeological and Historic Preservation Act of 1974 (16 U.S.C. 469)
- American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
- Archaeological Resources Protection Act of 1979 as amended (16 U.S.C. 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001)
- National Register of Historic Places (36 CFR Part 60)
- Determinations of Eligibility for Inclusions in the National Register of Historic Places (36 CFR Part 63)
- Curation of Federally Owned and Administered Archeological Collections (36 CFR Part 79)
- Protection of Historic Properties (36 CFR Part 800)
- Protection of Archaeological Resources (43 CFR Part 7)
- Native American Graves Protection and Repatriation Act (43 CFR Part 10)
- Protection and Enhancement of Cultural Environments (Executive Order 11593)
- Protection of American Indian Sacred Sites (Executive Order 13007)
- Preserve America (Executive Order 13287), and
- The Secretary of the Interior's Standards and Guidelines for Archeology

and Historic Preservation: (48 CFR 44716).
- Public Conduct on Bureau of Reclamation Facilities, lands, and Waterbodies (43 CFR Part 423)

The scope of these preservation laws is expressed in Executive Order No. 11593, which directs all Federal agencies to inventory and evaluate cultural resources on lands they administer and nominate sites meeting the criteria of the National Register (36 CFR 60) to the National Register of Historic Places. Federal agencies are directed to exercise prudent and responsible management of all cultural resources.

Reclamation is responsible for identifying and protecting historical, archeological, architectural, scientific, and paleontological resources affected by Reclamation actions on lands under its administration.

Miscellaneous

Aircraft

The operation of aircraft on lands or water at Calamus Reservoir and Kent Diversion Dam is prohibited.

Except in extreme emergencies involving the protection of human life or threat of serious property loss, the air delivery of any person or item by parachute, helicopter, or other aerial means without written permission of Reclamation's Great Plains Regional Director and the Commission is prohibited.

The provisions of this section are not applicable to aircraft engaged in Reclamation's official business, emergency rescue operations, or a forced landing due to circumstances beyond the control of the pilot.

Nothing in the preceding provisions gives authority to deviate from rules and regulations or prescribed standards of the appropriate State aeronautical agency or the Federal Aviation Administration, including (but not limited to) regulations and standards concerning pilot certifications or ratings and airspace requirements.

Shooting Ranges

Because of increased concerns associated with contamination and cost of cleanup and remediation of hazardous wastes associated with shooting ranges, Reclamation will not allow the construction of shooting range facilities at Calamus Reservoir or Kent Diversion Dam.

Off-Road Vehicle (ORV) Use

ORV use is discussed in detail in Chapter 2. Reclamation lands are closed to ORV use, except for an area or trail specifically opened to ORV use in accordance with CFR Section 420.21 and executive Order No. 11644. Currently there are no upland ORV use areas designated at Calamus Reservoir or Kent

Diversion Dam. As described in Chapter 2, ORV's are allowed on the ice surface of Calamus Reservoir.

Chapter 5

Reservoir Operations

CHAPTER 5 – RESERVOIR OPERATIONS

Reservoir's Authorized Purposes

As a component of the North Loup Division, Virginia Smith Dam impounds water from the Calamus River to form Calamus Reservoir. The authorized purposes of Virginia Smith Dam and Calamus Reservoir are to provide storage for irrigation, recreation, and fish and wildlife activities. Even though Virginia Smith Dam utilizes an uncontrolled spillway and does not have a designated flood pool it provides some incidental flood control benefits. The North Loup Division General map of the project facilities is shown on Map # 6 (See Tabbed map Section). Twin Loups is responsible for the routine day to day water control operations and the maintenance of the North Loup Division water storage and conveyance features and facilities.

Reservoir Storage

Reservoir capacity allocations (storage capacity in relation to water elevations) are shown in Table 3, followed by definitions of the various types of storage spaces.

Space	Net Capacity (acre-ft)	Water Elevation (feet above mean sea level)
Dead Storage[1]	817	2185.0
Inactive Storage[2]	23,829	2213.3
Conservation Storage[3]	102,754	2244.0
Surcharge[4]	50,223	2252.8
Total	177,623	

Table 3 – Calamus Reservoir Capacity Allocations

[1] Dead Storage: Capacity from which stored water cannot be evacuated by gravity.
[2] Inactive Storage: Capacity that can be released from the dam but is below design of the outlet works structure for irrigation.
[3]Conservation Storage: The pool allocated to storage of water for conservation purposes only.
[4] Surcharge: The reservoir capacity provided for use in passing the inflow design flood through the reservoir.

Water Rights and Reservoir Operations

All the water rights for the North Loup Division are in the name of the Twin Loups Reclamation District. By virtue of an appropriated water right, issued by the State of Nebraska, the Twin Loups Reclamation District has the right to store the flows in the Calamus River Basin above Virginia Smith Dam when such flows are not needed for prior appropriated downstream beneficial uses. A storage right of 129,400 acre-feet, Application No. 9517 with priority date of June 17, 1957, has been granted for Calamus Reservoir. A supplemental irrigation water right, Application No. 17602 with priority date of July 23, 1997, covers the release of the water in storage for use on lands of the North Loup Division. The Commission also has a supplemental right, Application No. 16733 with priority date of January 11, 1989, from Calamus Reservoir for the Calamus State Fish Hatchery.

All senior water rights are entitled the use of the water in the North Loup River Basin, if needed, before storage at Calamus Reservoir occurs. There are downstream surface water rights on the Calamus and North Loup Rivers with an earlier priority date than Calamus Reservoir. Generally, the senior water rights on the rivers require bypass of the inflow into Calamus Reservoir during the months of July, August, and possibly September. Occasionally bypass of inflows may be required during other months also. If the need to meet the senior water rights on the rivers arises, the appropriate amount of the reservoir inflow is bypassed to fulfill the senior water right. Should it become necessary to release water through Virginia Smith Dam to satisfy prior rights, the required release should not exceed the inflow into the reservoir. The Nebraska Department of Natural Resources through its Ord, Nebraska Field Office is responsible for the administration and enforcement of water rights.

The North Loup Division is supplied water from the Calamus River and North Loup River using Calamus Reservoir, Kent Diversion Dam, Davis Creek Reservoir, and the various canals of the project. The storage water is released from the reservoir into the Mirdan Canal using the canal outlet works. The lands receiving supplemental irrigation also have appropriated natural flow water rights from the Calamus River, which are diverted at the reservoir, or from the North Loup River, which are diverted at the Kent Diversion Dam. The natural flow water rights of the Calamus River for the project are made use of by letting the water flow through the reservoir and then diverting the water into the Mirdan Canal by using the canal outlet works. Water in the Mirdan Canal can be diverted into the other canals or stored in Davis Creek Reservoir for later use. The storage rights, supplemental irrigation rights, and appropriated natural flow rights are used in combination with each other to meet the water supply for lands in the North Loup Division.

Reservoir Filling and Release Procedures

Inflow into the reservoir comes from an approximate 1,060 square mile drainage area of which approximately 147.5 square miles contribute directly to surface runoff into the Calamus Reservoir. The overall drainage area is primarily grass covered sand dunes. Due to the large presence of sand dunes, only the valleys immediately adjacent to the river contribute to the surface runoff. Reclamation computes the net inflow to Calamus Reservoir for operational purposes to include the change in content adjusted for measured outflow and evaporation.

There is no minimum flow release required except the previously mentioned bypass of the natural flows required in the authorizing legislation. Seepage, pickup, and toe drain flow normally result in flows of up to 25 cubic feet per second below Virginia Smith Dam even if no release is being made to the river. Additional water may be provided for the river fishery needs if available.

The Twin Loups Reclamation District normally directs the operation of Calamus Reservoir. The reservoir generally starts to fill in the fall and reaches a maximum in late March or April. The reservoir is maintained at that level until drawdown begins for irrigation releases. The contracted irrigation season for Twin Loups Reclamation District is May 1st through September 30th or such additional period from April 1st through November 15th of each year as determined between the District and Reclamation. The reservoir fluctuates during the year due to irrigation demands and inflow. If sufficient inflow is available, the reservoir is filled each fall after the irrigation season to elevation 2240 feet. Calamus Reservoir is normally regulated at three to four feet below the top of conservation capacity during the winter months. Maintaining the reservoir at this elevation during the winter will help avoid ice damage to the soil cement on the upstream face of the dam. After the ice clears in the spring, the reservoir will be filled to the top of the active conservation capacity, elevation 2244 feet. If the reservoir is at extremely low water surface elevations during the winter, a minimum water surface elevation of 2210 feet must be maintained to minimize the ice damage to the river outlet works intake structure.

All inflows greater than the above-described demands are stored in the conservation capacity of Calamus Reservoir for irrigation and conservation uses such as fish and wildlife and recreation purposes. After the conservation capacity has been filled, the excess flows will be released to the river. Due to flooding conditions and the water rising into the surcharge storage, releases are made from the uncontrolled spillway and the outlet works.

Flood Operations

There is no flood storage allocated to Calamus Reservoir and Virginia Smith Dam. The spillway and dam were designed to discharge and store the design flood without exceeding the maximum water surface of elevation 2252.8. The reservoir outlet works is typically utilized in conjunction with the uncontrolled spillway to reduce storage to elevation 2244 feet in the event the reservoir fills. When the reservoir elevation exceeds the top of the uncontrolled spillway crest at elevation 2244 feet and enters the surcharge storage, the Bureau of Reclamation is responsible for directing the releases.

Although flood control storage has not been allocated at Calamus Reservoir, it can decrease flood damages along the lower reaches of the Calamus and North Loup Rivers. When the reservoir is full any flood flow that enters the reservoir will be discharged through the river outlet works and/or spillway and the peak inflow downstream may be reduced due to retention of the flood event in the reservoir for a short period of time. During the late summer and fall months, the reservoir will be generally only partially filled, thereby allowing some space to be used for storage of flood events.

A stream gage operated since 1978 by the Nebraska Department of Natural Resources on the Calamus River just upstream of the reservoir recorded a high flow of 1,380 cubic feet per second on May 28, 1995. The maximum reservoir elevation recorded is elevation 2245.36 occurring on April 3, 2003, with a resulting historical maximum spillway discharge of approximately 341 cubic feet per second. Minor discharges through the spillway occur on a regular basis. (Bureau of Reclamation, 2004)

Figure 19 – Morning Glory Structure – Uncontrolled Spillway.

Reservoir Operations and Recreation, Fisheries and Wildlife

Under the U.S. Fish and Wildlife Coordination Act (46 Stat, 401, as amended. 16 U.S.C. 661 et seq), the Secretary of the Interior and the Commission have designated certain lands and water at Calamus Reservoir for the conservation and management of fish and wildlife resources. Virginia Smith Dam and Calamus Reservoir is a multi-purpose facility that provides indirect fish and wildlife benefits. There are no special operating procedures for fish and wildlife purposes at the reservoir as there is no agreement providing for specific reservoir elevations for fish and wildlife. However, an effort should be made to provide as near optimum conditions as possible while meeting other requirements. It is clearly understood that Calamus Reservoir and Virginia Smith Dam have as their primary purpose the furnishing of water from the storage space for irrigation purposes and that the reservoir level may fluctuate widely during the irrigation season.

Recreational use of reservoir facilities may be somewhat restricted during low water levels as reservoir levels recede during the irrigation season. The exposed shoreline can cause some public discomfort due to muddy conditions and blowing sand and low water levels expose what were once submerged objects. Low water boat ramps must be made available to facilitate boat launching during prolonged periods of low water levels.

There is no formal agreement or requirement for a minimum reservoir releases to the river for fish and wildlife purposes. Seepage, pickup and toe drain flow normally result in flows of up to 25 cubic feet per second below Virginia Smith Dam. However if possible while meeting other requirements additional water is made available to aid the river fishery below the dam.

The Calamus State Fish Hatchery is located downstream of the Virginia Smith Dam, and is operated and maintained by the Nebraska Game and Parks Commission. Water from the Calamus River, some of which is stored in Calamus Reservoir, is used along with groundwater to supply water for the hatchery operations. The fish hatchery is supplied water from Calamus Reservoir by the Twin Loups Reclamation District in accordance with the 1988 Memorandum of Understanding between the Nebraska Game and Parks Commission and the Twin Loups Reclamation District (See Appendix A5). The fish hatchery supply line, a 36-inch diameter pipeline, is connected to the Mirdan Canal outlet works.

Operation and maintenance activities are coordinated with the Commission to support the proper development and utilization of fish and wildlife facilities that will not result in adverse effects on water quality, public safety, erosion, recreational facilities, etc. Managing partners and responsible entities should be notified if there is a possibility of reservoir operations that will affect their programs.

Virginia Smith Dam Area Land Use and Management

The Virginia Smith Dam and designated lands surrounding it upstream and downstream are managed for operations, fish hatchery, and wildlife purposes. These land use designations are highlighted on Map # 7 (See Tabbed Map Section).

Operation area lands are needed and maintained for the operation and protection of project facilities. Operation area lands located upstream of the dam are open to public use as shown on Map # 7. A majority of the operations area lands downstream of the dam are closed to public use due to facility and safety concerns. The portions of the operations area lands located below the dam that are accessible by the public are also shown on Map # 7. In addition, the constructed water channels downstream of the dam are closed to watercraft and flotation devices upstream of the drop structure. Watercraft and flotation devices are allowed on the Calamus River downstream of the drop structure. Map # 8 (See Tabbed Map Section) highlights the water channels where watercraft and flotation devices are prohibited. All off limits areas are appropriately signed in the field.

The Commission manages a portion of the lands below the dam as a WMA and for operation of the Calamus Fish Hatchery. The area below the dam managed as a WMA is only open to archery, shotgun and muzzleloader hunting. Rifle and handguns are not allowed to be used in this area due to safety concerns. In addition, the lands managed as part of the Calamus Fish Hatchery are not open for uncontrolled public access and are surrounded by fencing.

Kent Diversion Dam

Kent Diversion Dam is located 6 miles east of Taylor, Nebraska on the North Loup River. Kent Diversion Dam diverts water from the river into the Kent Canal which leads to the Mirdan Canal. Water from the Mirdan Canal can be routed to the other canals of the North Loup Project or be stored in Davis Creek Reservoir.

The site includes 194 acres of land above and below the diversion dam. Approximately 114 acres located primarily above the dam are managed by the Commission for wildlife management with the remaining 80 acres located mainly below the dam managed for operations and maintenance purposes. There are 3 public parking areas located at the diversion dam. The diversion dam property is generally open for fishing and hunting pursuits with restricted areas appropriately designated in the field by signs. Map # 4 (See Tabbed map Section) details the designated land use areas for Kent Diversion Dam.

References Cited

References Cited

U.S. Department of Agriculture Soil Conservation Service, University of Nebraska, Conservation and Survey Division, Soil Survey of Loup County, Nebraska, October 1990.

U. S. Census Bureau, www.census.gov, American Fact Finder, County Fact Sheet.

Nebraska Game and Parks Commission, Nebraska's Natural Legacy Project, Lincoln, Nebraska, 2005.

Nebraska Game and Parks Commission, Focusing on the Future 2004 to 2010 A Plan for Nebraska's Fish, Wildlife and Parkland Resources, Lincoln, Nebraska, 2004.

U. S. Fish and Wildlife Service, Nebraska Ecological Services, Endangered Species Records, Grand Island, Nebraska, 2007.

U. S. Fish and Wildlife Service, Mountain Prairie Region, Western Fringed Prairie Orchid Recovery Plan, Ft. Snelling, Minnesota, 1996.

Ratcliffe, Brett C. The Carrion Beetles of Nebraska, University of Nebraska State Museum, Lincoln, Nebraska, 1996.

Nebraska Game and Parks Commission, 2007 Park User Survey Findings – Calamus Reservoir State Recreation Area, Lincoln, Nebraska, 2007.

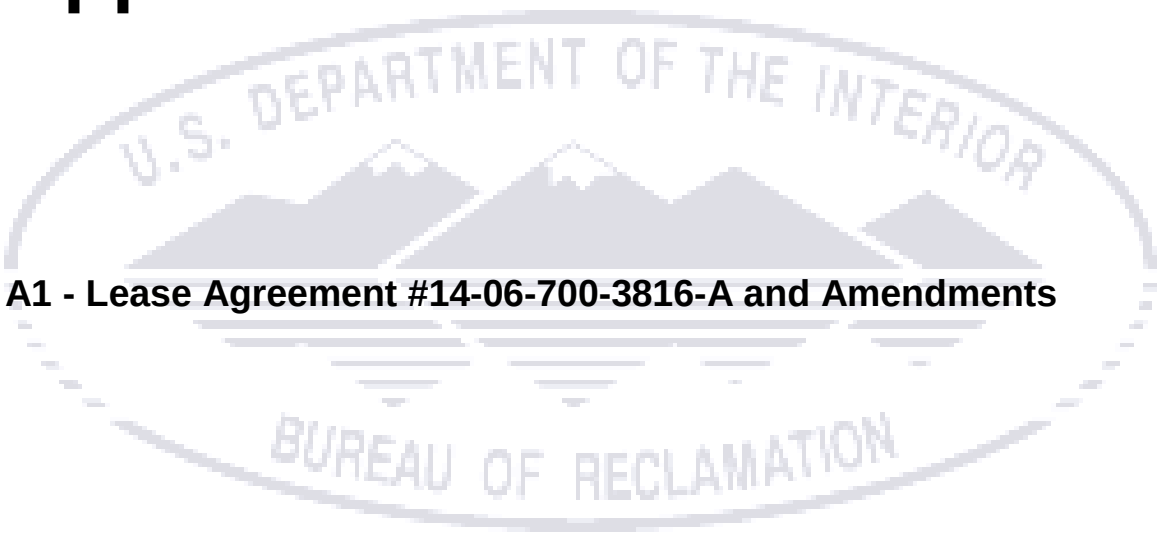
U. S. Bureau of Reclamation, Standing Operating Procedures – Virginia Smith Dam, Billings, Montana, 2004.

Appendix A

Agreements

A1 - Lease Agreement #14-06-700-3816-A and Amendments
A2 - Wildlife Management Plan for Calamus Reservoir and Kent Diversion Dam
A3 - Fisheries Management Plan for Calamus Reservoir
A4 - Interagency Cooperative Fire Management Plan
A5 - MOU between Twin Loups Reclamation District and the Nebraska Game and Parks Commission

Appendix A1



A1 - Lease Agreement #14-06-700-3816-A and Amendments

Contract No. 14-06-700-3816-A

LEASE AGREEMENT
BETWEEN
BUREAU OF RECLAMATION
AND THE
STATE OF NEBRASKA GAME AND PARKS COMMISSION

The Bureau of Reclamation, United States Department of the Interior, hereinafter referred to as "Reclamation," and the State of Nebraska, acting by and through the Nebraska Game and Parks Commission hereinafter called "Commission" enter into this Lease Agreement (Lease) effective May 1, 1995, for the purpose of permitting the Commission to assume the responsibility of administering lands and facilities at Reclamation's Reservoirs for recreation, wildlife and other purposes. The parties hereto have executed this Lease and will abide with the terms and provisions expressed or referenced herein.

SIGNATURES:

State of Nebraska
Nebraska Game and Parks Commission

Rex Amack
(*Signature/Title*)

Typed Name:

Rex Amack, Director

Date: 03/20/95

Regional Director
Great Plains Region
Bureau of Reclamation

Neil Stessman
(*Agreement Officer*)

Typed Name:

Neil Stessman

Date: 03/31/95

ARTICLE I: **AUTHORITY, BACKGROUND, AND OBJECTIVES.**

This Lease is entered into by Reclamation, pursuant to the Act of June 17, 1902 (32 Stat. 388), and acts amendatory thereof and supplementary thereto, particularly the Act of August 4, 1939 (53 Stat. 1187), and the Act of October 12, 1982 (96 Stat. 1261), and by the Commission, pursuant to the laws of the State of Nebraska. This Lease supersedes the following: Lease dated April 20, 1964, Contract No. 14-06-700-3816 and Amendments Nos. 1, 2, and 3, and Exhibit A attached thereto.

Reclamation and the Commission mutually agree to lease to the Commission the administration of Reclamation lands and facilities at the Reclamation Reservoirs, designated herein for recreation, wildlife and related purposes.

ARTICLE II: **STATEMENT OF WORK.**

The Commission and Reclamation agree as follows:

Premises Leased

1. Reclamation does hereby Lease unto the Commission, subject to the terms and conditions hereinafter provided, the premises described in Exhibit A attached hereto and by this reference made a part hereof. Said exhibit A may be periodically amended, modified, or enlarged by mutual agreement of the parties hereto by adding or deleting lands or areas thereto or therefrom, and as otherwise hereinafter provided, without the necessity of reexecuting this Lease or entering into a separate Lease.

Operation, Use, Location, Architecture

2. The Commission is vested with the responsibility for administration of recreation, wildlife and related uses within the leased premises. This includes the construction, operation, maintenance, and replacement of all associated recreation and wildlife facilities. The use by the Commission of land areas within the leased premises and the location and architecture of improvements and facilities existing thereupon and constructed by the Commission thereon shall be reviewed and approved by Reclamation in accordance with the minimum requirements provided in the respective Resource Management Plan (RMP) incorporated herein by reference. The term "Resource Management Plan" as used in this Lease refers to all existing Reservoir Management Plans as well as new, proposed, or amended RMPs.

ARTICLE III: **TERMS AND CONDITIONS.**

Terms and Conditions

1. This Lease is subject to the following exceptions:

a. Any prior rights which have been attached to the Leased area before the date of this Lease.

b. The right of the officers, directors, agents, employees, and permittees of Reclamation at all times and places to have full ingress for passage over and egress from all of said lands for the purpose of carrying on project operations of the United States.

c. The right of Reclamation, after 90-day written notice to the Commission, except during times of emergency, to make such use of the reservoir areas, or any portion thereof, as may be required in carrying out the purposes of the legislative acts authorizing construction of the project.

d. Reclamation shall have primary jurisdiction over those areas designated as the Operations Areas as shown on the drawings referred to in said Exhibit A. Such jurisdiction is maintained for the purpose of ensuring proper operation and protection of the dams and reservoirs. However, such jurisdiction, as determined by Reclamation to be compatible with its purposes, shall not preclude recreation, wildlife and related-use administration, and development by the Commission within the Operations Areas. Use of these areas, if desired by the Commission, can be permitted by letter agreement on a case by case basis. The reservoirs were constructed and are operated primarily for irrigation, flood control, recreation, fish and wildlife, and other purposes. The fulfillment of the first **two** purposes may require that the level of the reservoirs be fluctuated to meet use demand. Reclamation, its agents, and assigns reserve the right to vary the respective water level to the extent deemed necessary or desirable for the purposes of project operations. The Commission will be notified when Reclamation becomes aware of significant changes in reservoir operation that might have an impact on operation and maintenance of the recreation facilities. **Recreation, Fish and Wildlife resources will be considered when reviewing and or revising the Standard Operating Procedures for each respective reservoir.**

e. The right of Reclamation, its agents, lessees, or permittees to remove from said lands any and all material such as sand, gravel, rock, dirt, etc., necessary for the construction, operation, and maintenance of the project facilities. **The Commission will be consulted in the exercise of these rights in order to minimize damage to recreation and wildlife facilities and or areas.**

f. Title to all oil, gas, coal, and other minerals including sand and gravel now or hereafter owned by the United States is excepted and reserved to the United States. There is also excepted and reserved to the United States, its agents, lessees, or permittees the right to prospect and carry on the development for oil, gas, coal, and other minerals, including sand and gravel, and the right to issue leases or permits to prospect for oil, gas, or other minerals, including sand and gravel, on said lands under the Act of February 25, 1920 (41 Stat. 437), and acts amendatory thereof and supplementary thereto, and the Act of August 7, 1947 (61 Stat. 913). However, the Commission will be consulted and given an opportunity to comment concerning any proposals in the exercising of such rights. Prior to the execution of such lease or permit, Reclamation, in consultation with the appropriate State agency, will give consideration to any adverse effect such action might have on recreation, fish and wildlife, and related uses.

Management

2. The management of all areas covered by this Lease is subject to the laws of the United States, State of Nebraska, and applicable orders, rules, and regulations of the Commission and Reclamation, whether they now exist or may hereafter be enacted during the term hereunder. In addition to the laws and regulations listed in 3a, Reclamation, the Commission, its permittees, lessees, licensees, and concessionaires will comply with the following acts:

a. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

b. Superfund Amendments and Reauthorization Act of 1986 (SARA).

c. Resource, Conservation, and Recovery Act (RCRA).

d. Hazardous and Solid Waste Amendment to RCRA, 1984 (HSWA).

e. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

f. Safe Drinking Water Act (SDWA).

g. Clean Water Act (CWA).

h. Clean Air Act (CAA).

i. National Historic Preservation Act (NHPA).

j. 36 CFR 800, **Protection of Historic and Cultural Properties.**

k. Archeological Resource Protection Act.

l. American Indian Religious Freedom Act.

m. Native American Graves Protection and Repatriation Act (NAGPRA).

n. Endangered Species Act of 1973, as amended (ESA).

o. National Environmental Policy Act (NEPA).

p. 43 CFR 420, Off-Road Vehicle Use and Reclamation Policy.

The Commission shall report annually (or more frequently if so requested by Reclamation) any violations or compliance activity that has occurred relative to the above acts. In addition, the Commission shall, upon receiving specific requests from Reclamation, provide information and data needed by Reclamation to ensure current compliance. Violations of these or other State, and or Federal Laws or Acts will be dealt with in the appropriate forum.

The parties will develop a mutually agreed-upon portion of the RMP as to the reservoir area included in the leased premises recited in said Exhibit A. The RMPs may be periodically amended or supplemented.

Facilities and Improvements, Notice, Repair

3. The Commission may construct or modify facilities of any kind whatsoever for the purposes of its administration and management over recreation, wildlife and related uses within the areas of the leased premises. The facilities or modifications must meet the qualifications regarding use, location, and architecture contained in the RMP or mutually approved revisions. Written approval from Reclamation would be required for all improvements, construction, erosion control measures, demolition of existing structures, and ground-disturbing activities not included in an updated RMP. All such activities, regardless of whether or not they are included in a RMP, are subject to the requirements of NEPA and NHPA and shall not proceed until Reclamation has notified the Commission that the requirements of those laws have been fulfilled.

a. The Commission shall provide Reclamation with the necessary NEPA, NHPA, and Sec. 504 of the Rehabilitation Act of 1973 (handicapped accessibility) data or documents required for each project proposal.

b. Before the Commission, its subcontractors, concessionaires, permittees, lessees, or licensees undertake any ground-disturbing activities or demolition of existing structures, they or their subcontractors, concessionaires, permittees, lessees, or licensees shall cause to have conducted a comprehensive cultural resource inventory of the area to be disturbed or the building to be demolished. The inventories and evaluations shall conform to the Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines (Federal Register, Vol. 48, No. 190) and shall be acceptable to Reclamation. Reclamation will conduct all consultation required by NHPA. The project shall not proceed until all historic preservation requirements have been completed.

c. If cultural materials are found during any ground-disturbing activity, performed by or permitted by the Commission, work will stop and the Reclamation Area Office Archeologist and the State Archeologist will be notified. The activity will not resume until clearance has been given by the Reclamation Area Office Archeologist and the State Archeologist.

4. All improvements constructed by the Commission and/or its successors, assigns, or subcontractors at their sole cost and expense shall be and remain the property of the Commission; Provided, however, That the Commission shall remove or provide a plan acceptable to Reclamation for removal of the respective improvements at its sole cost and expense within 1 year from and after the termination of this Lease, or respective part thereof, and shall restore the land to a safe and natural condition. Said improvements shall be constructed in accord with the approved RMP and any revisions approved by both agencies. If said improvements are not removed or a plan acceptable to Reclamation submitted for removal within a 1-year period, title shall vest in Reclamation.

5. The Commission shall require all concessionaires, permittees, lessees, and licensees engaged in commercial activities to carry adequate public liability insurance as is customary among prudent operators of similar businesses under comparable circumstances. This shall not apply to agricultural permittees.

6. Except State facilities as discussed in Article III, Clause 4, of this Lease, in existence at the time of execution of this Lease, all improvements constructed by the Commission upon the leased premises in whole or in part with revenues derived under Article III, Clause 9, hereof, are and shall be the property of Reclamation and shall remain so vested. Additions, alterations, or improvements must be in accordance with provisions of Article III, Clause 3. All said additions, alterations, and improvements shall become the property of Reclamation.

The Commission shall employ good husbandry and keep and maintain the leased premises, including all improvements of Reclamation and those which shall be erected thereon by the Commission, including all fences and roads therein, except State and county maintained roads and highways, and private leased cabin area interior roads, in a good and reasonable state of repair, and to preserve the area and any improvements. Funding for the initial construction of Reclamation's boundary fence will be the sole responsibility of Reclamation. Repair and replacement of boundary fence in areas administered by the Commission will be the responsibility of the Commission.

Commission's Rights

7. The Commission has the exclusive concession, licensing, and subleasing rights within the areas of the leased premises, both land and water, for the purposes of recreation, wildlife and related uses. The Commission shall not grant easements, or enter into agreements that convey an interest in Reclamation lands to a third party. The Commission may issue and administer licenses, leases, permits, and contracts to persons or associations for the purpose of regulating the privileges to be exercised and may grant concession contracts under which recreation, wildlife and related uses are made available within said areas. However, all new licenses, leases, permits, contracts, or changes to existing licenses, leases, permits, or contracts containing previously unidentified activities, must be submitted to Reclamation for approval prior to execution. After execution, Reclamation shall be furnished a fully executed copy of the contract.

Each such instrument issued by the Commission shall expressly provide:

"This (lease, license, permit, contract, subcontract) is expressly subject to that certain Lease dated May 1, 1995, and any and all modifications and amendments thereto, between Reclamation and the State of Nebraska, as parties thereto and the (insert name of area "RMP"), regarding the Lease and development of specific areas of land at (insert the applicable name of reservoir), Nebraska. Said reservoir was constructed by Reclamation for irrigation,(flood control), recreation, fish and wildlife, and other purposes in the (insert applicable basin area name), Nebraska. The Commission has exclusive control and administration over the leased premises concerning recreation and fish and wildlife management. The (lessee, licensee, permittee, contractor, subcontractor) releases Reclamation and the (insert name of District{s}), their successors, assigns, officers, directors, agents, and employees (hereinafter collectively called the District) from any and all claims arising directly or indirectly from any acts, neglect, or the omission of Reclamation and/or of said District and each of them in connection with construction, operation, and maintenance of dam and irrigation project works.

The (lessee, licensee, permittee, contractor) agrees to indemnify and hold Reclamation and the District harmless from any loss, damage, or expense (including attorney fees) which may be suffered by Reclamation, the District, or either of them, directly or indirectly occasioned by any act, neglect, or omission of said (lessee, licensee, permittee, contractor)."

The term of said leases, licenses, permits, and contracts shall not exceed the unexpired term of this Lease and each of said instruments shall contain the following provision:

"In the event of the termination of the Lease between Reclamation and the State of Nebraska, dated May 1, 1995, Reclamation shall be deemed to stand in the stead of said Commission as grantor for the remainder of the term of this (lease, license, permit, contract); Provided, however, in the event of such termination, Reclamation at any time within 90 days thereafter may terminate this (lease, license, permit, contract). **A 60 day written notice of termination must be given to (lessee, licensee, permittee, contractor).**"

8. The Commission should make the following determinations on the transfer or reissuance of exclusive use permits within any recreation/reservoir areas as allowed under Article III, Section 7:

a. A determination must be made that the land is not needed at this time for current or foreseeable future recreation purposes.

b. The Commission must receive "fair market rental value" from the permitted use.

c. The reissuance or transfer of the permit for cabins must be in accordance with 43 CFR 21.

d. Requirements of the National Environmental Policy Act (NEPA) must be completed for each action undertaken by the Commission in the leased area that would have potential environmental impacts. The Commission is to notify Reclamation before any such projects are undertaken. Reclamation will prepare Categorical Exclusion Checklists (CEC) where applicable. One CEC may be prepared covering transfers or reissuance of all permits within a given area. If the proposed action requires an Environmental Assessment (EA), or Environmental Impact Statement (EIS) the Commission will be responsible for the preparation of these documents, subject to Reclamation approval of the project.

e. The action must be consistent with the discussion in the resource management plan (RMP), if and when one is completed.

f. On all reservoirs needing updated or new RMPS, the length of the permit must be restricted to 5 years, with an option for additional 5-year renewals. Each option to renew would be decided, based on a reevaluation of use consistent with the new or updated RMP. A stipulation to this effect should be contained in the cabin permit agreement.

The Commission should submit this written determination to Reclamation for review and approval prior to transfer or reissuance of the permit.

9. The Commission has the right to collect and retain all receipts derived from leases, licenses, subcontracts, permits, or contracts which it issues or administers hereunder; Provided, however, that the Commission agrees that, the income derived from such leases, licenses, subcontracts, permits, or contracts or an equivalent amount shall be used for the development, operation, maintenance, and replacement of the wildlife and recreation areas and facilities leased hereunder. All revenues generated from a particular reservoir project area will be used to fund management efforts on all associated public recreation, and wildlife lands.

The Commission shall submit to Reclamation, not later than October 1 of each year during the term of this Lease, a report showing such receipts and expenditures for each separate reservoir area during the **Commissions'** preceding fiscal year. At the termination of this Lease, the remaining excess of such receipts over expenditures, if any, shall be paid in full to Reclamation within 30 days after termination. The Commission shall maintain accounting records to allow Reclamation to ascertain the existence and amount of any excess, which records shall be available for inspection at the request of Reclamation.

Reclamation reserves the future right to negotiate a share of revenues generated from nontraditional developments (such as resorts) or large exclusive use permits (such as boat clubs etc.). This would not include such traditional developments as marinas and other similar operations that provide water-based public services through a permit from the Commission. These revenues may include: (1) a percentage of the gross revenues generated from any development to be negotiated at that time and/or (2) a percentage of all rental fees collected, based on fair market rental for the use of the land.

Term of Lease Agreement

10. This Lease will be in effect for a period of 25 years from the effective date, unless sooner terminated. The addition or deletion of lands or areas from Exhibit A subsequent to the date of this Lease shall not operate to extend the term hereof. This Lease shall be renewable upon request of the Commission for an additional 25 years at the end of its term, the total term not to exceed 50 years, subject to consideration of changes in rules, policies, and legal requirements of Reclamation and the Commission.

Miscellaneous

11. Reclamation, its agents, and assigns assume no liability for damages to property or injuries or death to persons which may arise from or be incident to the use and occupation of the leased premises, nor for damages to property or injuries or death to the person of the Commission's officers, agents, servants, or employees or others who may be on said leased premises at their invitation or the invitation of any one of them, arising from or incident to the regulation, storage, routing, and discharge of water through the reservoir, including flooding where applicable, or arising from or incident to any other activities of Reclamation, its officers, directors, agents, or employees.

Reclamation assumes all liability arising out of any negligence of its employees within the terms and conditions of the Federal Tort Claims Act, 28 U.S.C., Secs. 2671-2680.

12. The Commission shall assume the responsibility for the enforcement of all wildlife and recreation-related laws on the leased premises and shall take all reasonable precautions and assist in the prevention, control, and suppression of wild fires in the vicinity of the areas of the leased premises and shall make and enforce such laws, rules, and regulations applicable to the wildlife management and recreational use of the leased premises as it deems necessary and desirable to protect the safety and health of persons using the areas and for the preservation of law and order in the interest of public safety. The Commission shall not engage in or permit any activity within the leased premises or allow any omission therein which will interfere with the safety, protection, and operation of the reservoirs for irrigation, flood control, recreation, and fish and wildlife purposes. The Commission may impose the same rules and regulations on the leased premises as it imposes on other lands owned by the State of Nebraska which are used for the same recreation and wildlife purposes.

13. The Commission at its own cost and expense, as may be supplemented by Federal funds, shall use such erosion control, noxious weed control, and land and water pollution control measures as may be necessary and shall require its subcontractors, contractors, permittees, lessees, and licensees to comply with such control measures by express provisions contained in their respective subcontracts, contracts, permits, leases, or licenses.

14. The Commission will have primary responsibility for identification and correction of areas requiring erosion control and/or water quality improvement, noxious weed control, and fence repair, within the leased premises. Subject to availability of funds, Reclamation may provide rip-rap, chemicals, and fencing materials, as well as planning assistance, to improve these conditions.

15. The Commission shall submit to Reclamation a recreation and wildlife summary report for each reservoir area not later than February 1 of each year, during the term of this Lease, for the preceding calendar year. The report form will be supplied by the appropriate Reclamation Area Office.

16. Nothing in this Lease shall be construed or interpreted as authorizing the Commission, its agents, or employees to act as agents or representatives for, or on behalf of Reclamation, its agents, employees, or assigns, or to incur any obligation of any kind on behalf of Reclamation or its agents, employees, or assigns. Nothing in this Lease shall be construed or interpreted as authorizing Reclamation, its agents, or employees to act as agents or representatives for, or on behalf of the Commission or to incur any obligation of any kind on behalf of the Commission.

17. It is understood and agreed that Reclamation, its agents, or assigns are not partners of the Commission and that, in the recreation administration and use of the leased lands, the parties are not engaged in a partnership or a joint venture, even though development funds may in part be supplied by Reclamation. Reclamation, its agents, or assigns are hereby excluded from any liability of the Commission, including but not limited to bonded or unsecured indebtedness, encumbrances, liens, or charges, and the Commission shall not subject or cause the leased premises or any improvements thereon to be subjected as security for any bond, lien, encumbrance, indebtedness, or charge.

18. Reclamation, its agents, or assigns shall not be liable for any loss, injury, or damage of any kind or nature whatsoever to any building or other structure constructed by the Commission, its lessees, licensees, permittees, contractors, or subcontractors, which may be on the leased premises, nor for any loss, injury, or damage of any kind or nature whatsoever to the contents of any building or structure upon the leased premises or to any goods, merchandise, chattels, or any other property now or that may hereafter be upon the leased premises and whether such loss, injury, or damage results from fire, flood or any other cause, except for damage or loss caused by the actions of Reclamation, its agents and assigns, as allowed under the Federal Tort Claims Act, 28 U.S.C., Secs. 2671-2680.

Termination

19. This Lease shall terminate and all rights of the Commission hereunder shall cease, as hereinafter provided:

a. Upon expiration of the term of the Lease as provided in Article III, Clause 10, above;

b. Upon the failure of the Commission to observe any of the conditions, exceptions, or reservations set out in the Lease, Reclamation shall give written notice to the Commission of the obligations that are in default or the provisions of the Lease that have been violated, and the Commission shall have 90 days in which to correct the default or violation. Unless the Commission shall have corrected such default or violation, this Lease shall terminate on the ninety-first (91st) day following service of the written notice provided.

c. Upon written notice by the Commission to Reclamation or upon written notice by Reclamation to the Commission, without assigning any reason therefor, effective as of January 1 of any year, during the term of this Lease, delivered not less than 1 year in advance thereof.

d. Upon failure of Reclamation or the Commission to approve, within 90 days after submittal, the RMP; Provided, That such period of time may be extended for an additional 90 days upon written agreement by Reclamation and the Commission.

e. The applicability of this Lease to one or more designated reservoir areas referred to in said Exhibit A may be terminated for the reasons provided in subclauses 19(b), (c), and (d) above. The termination as to any one or more areas shall not operate to terminate this Lease as to the balance of lands recited in Exhibit A hereof.

f. If the Nebraska State Legislature determines that the Commission should no longer exist or if the Legislature fails to appropriate funds as more fully described in Article III, Clause 27, of this Lease.

20. No assent, expressed or implied, by Reclamation to any breach of any of the Commission's covenants shall be deemed to be a waiver of any succeeding or continuing breach of the same covenant.

21. Upon termination of this Lease under Clauses 10 or 19 above, or for any other reason, the Commission shall surrender the applicable premises, together with all of the improvements thereon which are owned or become vested in Reclamation by the provisions of this Lease, in such repair and condition as shall be in accordance with the covenants herein contained.

22. If during the life of this Lease any improvements in accordance with the Federal Aid to Wildlife Restoration Act of September 2, 1937 (50 Stat. 917; 16 U.S.C.A. 669a, et seq.), as amended, and the Federal Aid in Fish Restoration Act of August 9, 1950 (64 Stat. 430; 16 U.S.C.A. 777, et seq.), as amended, are made to the lands and water covered by the General Plan hereinabove referred to or improvements are made to the leased lands with funds wholly or in part supplied under the provisions of any other Federal Legislative Act, such improvements shall not be impaired by this Lease, and further, before this Lease is terminated, an agreement safeguarding such improvements shall be entered into between Reclamation and the Commission.

23. The Commission may not assign this Lease without the prior express written consent of Reclamation having been first obtained.

24. During the performance of this Lease, the participants agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex, or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex, or national origin. The leased premises controlled by the Commission shall be open to entry and use by all persons regardless of race, color, religion, sex, or national origin. No qualified person shall on the basis of handicap, be excluded from participation in, be denied benefits of, or otherwise be subjected to discrimination under any program or activity which receives or benefits from Federal financial assistance.

a. The Commission may impose reasonable limits on the type and extent of use of areas and facilities acquired or developed with Federal financial assistance when such limitations may be imposed on the numbers of persons using an area or facility or the type of users, such as "hunters only" or "hikers only". All limitations shall be in accord with the applicable grant agreement or amendments.

b. Discrimination on the basis of residence, including preferential reservation, membership or annual permit systems is prohibited except to the extent that reasonable differences in admission and other fees may be maintained on the basis of residence. Fees charged to non-residents cannot exceed twice that charged to residents. Where there is no charge for residents but a fee is charged to non-residents, non-resident cannot exceed fees charged for residents at comparable State or local facilities. Reservation, membership or annual permit systems available to residents must also be available to non-residents and the period of availability must be the same for both residents and non-residents.

c. These provisions apply only to the recreation areas as shown on the drawings referred to in said Exhibit A, and as may be described in more detail in the individual RMPs. Non-resident fishing and hunting license fees are excluded from these requirements.

25. The Commission warrants that no person or selling agency has been employed or retained to solicit or secure this Lease upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial agencies maintained by the Commission for the purpose of securing business. For breach or violation of this warranty, Reclamation shall have the right to annul this Lease without liability or in its discretion, to require the Commission to pay, in addition to the contract price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

26. No member of or Delegate to Congress or Resident Commissioner and no officer, agent, or employee of the Department of the Interior shall be admitted to any share or part of this Lease or to any benefit that may arise herefrom, but this restriction shall not be construed to extend to this Lease if made with a company or corporation for its general benefit.

27. The performance of any obligation or the expenditure of any funds by Reclamation under this Lease is made contingent on Congress making the necessary appropriations. In case such appropriation as may be necessary to carry out this Lease is not made, the Commission hereby releases Reclamation from all liability due to the failure of Congress to make such appropriation. Likewise, in the event the legislature of the State of Nebraska fails to appropriate funds in any fiscal year to enable the Commission to carry out its part of this Lease, then Reclamation hereby releases the Commission from all liability due to the failure of the State legislature to make such appropriation.

28. The Commission represents that, in executing this Lease, it has complied and will comply with all the applicable provisions of Nebraska law.

29. This Lease shall become effective on May 1, 1995, or retroactively to May 1, 1995, if signed after that date by the Regional Director, Great Plains Region, Bureau of Reclamation, and by the Director of the Nebraska Game and Parks Commission. This Lease shall remain in force until terminated as provided in Article III, Clause 10 or 19, above.

30. The Commission does not waive its sovereign immunity by entering into this contract and fully retains all immunities and defenses provided by law with regard to any action based on this Lease.

ARTICLE IV: **KEY OR RESPONSIBLE POSITIONS**

The following personnel or positions will be responsible for monitoring activities included in this Lease:

Area Manager
Nebraska Kansas Area Office
U.S. Bureau of Reclamation
P.O. Box 1607
Grand Island Nebraska 68801
Telephone # (308) 389-4622
Fax # (308) 389-4780

Director
Nebraska Game and Parks Commission
2200 N 33rd St
P.O. Box 30370
Lincoln, Nebraska 68503
Telephone # (402) 471-0641
Fax # (402) 471-5528

END OF LEASE

Contract No. 14-06-700-3816-A
Amendment No. 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE BETWEEN THE UNITED STATES AND THE NEBRASKA GAME AND PARKS COMMISSION

This amendment effective May 16 1997, between the United States of America, acting by and through the Regional Director, Great Plains Region, Bureau of Reclamation (Reclamation), and the Nebraska Game and Parks Commission (Commission).

WITNESSETH:

It is agreed between the parties hereto that the Lease dated May 1, 1995 (14-06-700-3816-A), permitting the Commission to assume the responsibility of administering lands and facilities at Reclamation's reservoirs for recreation, wildlife and other purposes, shall be and by these presents is further amended to include the following described lands to be managed as Wildlife Management Areas, to wit:

Those lands acquired and used for mitigation purposes known as the *Oeltjen Mitigation Site* located in:

All of Lot 6, in Section 18, Township 15 North, Range 10 West, and all of Lots 7, and 8, Section 13, Township 15 North, Range 11 West, of the 6th Principal Meridian, Howard County, Nebraska, containing a total of 119.1 acres, more or less.

TOGETHER WITH all accretion lands attached to the above-referenced lots along the North Loup River, containing 33.9 acres, more or less.

EXCEPT, 9.47 acres conveyed to the Omaha and Republican Valley Railroad Company, as recorded in Book C on Page 518 in the records of Howard County, Nebraska.

The above-described tract contains a total area of 153 acres, more or less, according to the government survey.

Those lands acquired and used for wetland development purposes known as the *Tuma Wetland Development Site* located in:

The Northwest Quarter of the Northeast Quarter (NW 1/4 NE 1/4), in Lot 2, and in the Northeast Quarter of the Northwest Quarter (NE 1/4 NW 1/4) of Section 18, Township 16 North, Range 11 West, of the 6th Principal Meridian, Howard County, Nebraska.

TOGETHER WITH all accretion lands attached to the above referenced lot along the North Loup River, containing an area of 16.3 acres, more or less.

EXCEPT, a parcel of land as described in the deed to Howard County recorded in Book 81, page 43, in the Office of the Register of Deeds, Howard County, Nebraska.

The above-described tract contains 86.6 acres, more or less, according to the government survey.

All provisions of Lease Agreement 14-06-700-3816-A, as amended, shall be and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this amendment effective the day and year first above written.

SIGNATURES:

Director
Nebraska Game and Parks Commission

Rex Amack
(Signature)

Typed Name:
Rex Amack

Date: 5/28/97

Area Manager
Nebraska Kansas Area Office
Bureau of Reclamation

R. J. Gyllenborg
(Signature)

Typed Name:
R. J. Gyllenborg

Date: April 1, 1997

Contract No. 14-06-700-3816-A
Amendment No. 2

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE AGREEMENT BETWEEN BUREAU OF RECLAMATION AND NEBRASKA GAME AND PARKS COMMISSION

THIS AMENDMENT, made this 10 day of September, 1997, is between the United States of America, Bureau of Reclamation, hereinafter referred to as "Reclamation," and the Nebraska Game and Parks Commission, hereinafter referred to as the "Commission."

WHEREAS, on the 1st day of May, 1995, Reclamation and the Commission entered into that certain lease agreement (No. 14-06-700-3816-A) which sets forth the terms and provisions under which the Commission administers the recreation, fish, wildlife, and related resources on lands and waters of the United States in the State of Nebraska; and

WHEREAS, both Reclamation and the Commission avail themselves of the benefits of the authorities contained in the Federal Water Project Recreation Act of 1965, and the Reclamation Projects Authorization and Adjustment Act of 1992, which authorities were not specifically included in said lease between the United States and the Commission.

NOW, THEREFORE, WITNESSETH:

In consideration of the foregoing premises and mutual covenants herein contained, the parties hereto do contract and agree that the Lease Agreement (Contract No. 14-06-700-3816-A) between Reclamation and the Commission is hereby amended as follows:

1. Article III: "Terms and Conditions", Section 2. "Management" is hereby amended to include as item "q" the following specific legislative authorities.

q. The Federal Water Project Recreation Act (Act of July 9, 1965, Public Law 89-72, 79 Stat. 213), and the Reclamation Projects Authorization and Adjustment Act of 1992 (Act of January 3, 1992, Public Law 102-575, 106 Stat. 4600), and Section 504 of the Rehabilitation Act of 1973.

2. All provisions, covenants, agreements and stipulations contained in the above described Lease Agreement, except as amended herein, shall be and shall remain in full force and effect and binding upon the parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

THE UNITED STATES OF AMERICA

BY _____
Nebraska-Kansas Area Office
Bureau Of Reclamation

NEBRASKA GAME AND PARKS COMMISSION

BY _____

Contract No. 14-06-700-3816-A
Amendment No. 03
January 1998

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE BETWEEN THE UNITED STATES
AND
NEBRASKA GAME AND PARKS COMMISSION

THIS AMENDMENT, made this 5th day of February, 1998, is between the United States of America, Bureau of Reclamation, hereinafter styled the "United States," and the Nebraska Game and Parks Commission, hereinafter styled the "Commission."

WHEREAS, on the 1st day of May, 1995, the United States and the Commission entered into that certain lease agreement (No. 14-06-700-3816-A) which sets forth the terms and provisions under which the Commission administers the recreation, fish, wildlife, and related resources on lands and waters of the United States in the State of Nebraska; and

WHEREAS, both the United States and the Commission desire to assure that all such lands receive proper consideration and management of such resources.

NOW, THEREFORE, WITNESSETH:

In consideration of the foregoing premises and mutual covenants herein contained, the parties hereto do contract and agree that the Lease Agreement (Contract No. 14-06-700-3816-A) between the United States and the Commission is hereby amended as follows:

1. Exhibit A

Diversion Dams: "Those lands acquired and used for the operation of Kent Diversion Dam located in:" is hereby amended to correct and further define the boundaries of those lands as follows;

Section 27, Township 21 North, Range 17 West, of the 6th Principal Meridian, Loup County, Nebraska as outlined on the attached drawing titled Kent Diversion Dam, individually identified as USBR-NKAO-3A, and by reference made a part hereof. Excepting the lands which; bound the structure of Kent Canal beginning at its point of

diversion, lie to the east of the primary structure access road, and further, lie on the northern shore of the North Loup River. These excepted lands shall remain as both the operational and maintenance reponsibilities of the Twin Loups Irrigation District. This exception includes the diversion structure, gates and dike and related controlling features.

The following category is hereby included in the lease agreement.

Additional Lands: Lands held in fee title by Reclamation and not addressed as Reservoirs, Diversion Dams or Mitigation Sites under Exhibit A.

1. Ash Grove Wildlife Management Area (WMA)

Reclamation records may refer to this tract as the Robinette Quarry. Reclamation drawing No. 271-701-3943 is attachedand by reference is made part of this amendment. The tract is described as W1/2SW1/4 Sec 24, T.1N., R.15W., 6th P.M. Franklin County, Nebraska, except a tract of land lying in the NW corner of said 80 acre plot containing 6.43 acres, more or less, resulting in a final acreage of 73.57 acres, more or less.

All provisions, covenants, agreements and stipulations contained in the above described Lease Agreement, except as amended herein, shall be and shall remain in full force and effect and binding upon the parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

THE UNITED STATES OF AMERICA

BY R J Gyllenborg

NEBRASKA GAME AND PARKS COMMISSION

BY Rex Amack

ACKNOWLEDGMENT

STATE OF Nebraska)
)ss.
COUNTY OF ~~Lake~~ Hall)

On this 5th day of February, 1998, personally appeared before me Robert Gyllenborg, Area Manager, Kansas-Nebraska Projects, Bureau of Reclamation, to me known to be the individual described in and who executed the within and foregoing instrument and acknowledged the same as his free and voluntary act and deed for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

GENERAL NOTARY-State of Nebraska
JUDY K. O'SULLIVAN
My Comm. Exp. Sept. 14, 1999

(SEAL)

Judy K. O'Sullivan
Notary Public in and for the
State of Nebraska
Residing at Grand Island
My Commission Expires 9-14-99

Contract No. 14-06-700-3816-A
Amendment No. 03
January 1998

ACKNOWLEDGMENT

STATE OF Nebraska)
)ss.
COUNTY OF LANCASTER)

On this 26th of JANUARY, 1998, personally appeared before me Rex Amack Director, State of Nebraska Game and Parks Commission, to me know to be the individual described in and who executed the within and foregoing instrument and acknowledged the same as her free and voluntary act and deed for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

GENERAL NOTARY-State of Nebraska
BRUCE K. SACKETT
My Comm. Exp. Oct. 12, 2001

(SEAL)

Notary Public in and for the
State of Nebraska
Residing at GRETNA, NE
My Commission Expires OCT. 12, 2001

Contract No. 14-06-700-3816-A
Amendment No. 4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE BETWEEN THE UNITED STATES AND THE NEBRASKA GAME AND PARKS COMMISSION

This amendment effective JUN 08 2001 2001, between the United States of America, acting by and through the Regional Director, Great Plains Region, Bureau of Reclamation (Reclamation), and the Nebraska Game and Parks Commission (Commission).

WITNESSETH:

It is agreed between the parties hereto that the Lease dated May 1, 1995 (14-06-700-3816-A), permitting the Commission to assume the responsibility of administering lands and facilities at Reclamation's reservoirs for recreation, wildlife and other purposes, shall be and by these presents is further amended to include the following described land to be managed as Wildlife Management Areas, to wit:

The 39.7332 acre parcel of land acquired through equal parcel land trade at Calamus Reservoir to be managed for wildlife management purposes located in:

> The East 1/2 and Southwest 1/4 of the Northeast 1/4 of Section 11, Township 22 North, Range 22 West of the 6th Principal Meridian, Loup County, Nebraska. Further described and depicted as PARCEL "A" on the attached legal survey, and outlined on attached map titled "Calamus Reservoir", both referenced and made a part hereof.

It is further agreed between the parties that the following described lands traded to private ownership are now excluded from Commission administration under Lease 14-06-700-3816-A, to wit:

> The 39.6184 acre parcel of land in the East 1/2 of the Southwest 1/4 of Section 11, and the .1148 acre parcel of land in the Northwest 1/4 of Section 14, Township 22 North, Range 17 West of the 6th principal Meridian, Loup County, Nebraska. Further described as PARCELS "B" and "C" on the attached legal survey, totaling 39.7332 acres, and outlined on attached map titled "Calamus Reservoir", both referenced and made a part hereof.

All provisions of Lease Agreement 14-06-700-3816-A, as amended, shall be and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this amendment effective the day and year first above written.

SIGNATURES:

Director
Nebraska Game and Parks Commission

Rex Amack
(Signature)

Typed Name:

Rex Amack

Date: May 29, 2001

Area Manager
Nebraska Kansas Area Office
Bureau of Reclamation

Stephen F. Ransfer
(Signature)

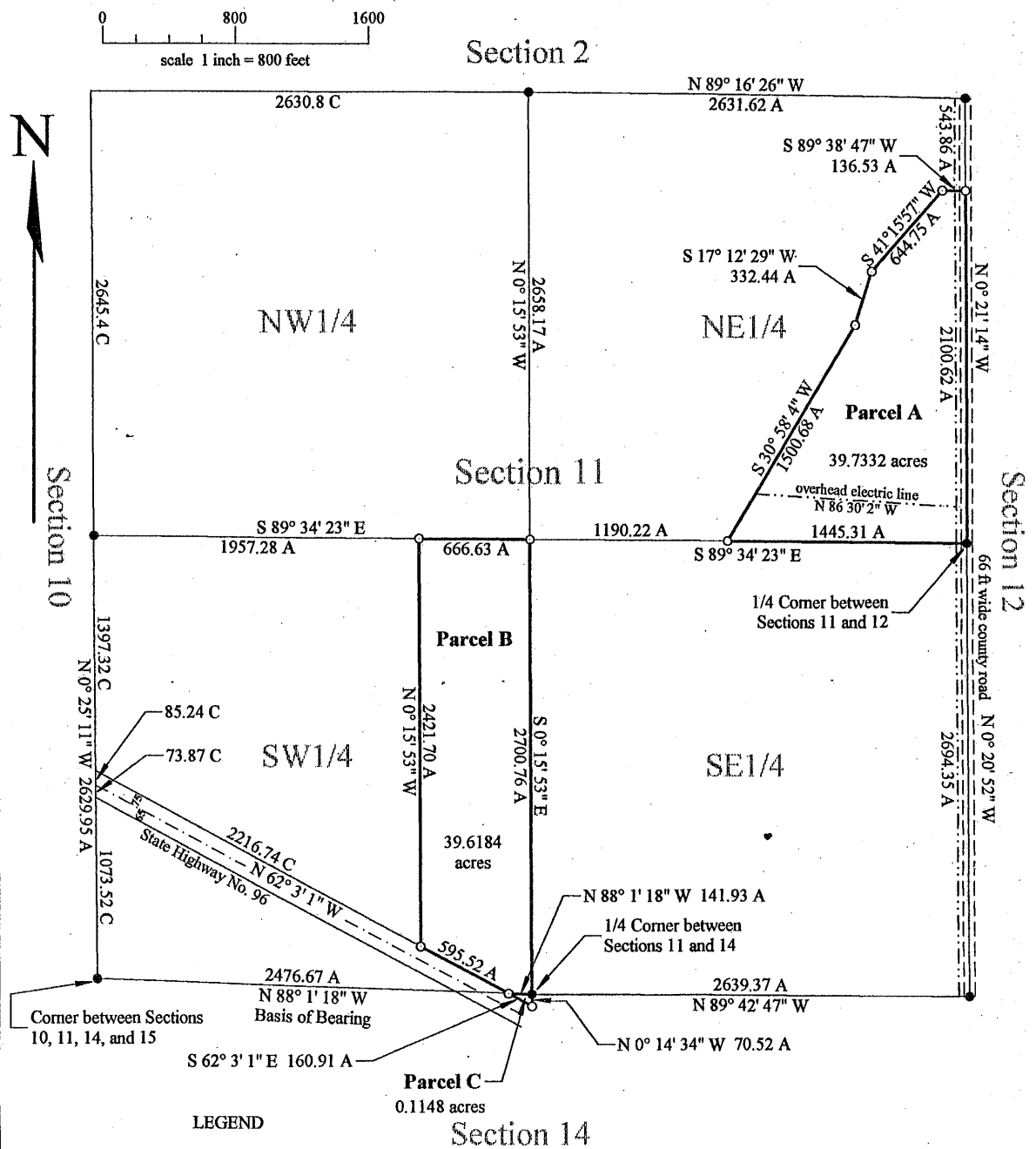
Typed Name:

Acting For Fred R. Ore

Date: JUN 08 2001

3 Parcels
A 39.7332 Acre Parcel in the E1/2 and SW1/4 of NE1/4 of Section 11
A 39.6184 Acre Parcel in the E1/2 of the SW1/4 of Section 11
And a 0.1148 Acre Parcel in the NW1/4 of Section 14
T22N R17W of 6th PM, Loup County, Nebraska

Reference No. 20221711030 July 31, 2000 Sheet 1 of 3



LEGEND

- ● Monument found, 1960 BLM brass cap
- o Monument set, 3/4 by 30 inch rebar with yellow 1-3/8 inch diameter No. 577 survey cap

A = Actual distance measured
C = Calculated distance
All distances are in feet

Basis of Bearing is the Bureau of Reclamation bearing of North 88 degrees 1 minute 18 seconds West from the Quarter Corner between Sections 11 and 14, T22N R17W, to the Corner between Sections 10, 11, 14, and 15, T22N R17W.

SURVEYOR'S STATEMENT

I, Frank L. Phillips, a registered land surveyor in the State of Nebraska, do hereby state that I performed this survey from June 13 to July 31, 2000, and it is correct to the best of my knowledge and belief.

Frank L. Phillips, L. S. No. 577

NEBRASKA REGISTERED LS-577 LAND SURVEYOR FRANK L. PHILLIPS

LEGAL DESCRIPTIONS

Parcel A

A 39.7332 acre Parcel in the East Half and the Southwest Quarter of the Northeast Quarter of Section 11, Township 22 North, Range 17 West of the 6th Principal Meridian, Loup County, Nebraska, more accurately described as follows: commencing at the Point of Beginning, the Quarter Corner between Sections 11 and 12, Township 22 North, Range 17 West of the 6th Principal Meridian (T22N R17W) as marked by a 1960 Bureau of Land Management 1-1/2 inch diameter brass cap on a 9/16 inch rod; thence North 0 degrees 21 minutes 14 seconds West 2100.62 feet (Basis of Bearing is the Bureau of Reclamation bearing of North 88 degrees 1 minute 18 seconds West from the Quarter Corner between Sections 11 and 14 to the Corner between Sections 10, 11, 14, and 15, T22N R17W) on the line between Sections 11 and 12, T22N R17W, to a point marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 89 degrees 38 minutes 47 seconds West 136.53 feet to a point marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 41 degrees 15 minutes 57 seconds West 644.75 feet to a point marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 17 degrees 12 minutes 29 seconds West 332.44 feet to a point marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 30 degrees 58 minutes 4 seconds West 1500.68 feet to a point on the line between the Northeast Quarter and the Southeast Quarter of Section 11, T22N R17 W, as marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 89 degrees 34 minutes 23 seconds East 1445.31 feet on said line to the Point of Beginning and including an easement for a county road in the east 33 feet of the parcel and a utility easement for electrical power lines along the west right of way line of said county road and a utility easement for electrical power lines along a line more accurately described as follows: commencing at the Quarter Corner between Sections 11 and 12, Township 22 North, Range 17 West of the 6th Principal Meridian (T22N R17W) as marked by a 1960 Bureau of Land Management 1-1/2 inch diameter brass cap on a 9/16 inch rod; thence North 0 degrees 21 minutes 14 seconds West 213.79 feet (Basis of Bearing is the Bureau of Reclamation bearing of North 88 degrees 1 minute 18 seconds West from the Quarter Corner between Sections 11 and 14 to the Corner between Sections 10, 11, 14, and 15, T22N R17W) on the line between Sections 11 and 12, T22N R17W; thence North 86 degrees 30 minutes 2 seconds West 33.07 feet to the beginning of the utility easement line at a point on the west right of way line of the county road on said line between Sections 11 and 12; thence North 86 degrees 30 minutes 2 seconds West 1244.63 feet to the end of the utility easement line on the west line of said 39.7332 acre parcel.

Parcel B

A 39.6184 acre Parcel in the East Half of the Southwest Quarter of Section 11, Township 22 North, Range 17 West of the 6th Principal Meridian, Loup County, Nebraska, more accurately described as follows: commencing at the Point of Beginning, the Quarter Corner between Sections 11 and 14, Township 22 North, Range 17 West of the 6th Principal Meridian (T22N R17W) as marked by a 1960 Bureau of Land Management 3-1/4 inch diameter brass cap; thence North 88 degrees 1 minute 18 seconds West 141.93 feet (Basis of Bearing is the Bureau of Reclamation bearing of North 88 degrees 1 minute 18 seconds West from the Quarter Corner between Sections 11 and 14 to the Corner between Sections 10, 11, 14, and 15, T22N R17W) on the line between the Southwest Quarter of Section 11 and the Northwest Quarter of Section 14, T22N R17W to a point on the northeast right of way line of State Highway 96 as marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence North 62 degrees 3 minutes 1 second West 595.52 feet on the northeast right of way line of State Highway 96 to a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence North 0 degrees 15 minutes 53 seconds West 2421.70 feet to a point on the line between the Northwest Quarter and the Southwest Quarter of Section 11, T22N R17W, as marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 89 degrees 34 minutes 23 seconds East 666.63 feet on said line between the Northwest Quarter and the Southwest Quarter of Section 11 to the Center of the Section as marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 0 degrees 15 minutes 53 seconds East 2700.76 feet on the line between the Southwest Quarter and the Southeast Quarter of Section 11, T22N R17W, to the Point of Beginning.

Parcel C

A 0.1148 acre Parcel in the Northeast Quarter of the Northwest Quarter of Section 14, Township 22 North, Range 17 West of the 6th Principal Meridian, Loup County, Nebraska, more accurately described as follows: commencing at the Point of Beginning, the Quarter Corner between Sections 11 and 14, Township 22 North, Range 17 West of the 6th Principal Meridian (T22N R17W) as marked by a 1960 Bureau of Land Management 3-1/4 inch diameter brass cap; thence North 88 degrees 1 minute 18 seconds West 141.93 feet (Basis of Bearing is the Bureau of Reclamation bearing of North 88 degrees 1 minute 18 seconds West from the Quarter Corner between Sections 11 and 14 to the Corner between Sections 10, 11, 14, and 15, T22N R17W) on the line between the Southwest Quarter of Section 11 and the Northwest Quarter of Section 14, T22N R17W to a point on the northeast right of way line of State Highway 96 as marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence South 62 degrees 3 minutes 1 second East 160.91 feet on said northeast right of way line of State Highway 96 to a point marked by a 3/4 inch diameter by 30 inch rebar with a yellow 1-3/8 inch diameter No. 577 survey cap; thence North 0 degrees 14 minutes 34 seconds West 70.52 feet to the Point of Beginning.

ORIGINAL

Contract No. 14-06-700-3816-A
Amendment No. 5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE BETWEEN THE UNITED STATES AND THE NEBRASKA GAME AND PARKS COMMISSION

THIS AMENDMENT, made this 22nd day of November, 2002, between the United States of America, Bureau of Reclamation, hereinafter styled the "United States," and the Nebraska Game and Parks Commission, hereinafter styled the "Commission."

WITNESSETH:

It is agreed between the parties hereto that the Lease dated May 1, 1995 (14-06-700-3816-A), permitting the Commission to assume the responsibility of administering lands and facilities at Reclamation's project area lands and waters for recreation, wildlife and other purposes, shall be and by these presents is further amended to include the attached "EXHIBIT A" document dated November 22, 2002. This "EXHIBIT A" has been updated to include lands previously amended into the Lease, and remove those lands that after November 22, 2002 shall no longer be owned by the United States due to the requirements of **Public Law 106-366,** *Conveyance of the Assets of the Middle Loup Division of the Missouri River Basin Project.* Specifically, the project areas to be removed are Milburn and Arcadia Diversion Dams and Sherman Reservoir.

All provisions of Lease Agreement 14-06-700-3816-A, as amended, shall be and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this amendment effective the day and year first above written.

THE UNITED STATES OF AMERICA

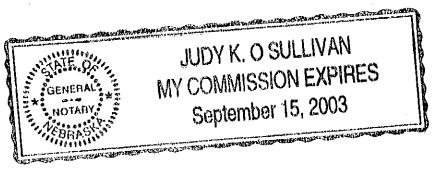
By _____
Regional Director

Acting
NEBRASKA GAME AND PARKS COMMISSION

By _____
Rex Amack, Secretary

STATE OF NEBRASKA)
) SS.
COUNTY OF SHERMAN)

On this 22 day of November, 2002, before me, the undersigned, a notary public duly commissioned and qualified for and in said county, personally came Fred R. Ore, Acting Regional Director of the Great Plains Regions, Bureau of Reclamation, United States Department of the Interior, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged the execution therefore to be his voluntary act and deed.



Judy K. O'Sullivan
Notary Public

My commission expires: September 15, 2003

ACKNOWLEDGMENT

STATE OF NEBRASKA)
) ss.
COUNTY OF SHERMAN)

Before me, the undersigned notary public, on this day personally appeared Rex Amack, known to me to be the person whose name is subscribed to the foregoing instrument, and known to me to be the Secretary, Nebraska Game and Parks Commission, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, on behalf of said Commission. Given under my hand and seal of office this 22nd day of November, 2002.

My commission expires: September 15, 2003 Judy K. O'Sullivan
Notary Public

(SEAL)

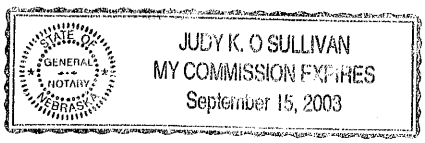


EXHIBIT A

LEASE OF RECREATIONAL AND WILDLIFE FACILITIES

BETWEEN THE UNITED STATES AND THE STATE OF NEBRASKA

CONTRACT NO. 14-06-700-3816-A

AMENDMENT No. 5 November 22, 2002

This Exhibit A covers land and water areas of the following U. S. Bureau of Reclamation Reservoirs, Diversion Dams, and Mitigation Sites.

- RESERVOIRS

  Reservoirs to include; Box Butte, Calamus, Davis Creek, Enders, Harry Strunk, Hugh Butler, Merritt, and Swanson.

- DIVERSION DAMS

  Diversion Dams to include; Cambridge, Kent, and Red Willow.

- MITIGATION SITES & OTHER LANDS MANAGED AS WMA'S

  Mitigation Sites to include; Kreppel - Rasmussen (Scotia Canal WMA) Oeltjen (Marsh Wren WMA) and Penas (Mirdan Canal WMA)

  Tuma Wetland Development Site (Loup Bottoms WMA).

  Robinette Quarry site in Franklin County (Ash Grove WMA)

  The Frenchman Cambridge Rehabilitation and Betterment Mitigation Sites.

The following described lands shall be, and by the attachment of this Exhibit to the above mentioned lease, are leased to the State of Nebraska, subject to all the terms, conditions, and limitations contained in said lease, to wit:

U. S. BUREAU OF RECLAMATION RESERVOIRS

Those lands acquired and used for the operation of **Box Butte Reservoir**, located in:

Sections 20, 28, 29, 30, 32, and 33, Township 29 North, Range 49 West; Sections 25 and 26, Township 29 North, Range 50 West of the 6th Principal Meridian, Dawes County, Nebraska, as outlined on the attached Drawing No. 278-705-23, dated 5-13-64, which by reference is made a part hereof.

Those lands acquired and used for the operation of **Calamus Reservoir**, located in:

Loup County, Sections 30, 31, and 32, Township 23 North, Range 17 West; and Sections 25 and 26, Township 23 North, Range 18 West; and Sections 1, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 35, and 36, Township 22 North, Range 17 West; and Sections 1 and 12, Township 21 North, Range 17 West.

and in Garfield County, Sections 19, 29, 30, 31, Township 22 North, Range 16 West; Section 6, Township 21 North, Range 16 West, as outlined on the attached drawing titled "Calamus Reservoir" which by reference is made a part hereof.

Those lands acquired and used for the operation of **Davis Creek Reservoir**, located in:

Greeley County, Sections 19, 30, and 31, Township 17 North, Range 12 West.

and in Valley County, Sections 13, 14, 15, 23, 24, 25, 26, and 36, Township 17 North, Range 13 West as outlined on the attached drawing titled "Davis Creek Reservoir" which by reference is made a part hereof.

Those lands acquired and used for the operation of **Enders Reservoir**, located in:

Sections 3, 4, 5, 6, 7, 8, 9, and 10, Township 5 North, Range 37 West; and Sections 31, 32, and 33, Township 6 North, Range 37 West; and Sections 1, 2, 3, and 12, Township 5 North, Range 38 West of the 6th Principal Meridian, Chase County, Nebraska, as outlined on attached Drawing No. 328-701-8558, dated May 15, 1964, which by reference is made a part hereof.

U. S. BUREAU OF RECLAMATION RESERVOIRS - CONTINUED

Those lands acquired and used for the operation of **Harry Strunk Reservoir**, located in:

Sections 19 and 30, Township 5 North, Range 25 West; and Sections 2, 3, 4, 10, 11, 12, 13, 14, 15, 23, 24, 25, and 26, Township 5 North, Range 26 West; and Sections 18, 19, 20, 21, 26, 27, 28, 29, 32, 33, 34, and 35, Township 6 North, Range 26 West of the 6th Principal Meridian, Frontier County, Nebraska, as outlined on the attached Drawing No. 328-701-8560, dated 5-15-64, which by reference is made a part hereof.

Those lands acquired and used for the operation of **Hugh Butler Reservoir**, located in:

Sections 2, 3, and 4, Township 4 North, Range 30 West of the 6th Principal Meridian, Red Willow County, Nebraska; and Sections 19, 30, and 31, Township 5 North, Range 29 West; and Sections 13, 17, 20, 21, 24, 25, 26, 27, 28, 34, 35, and 36, Township 5 North, Range 30 West of the 6th Principal Meridian, Frontier County, Nebraska, as outlined on attached Drawing No. 328-701-8561, dated May 15, 1964, which by reference is made a part hereof.

Those lands acquired and used for the operation of **Merritt Reservoir**, located in:

Sections 5, 6, 7, and 18, Township 30 North, Range 30 West; and Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14, Township 30 North, Range 31 West; Sections 11 and 12 , Township 30 North, Range 32 West; Sections 29, 30, 31 and 32, Township 31 North, Range 30 West; Section 36, and lands encompassed by the normal reservoir water surface elevation 2946.0 M.S.L. in Sections 25 and 26, Township 31 North, Range 31 West of the 6th Principal Meridian, Cherry County, Nebraska, as outlined on the attached Drawing No. 719-728-802, dated February 28, 1963, which by reference is made a part hereof.

Those lands acquired and used for the operation of **Swanson Reservoir**, located in:

Sections 3, 4, 5, 6, 7, 8, 9, 17, 18, Township 2 North, Range 33 West; and Sections 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18, Township 2 North, Range 34 West; and Section 36, Township 3 North, Range 34 West of the 6th Principal Meridian, Hitchcock County, Nebraska, as outlined on attached Drawing No. 328-701-8559, dated May 15, 1964, which by reference is made a part hereof.

U. S. BUREAU OF RECLAMATION DIVERSION DAMS

Those lands acquired and used for the operation of **Cambridge Diversion Dam**, located in:

Sections 26 and 27, Township 4 North, Range 25 West of the 6th Principal Meridian, Furnas County, Nebraska, as outlined on the attached Drawing No. 328-701-9071, dated 9-6-68, which by reference is made a part hereof.

Those lands acquired and used for the operation of **Kent Diversion Dam**, located in:

Sections 26 and 27, Township 21 North, Range 17 West of the 6th Principal Meridian, Loup County, Nebraska, as outlined on the attached Drawing titled "Kent Diversion Dam" which by reference is made a part hereof.

Those lands acquired and used for the operation of **Red Willow Diversion Dam**, located in:

Section 25, Township 4 North, Range 29 West of the 6th Principal Meridian, Red Willow County, Nebraska, as outlined on the attached Drawing No. 328-701-9070 dated 9-6-68, which by reference is made a part hereof.

U. S. BUREAU OF RECLAMATION - MITIGATION SITES

Those lands acquired and used for mitigation purposes known as the *Krepel Site* **(Scotia Canal WMA)** located in:

A parcel of land described as the North 8 acres of Lot 3 in the Southeast Quarter (SE 1/4), Lots 4, 5, and 6, also referred to as the Northeast Quarter (NE 1/4), lying West of the North Loup River in Section 2, Township 18 North, Range 13 West, of the 6th Principal Meridian, Valley County, Nebraska.

EXCEPT, the tract conveyed in Deed Book 64 on page 14, and Book 64 on page 470 to Loup Valleys Rural Public Power District of Ord, Nebraska, and less, Parcels A, and B, as described in Warranty Deed to the United States of America, recorded in Book 73 on page 49, Valley County, Nebraska.

The above-described Tract contains an area of 140.9 acres more or less, according to the government survey.

Those lands acquired and used for mitigation purposes known as the *Rasmussen Site* **(Scotia Canal WMA)** located in:

A parcel of land located in lots 3 and 4, also known as the North Half of the Northwest Quarter (NW 1/2 NW 1/4), and in lot 5, also known as the Southwest Quarter of the Northwest Quarter (SW 1/4 NW 1/4), and in the Southeast Quarter of the Northwest Quarter (SE 1/4 NW 1/4), of Section 1, Township 18 North, Range 13 West, of the 6th Principal Meridian, Valley County, Nebraska.

The above-described Tract contains 42.2 acres, more or less according to the government survey.

Those lands acquired and used for mitigation purposes known as the *Penas Site* **(Mirdan Canal WMA)** located in:

Portions of Lots 7, 8, and 9, of Section 20, Township 21 North, Range 16 West, of the 6th Principal Meridian, Garfield County, Nebraska.

The above-described Tract contains 52.4 acres, more or less according to the government survey.

U. S. BUREAU OF RECLAMATION - MITIGATION SITES - CONTINUED

Those lands acquired and used for mitigation purposes known as the *Oeltjen Site* **(Marsh Wren WMA)** located in:

All of Lot 6, in Section 18, Township 15 North, Range 10 West, and all of Lots 7, and 8, Section 13, Township 15 North, Range 11 West, of the 6th Principal Meridian, Howard County, Nebraska, containing a total of 119.1 acres, more or less.

TOGETHER WITH all accretion lands attached to the above-referenced lots along the North Loup River, containing 33.9 acres, more or less.

EXCEPT, 9.47 acres conveyed to the Omaha and Republican Valley Railroad Company, as recorded in Book C on Page 518 in the records of Howard County, Nebraska.

The above-described tract contains a total area of 153 acres, more or less, according to the government survey.

OTHER U. S. BUREAU OF RECLAMATION LANDS MANAGED AS WMA'S

Those lands acquired and used for wetland development purposes known as the *Tuma Site* **(Loup Bottoms WMA)** located in:

The Northwest Quarter of the Northeast Quarter (NW 1/4 NE 1/4), in Lot 2, and in the Northeast Quarter of the Northwest Quarter NE 1/4 NW 1/4) of Section 18, Township 16 North, Range 11 West, of the 6th Principal Meridian, Howard County, Nebraska.

TOGETHER WITH all accretion lands attached to the above referenced lot along the North Loup River, containing an area of 16.3 acres, more or less.

EXCEPT, a parcel of land as described in the deed to Howard County recorded in Book 81, page 43, in the Office of the Register of Deeds, Howard County, Nebraska.

The above-described tract contains 86.6 acres, more or less, according to the government survey.

Those lands acquired and used for quarrying purposes known as the *Robinette Quarry* **(Ash Grove WMA)** located in:

The West Half of the Southwest Quarter (W ½ SW 1/4) of Section 24, Township 1 North, Range 15 West, of the 6th Principal Meridian, Franklin County, Nebraska.

Except a tract of land located in the Northwest corner of said 80 acre plot containing 6.43 acres, more or less, resulting in a final acreage of 73.57 acres, more or less.

FRENCHMAN-CAMBRIDGE REHABILITATION
AND
BETTERMENT MITIGATION SITES

Site #	Legal Description	Acres
1.	SE1/4, Section 8, T.3N., R.26W.	3.0
2.	NE1/4, Section 3, T.3N., R.25W.	3.0
3.	NW1/4, Section 33, T.4N., R.24W.	3.5
4.	N1/2, Section 26, T.4N., R.25W.	17.0
5.	NE1/4, Section 17, T.4N., R.23W.	4.0
6.	SE1/4, Section 8, T.4N., R.23W.	3.0
7.	SE1/4, Section 30, T.4N., R.21W.	3.5
8.	SW1/4, Section 29 and 30, T.4N., R.30W.	5.5
9.	SW1/4, Section 33, T.4N., R.21W.	6.7
10.	SE1/4, Section 2, T.3N., R.21W.	12.5
11.	SW1/4, Section 9, T.3N., R.20W.	3.6
12.	SW1/4, Section 9, T.3N., R.20W.	2.4
13.	SE1/4, Section 8, T.2N., R.19W.	5.7
14.	NE1/4, Section 16, T.2N., R.19W.	3.6
	TOTAL ACRES:	**77**

Contract No. 14-06-700-3816-A
Amendment No. 6

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE BETWEEN THE UNITED STATES AND THE NEBRASKA GAME AND PARKS COMMISSION

This amendment effective 9/24 2003, between the United States of America, acting by and through the Regional Director, Great Plains Region, Bureau of Reclamation (Reclamation), and the Nebraska Game and Parks Commission (Commission).

WITNESSETH:

It is agreed between the parties hereto that the Lease dated May 1, 1995 (14-06-700-3816-A), permitting the Commission to assume the responsibility of administering lands and facilities at Reclamation's project area lands and waters for recreation, wildlife and other purposes, shall be and by these presents is further amended to include the attached "EXHIBIT A" map document titled ***Davis Creek WMA Land Use*** .

The amendment map ***Davis Creek WMA Land Use***, updates and further defines the respective land management boundaries of the Nebraska Game and Parks Commission, the Lower Loup Natural Resource District, and the Twin Loups Irrigation District, and supercedes the existing "EXHIBIT A" map document titled ***DAVIS CREEK RESERVOIR***, dated January 1995.

All provisions of Lease Agreement 14-06-700-3816-A, as amended, shall be and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this amendment effective the day and year first above written.

SIGNATURES:

NEBRASKA GAME AND PARKS COMMISSION

Approved By:

Rex Amack

Rex Amack, Director
Nebraska Game and Parks Commission

9/17/03
Date

BUREAU OF RECLAMATION

Approved By:

Fred R. Ore

Fred R. Ore, Area Manager
Nebraska-Kansas Area Office

9/24/03
Date

Contract No. 14-06-700-3816-A
Amendment No. 7

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

AMENDMENT TO LEASE BETWEEN THE UNITED STATES AND THE NEBRASKA GAME AND PARKS COMMISSION

This amendment effective November 19, 2009, between the United States of America, acting by and through the Area Manager, Nebraska-Kansas Area Office, Great Plains Region, Bureau of Reclamation (Reclamation), and the Nebraska Game and Parks Commission (Commission).

WITNESSETH:

It is agreed between the parties hereto that the Lease dated May 1, 1995 (14-06-700-3816-A), permitting the Commission to assume the responsibility of administering lands and facilities at Reclamation's project area lands and waters for recreation, wildlife and other purposes, shall be and by these presents is further amended to include the attached "EXHIBIT 1" map document titled ***Guide Rock Diversion Wildlife Management Area,*** *dated November 10, 2009.*

The amendment map, ***Guide Rock Diversion Wildlife Management Area***, defines the management boundaries of the lands and waters to be managed as a Wildlife Management Area by the Commission and the remaining areas that will be utilized for operations purposes by Reclamation.

All provisions of Lease Agreement 14-06-700-3816-A, as amended, shall be and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this amendment effective the day and year first above written.

SIGNATURES:

Director
Nebraska Game and Parks Commission

Rex Amack
(Signature)

Typed Name:

Rex Amack

Date: November 13, 2009

Area Manager
Nebraska-Kansas Area Office
Bureau of Reclamation

Aaron M. Thompson
(Signature)

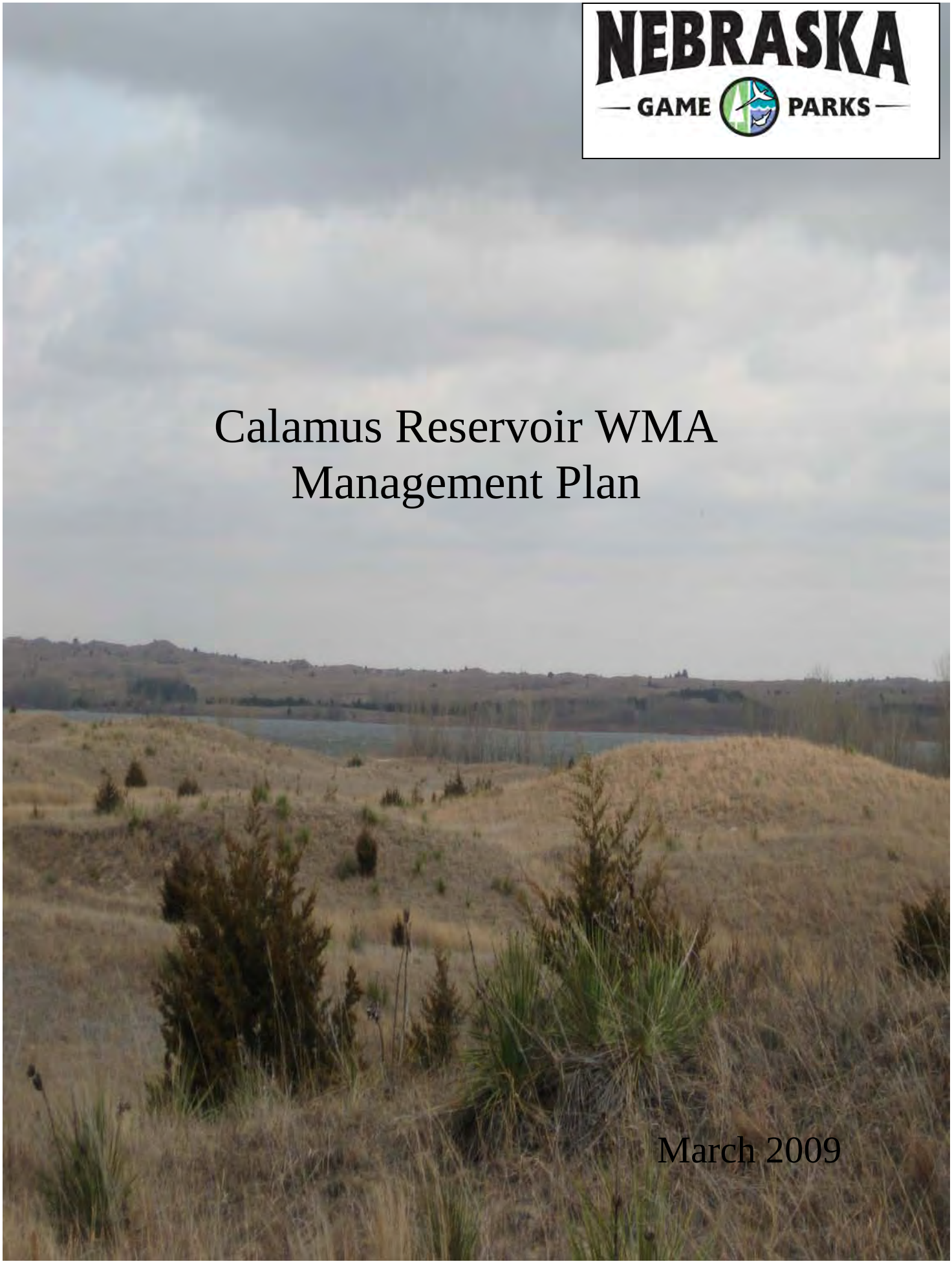
Typed Name:

Aaron M. Thompson

Date: 11/19/09

Appendix A2

A2 – Wildlife Management Plan for Calamus Reservoir and Kent Diversion Dam



NEBRASKA GAME PARKS

Calamus Reservoir WMA Management Plan

March 2009

Introduction

Calamus Reservoir Wildlife Management Area (WMA) is located at Calamus Reservoir in Garfield and Loup Counties, Nebraska. It is approximately 5 miles North of Burwell, Nebraska. Calamus Reservoir was constructed on the Calamus River with the Virginia Smith Dam being completed in 1985 by the U.S. Bureau of Reclamation (Reclamation).

The Reservoir has a shoreline of approximately 35 miles with a water surface area of 5,124 acres at the top of conservation pool (Calamus Reservoir Resource Management Plan 2009). The WMA is approximately 4,818 acres depending on water level. (See Land Use Map).

This management plan applies only to the WMA and focuses on terrestrial resources and management. Management of aquatic resources and recreational fisheries in the reservoir are addressed in a separate plan.

The management direction in this plan may be amended, modified, deleted or expanded in the future as a result of new information, changing management priorities or public input.

Site Description

Climate

The climate of Calamus Reservoir area is sub-humid and marked by seasonal fluctuations in temperatures ranging from a minimum of -34 F to a maximum of 112 F. The average daytime high temperatures ranges form 23 F to 85 F. The average growing season is 150 days which extends from late April to early October. Annual precipitation averages about 24 inches. (Calamus Reservoir Resource Management Plan 2009)

Soils

Soils in this area have been developed from sandy eolian material. The drier soils vary from a loamy fine sand to silt loams. Coarse sands are more common on those sites that are periodically flooded.

Water

Main water sources for wildlife use consist of the Calamus Reservoir and Calamus River. Dry Creek and Gracie Creek are also water sources along the north end of the WMA.

Wildlife

The Calamus Reservoir provides important habitat for waterfowl, shorebirds, and other water birds during fall and spring migration. The reservoir also provides some opportunities for breeding and nesting for waterfowl and shorebirds. Calamus Reservoir is a major stop for birds during the spring and fall migration. Canada geese use the reservoir as a major resting spot during migration and also as a breeding and nesting area. Some of the more common ducks include: mallard, blue-winged teal, pintail, redhead, northern shoveler, and bufflehead. Occasionally a flock of snow geese will stop on the reservoir during their migration. Other species of water birds and shorebirds that have been observed include: American Coot, killdeer, western grebe, and black tern.

Bald eagles have been observed year round on the Reservoir. Bald Eagles are commonly seen nesting in the hardwoods along the lake edge. Other raptors that have been observed along the reservoir are red-tailed hawk, American kestrel, great-horned owl, and northern harrier.

Grasslands are utilized by a variety of game and non-game bird species. The grasslands provide year round habitat for sharp-tailed grouse, greater-prairie chicken and a small population of ring-neck pheasant and bobwhite quail. Mourning doves nest in the established shelterbelts. Non-game bird species that are common include: western meadowlark, grasshopper sparrow, and horned lark.

Sparse woodlands on the reservoir provide habitat for bird species that use a more woodland component. Some bird species are found only during spring and summer nesting, while others are found year round. Some of the bird species found along the reservoir include: northern cardinal, American robin, American crow, downy woodpecker, and northern flicker.

The WMA provides habitat for many different mammal species. White-tail deer and mule deer are observed often on the area and adjoining private lands. Other mammals that inhabit the area are: coyote, raccoon, cottontail rabbit, fox squirrel, and plains pocket gopher.

The bullfrog, northern leopard frog and chorus frogs are very commonly seen and heard along the lakeshore and backwater shallows. Also along the lakeshore common snapping turtle and ornate box turtle can be found. Bull snake, plains garter snake and red-sided garter snake are common snakes found within the different habitat types along the reservoir.

Threatened, Endangered and Other At-Risk Species

Blowout penstemon, Western prairie fringed orchid and Wolf spikerush could exist on the area. (Tier 1 species, Nebraska Natural Legacy Project) The area was surveyed for the Western prairie-fringed orchid in 1997, with no documentation. (Wildlife Management Area Threatened and Endangered Species, Final Report, 1999, Steinauer)

The bald eagle and golden eagle are still protected under Bald & Golden Eagle Protection Act. Recently the bald eagle has been de-listed as a federally threatened species. Bald eagle and golden eagle can be observed on the area during waterfowl migration. Bald eagles have been nesting on Calamus Reservoir since 1992. It is not uncommon to view 20 to 30 bald eagles using the area during the late winter, early spring migration.

The Whooping crane is a spring and fall migrant through Nebraska. There have been two confirmed sightings of whooping cranes. Two adult cranes were observed in 1992. Two adults and one juvenile were sighted in 1997 for four days.

Calamus River above the reservoir was one of the release sites for the re-introduction of the river otter in Nebraska between 1986 and 1991. There have been confirmed otter sightings.

Other terrestrial Tier 1 species that may be utilizing or observed on the WMA include regal fritillary, American burying beetle, blandings turtle, long-billed curlew, bell's vireo, piping plover and trumpeter swan. (Tier 1 species, Nebraska Natural Legacy Project)

In addition to the species listed above, there is a significant population of plains topminnow present in Dry Creek which flows into Calamus Reservoir on its north side. This is an important habitat area, and an important population of this sensitive species. Resource management programs and practices occurring on the WMA in the vicinity of Dry Creek will be conducted in a manner that insures the protection of this habitat area.

Recreation

Calamus Reservoir supports excellent fisheries opportunities for both ice and open water fishing. Harvestable populations of game fish include: channel catfish, black crappie, northern pike, muskellunge, walleye, wiper, yellow perch, white bass and common carp. The WMA also provides public access for fisheries opportunities on the Calamus river for channel catfish, northern pike and common carp. A trout pond is located at the Gracie Creek inlet along Hwy #96. The 4 acre pond provides a high demand put and take rainbow trout fisheries. The pond is frequently stocked with rainbow trout by Fisheries Division staff at Calamus Hatchery. A handicapped accessible fishing dock and toilet is at this site.

This WMA provides excellent opportunities for waterfowl hunting on the reservoir, below and above the dam on Calamus River and at Gracie Creek.

There are good hunting opportunities for white-tailed deer, mule deer, wild turkey, sharp-tailed grouse and greater prairie chicken. Some small game hunting opportunities for ring-necked pheasant, bobwhite quail, morning dove, cottontail and fox squirrel can be found through-out the area.

Wildlife viewing opportunities are plentiful during the bird migrations, especially during the spring. Species available to be observed include: ducks, geese, shorebirds, herons, hawks, song birds, sharp-tailed grouse, greater-prairie chicken, white-tailed deer, mule deer, furbearers and turtles.

Infrastructure

Dry Creek, Dry Valley, Ash Grove and Windmill Hill fishing access sites have improved graveled roads to parking lots on the north and south side of the reservoir. Access to the area below the dam is provided by a graveled trail road and parking lot.

The public use facilities include 10 parking lots, 2 miles of graveled access roads, one fishing dock and one toilet. Approximately 36 miles of boundary fence are located on the WMA which consists of standard 4-strand barb wire fence. More than half of the fence is located along the right-of-way on Hwy #96 and the oil county road. Interior fence consists of one to two barb wire strand electric fence to facilitate grazing management.

Vegetation

The following vegetation descriptions of Sandhills Dune Prairie, Dry-Mesic Sand Prairie and Sandhills Freshwater Marsh are from Terrestrial Natural Communities of Nebraska (Version III – June 30, 2003) by Gerry Steinauer.

Calamus Reservoir is dominated by Sandhills Dune Prairie, Dry Mesic Sand Prairie, Sandhills Freshwater Marsh and Cottonwood/Shrub community along the shoreline.

Sandhills Dune Prairie dominates the majority of the acres. This is associated with the choppy and rolling hills located on the north and south side of the reservoir. : Vegetation cover in this community is relatively sparse in comparison with other grasslands, and is dominated by a mixture of tall grasses 1-2 m high, with an underlayer of mid grasses .5 – 1 m tall and short grasses .5m tall. Prairie sandreed is the most common tall grass with hairy grama and sun sedge commonly forming a short-grass understory layer. Other conspicuous grasses include sand bluestem, sand lovegrass, and needle-thread. On steep slopes, little bluestem may become conspicuous, and may increase with grazing pressure. Wind-blown dune crests and slopes of choppy dunes are often dominated by sand muhly and other species typical of blowouts, in addition to short shrubs such as yucca and sand cherry. Other shrubs which may be found scattered in this community include leadplant, dwarf prairie rose and western poison ivy. In a few places, wild plum and chokecherry may form dense patches on dunes. Perennial forbs are plentiful and among the more conspicuous are stiff sunflower, bushmorning-glory, Plains gayfeather, hairy puccoon, brittle prickly pear, narrowleaf beardtongue and others. Native annuals area also present particularly in areas of active natural and man-made erosion and include annual wild buckwheat, Geyer's spurge , Missouri spurge, pitseed goosefoot, desert goosefoot, winged pigweed, Sandhills fleabane, field snakecotton, showy ipomopsis, and stiffstem flax. Exotic species are infrequent in areas not modified by anthropomorphic disturbance. Russian thistle is the most common exotics. Species diversity is low to moderate, thought quite high when compared with other inland dune ranges throughout the world. Blowouts are a noteworthy natural disturbance within this community, and consists of crater-like depressions 50m to several hectare large formed by wind erosion on dune crests. The soil in a blowout is loose and moving due to wind erosion and slippage. Active blowouts are often unvegetated or sparsely vegetated by rhizomatous "sand-binding" grasses and forbs. The initial species invading the loose sand is blowout grass, though other species such as lemon scurfpea, sand muhly, sand blusestem, and prairie sandreed may replace it in some locations. Annual species are conspicuously absent from active blowouts because of the inability of seedings to with stand constant burial and uprooting in the moving sand. Annuals appear as the blowouts begin to stabilize and eventually "heal over" and succeed to Sandhills Dune Prairie. (Terrestrial Natural Communities of Nebraska, Version III – June 30, 2003 by Gerry Steinauer)

Dry-Mesic Sand Prairie plant community can be found along the Dry Creek area, Gracie Creek and along the southwestern portion of the reservoir. This community is dominated by variable assemblage of tall and mid grasses, most commonly porcupine grass, little bluestem and Indian grass. In some sties spring panicums or hairy fimbry are also abundant. In moister areas and at the margins of wet meadows switchgrass and scattered wet meadow species may be common. Species typical of Sandhills Dune Prairie such as prairie sandreed and sun sedge may be common on the drier margins. In hayed meadows, a short-grass layer of blue grama is sometimes present. Shrubs are usually uncommon, especially in hayed sites. Lead plant, dwarf prairie rose, and prairie willow are locally common. Forb density and diversity is often very high, and usually no one species is particularly abundant, with exception of field pussytoes. Other forbs sometimes associated with these sites include western ragweed, stiff sunflower, frostweed, clammy groundcherry and stiff goldenrod. Many species typical of the surrounding communities are also seeded to or invaded by exotic cool-season grasses. Swales and abandoned stream channels associated with this community have a unique suite of species of uplands and wet meadows and deserve further study. (Terrestrial Natural Communities of Nebraska, Version III – June 30, 2003 by Gerry Steinauer).

Calamus Reservoir vegetation contains examples of Tallgrass Prairie community but to a lesser degree as described in Terrestrial Natural Communities of Nebraska.

Sandhills Freshwater Marsh community is associated with valleys and low areas, scattered throughout the sandhills prairie. The marshes are relatively small, 1 to 5 acre in size and are tied to the hydrologic conditions associated with the reservoir.

The vegetation consists primarily of emergent hydrophytic macrophytes to 2 m tall, usually with a submersed aquatic layer in area flooded most of the season. Species composition is highly variable in response to hydrologic regime and soils. Species diversity is low, but higher than in Sandhills alkaline wetlands. Two intergrading zones can be recognized:

1) Bulrush/cat-tail zone – occurs in areas flooded most of the season and is dominated by aquatic macrophytes 2 m tall, with hard stem bulrush usually dominant and common cattail increasingly common in areas of deeper water. Scattered patches of reed may be present, but are seldom common. Common arrowhead may be found in a sparse understory layer, but is often locally dense in openings in the overstory, and in deeper water with cattails at the margin of the permanent water line. Openings among the dominants are frequently occupied by arrowhead, with lesser amounts of bur-reed, swamp smart weed, and ripgut sedge. Submersed rooted and free-floating aquatics are often present among the emergents.

2) Reed zone- occurs in areas that are seasonally flooded and are dominated by common reed 2-3 m tall. Patches of reeds may spread extensively during periods when the water table is low. Understory vegetation is usually sparse in the dense stands of reed and consists of rice cutgrass, smartweeds, and beggarticks. Scattered bulrushes and arrowhead may also be present along with other plants of the bulrush/cattail zone. This zone may be quite extensive in the upper ends of some Sandhills lakes and degraded fens. (Terrestrial Natural Communities of Nebraska, Version III – June 30, 2003 by Gerry Steinauer).

The vegetation along the Calamus River is dominated by indigo bush, willows, cattails, ferns, and rushes. Plant communities in the subirrigated sites along the river consist of prairie cordgrass, blue joint reedgrass, northern reedgrass, slender wheatgrass sedges, rushes, and forbs. In some areas, exotic and introduced grasses such as smooth bromegrass, reed canary and creeping foxtail are evident.

Along the reservoir shoreline dense, young, stands of cottonwoods dominate with willow, dogwoods and indigo is bush evident. Much of the understory is flooded when it is at full pool before irrigation draw down in early summer. In the wetter areas the understory consists of prairie cordgrass, reedgrasses, sedges, rushes, and smart weed. Cockleburs have been increasing on the sand/mud flats that are exposed during draw down. This annual plant is starting to dominant this area. Smooth brome grass and eastern red cedar are abundant in the drier locations. Old dead standing cottonwoods are scattered through-out the woodlands along the shoreline. Down timber is common in the understory.

TREE & SHRUB PLANTINGS

Reclamation planted numerous shelterbelts on Calamus Reservoir; most are located between reservoir shoreline and the paved road that runs on the north and south side of the reservoir. Tree species planted include: eastern red cedar, green ash, jack pine, Russian olive, hackberry, honey locust, mulberry, ponderosa pine, diamond willow, golden willow, Scotch pine and bald cypress planted along the shoreline. Shrub species planted include: American plum, skunkbush sumac, sandcherry, caragana, and chokecherry.

Wildlife Habitat Management

Sandhills prairie evolved under a disturbance ecosystem in which the primary driving force was periodic fire and periodic grazing by native ungulates. The natural plant community's productivity and health are tied to these disturbances. The lack of these ecological disturbances within this ecosystem has reduced the vigor and competitive edge of the native plants. This has allowed introduced, exotic and invasive plant species to gain a foothold within the native plant communities. This has led to degraded native habitats which have a negative impact on wildlife populations. Habitat management techniques that mimic these disturbances will increase the productivity on the native sandhills grasslands thus enhancing wildlife habitat, wildlife populations and wildlife-related recreational opportunities.

This WMA and reservoir are located within a biologically unique landscape (BUL) referred to as a Sandhills Ecoregion identified in the Nebraska Natural Legacy Plan. (Schneider et al. 2005). Priorities identified in the plan include protecting at-risk plant and animal species and conserving biodiversity.

Due to NG&PC staffing and budget limitations management techniques outlined in this plan are the highest in priority.

Management of Functional Native Habitats

PRESCRIBED BURNING

This technique will be used to manage habitat only when and where it can improve wildlife productivity on an area. The objective will be to manipulate vegetation to obtain desirable nesting, brood rearing and winter cover. In order to mimic historic fire regimes prescribe burning will be implemented mainly during the early spring through late summer. Historically fires did occur during fall and winter on the grasslands. However, fires during this time of the year could negatively impact vegetation due to climatic and soil conditions that exist on the area.

Plant succession has advanced to a state that can inhibit wildlife production. Proper burning under predetermined conditions will set back plant succession. This will allow a more desirable species composition including native grasses, annual grasses, forbs, and legumes to reappear in the plant community. Fire will suppress smooth bromegrass and Kentucky bluegrass which are invaders in a native sandhills prairie. Native warm season grasses react positively to a controlled burn. Seed production, tilling, plant vigor and competitiveness of native grass species are increased as a result of a burn. After a burn the recycling of available minerals and nutrients in the soil are enhanced and the soil will warm more rapidly in the spring.

Native shrubs and trees are fire tolerant. Fire will cause the regeneration of over mature native shrubs. The use of fire will control and suppress woody invaders such as eastern red cedar, elm, Russian olive and cottonwoods.

Prescribed burning has proven to be a valuable habitat management tool that is both effective and economical. In order to achieve an effective burn certain factors must be taken into account. These factors include objectives, time of year, temperature, relative humidity, wind direction and velocity, residual cover, wildlife impacted and safety. All of these factors are considered when using burning management. Burning tracts will be established within the unit to facilitate effective management. Description of tracts will be based on acres, natural fireguards, terrain and establishment of firebreaks. These tracts will allow a burn/rest rotation to be established which will provide a diversity of different cover types within the unit. Each tract will be burned once every 4 to 8 years. Tree and shrub plantings will be protected.

GRAZING MANAGEMENT

The main threats to the native sandhills grasslands are smooth bromegrass, Kentucky bluegrass, eastern red cedar and to some extent cheatgrass. Management will be geared toward suppression and/or elimination of these invader species. Grazing management when implemented properly can be an effective habitat management technique. Grazing can reduce plant density, remove the dead litter layer, improve plant vigor, limit or enhance plant succession. Livestock utilization will incorporate seed into the soil through hoof action and maintain or improve desired plant species composition and communities. In some areas, due to the lack of hoof compaction soil has become soft and easily disturbed which can lead to an increase in vulnerability to wind erosion.

Certain factors related to grazing that impact vegetation are timing, intensity and duration. The vegetation response to grazing can be positive or negative. This technique can have a cumulative effect over a number of seasons and can change from a positive to a negative effect. Monitoring of the program will be done to prevent negative vegetation responses. On private ground most grazing systems involve season long grazing based on so many months (varying from 4 to 6 months) related to AUM's or number of head.

Due to an exclusion of native ungulates, the result has been the increased presence of smooth bromegrass, Kentucky bluegrass and eastern red cedar in the species composition. The season long grazing system on surrounding private ground, leaves little if any residual cover is present. The presence of residual cover is very important for nesting greater-prairie chicken and sharp-tailed grouse.

When implementing a grazing system timing is critical. A properly designed system can suppress smooth bromegrass and Kentucky bluegrass, cause a positive change in plant species composition and increase plant species diversity in forbs, annuals, native grasses and woody species. The grazing system will encompass a short duration and high intensity system in early spring. This type of system mimics the grazing regime of the bison when they grazed the prairies in the past. A large herd of bison would move into an area, graze the vegetation then move on. It might be a number of years before the bison would return to graze the same area. This gave the vegetation time to recover from the bison disturbance. The native prairie community evolved under this type of grazing impact. A periodic summer, fall or winter grazing may be an option. This change in timing will help to encourage changes in species diversity composition that is not realized if the grazing is applied only in the spring.

Burn and prescribe grazing tracts will be evaluated. Units that still have a high component of bromegrass, Kentucky bluegrass and eastern red cedar in the species composition or in areas where fire or grazing is not feasible may require implementation of other types of management. A more aggressive habitat manipulation maybe required on native grasslands.

PATCH-BURN GRAZING

Patch-burn grazing is a new concept in managing prairies. It is based on the reintroduction of the relationship between fire and grazing ungulates that existed historically in the prairie ecosystem. The use of this technique will create a patch-work of different cover type's thus increasing structural heterogeneity within the landscape. This structural heterogeneity is important in increasing native flora and fauna diversity in the prairie. Recent research has indicated that patch-burn grazing increases insects, forbs and grassland birds compared to other grassland management techniques.

HAYING: Rotational/periodic haying can remove litter layer, promote plant species diversity and early plant succession. Haying dates will be determined based on vegetative management objectives.

CHEMICAL: There are a number of chemicals available that offer control on both grass and woody species. For instance a fall treatment of roundup is effective in controlling bromegrass and bluegrass. Tordon is an herbicide that is effective on red cedar trees. Herbicide treatments on functional native grassland communities will be closely monitored and scrutinized to ensure that native plants are not injured

MECHANICAL: Soil disturbance by light disking can be effective on smooth bromegrass and Kentucky bluegrass in creating early successional vegetation. Deep soil disturbance will be avoided on functional native grassland communities.

There are a number of machines on the market for cutting trees. For instance: a dynar saw and marshall saw. These machines are very effective on removing cedar trees. This option will be utilized to reduce cedar tree encroachment in areas. Also, hand cutting with the use of chain saws will be used. Commercial harvest of cedars for posts could be a possibility.

SEEDING NATIVE GRASSES, LEGUMES & FORBS: A high diversity native species seeding to supplement plant species diversity in already existing native grasslands is an option on this WMA. Establishment practices include: light disking/seeding, chemical suppression/seeding & sod seeding.

Management of Degraded Native Habitats

COMPROMISED NATIVE HABITATS: Remove invasive plant species, plant food plots or use a cropping system to meet objectives, maintain 25% of total disturbed sites to early successional on annual basis, convert grasslands to grass/forb mix by cropping, chemical burn-down and interseeding, do not introduce invasive plant species

CHEMICAL: Use of herbicides to eradicate and/or suppress vegetation in order to create early successional vegetation

MECHANICAL: Light and/or deep tillage to create early successional vegetation, and maintain food plot management. (See Food Plot Map)

SEEDING NATIVE GRASSES, LEGUMES, FORBS & INTRODUCED LEGUMES: Converting disturbed sites to early successional vegetation in a prepared seed bed, light disking/seeding, chemical suppression/seeding, and/or sod seeding.

Past Management Activities

AERIAL JAPENESE MILLET SEEDINGS: Aerial seedings of millet was initiated in 1987 and concluded in 2005. The purpose was for bank stabilization, fish spawning habitat & food source for waterfowl during migration. The seedings took place during the month of July with 2500 to 3000 lbs of seed deposited at the west end of the reservoir when the sand/mud flats were exposed during summer draw down. Approximately 75 to 100 acres were seeded annually. Aerial seeding was discontinued due to increased competition from cockle-bur, cottonwoods and other vegetation that reduced seed establishment significantly.

NOXIOUS WEED MANAGEMENT: Nebraska Game & Parks Personnel monitors and controls noxious weed infestations on an annually basis during the spring, summer and fall. In 2007 to present, a noxious weed contractor has been assisting with noxious weed control work along the Dry creek portion of the area.

PRESCRIBE FIRE MANAGEMENT: A spring prescribe fire program was initiated in 2000 with 120 acre burn on the northwest portion of the area. This tract was burned again in 2008. In 2007 a 70 acre burn was conducted along the north side. A wildfire swept across the area on February 23, 2002 and burned approximately 150 acres on the southwest portion of the Calamus Reservoir.

GRAZING MANAGEMENT: Grazing program was initiated in 1997 on Calamus Reservoir. Currently, the pasture rotation systems incorporate the portions of the area that lies along Dry creek and north of Hwy #96. Grazing management is again planned for 2009. The table below outlines past grazing management.

Unit	Year	# Acres	Treatment	In Date	Out Date	AUMs
1A	1997	160	SGT	May 5	May 16	116.6
2A	1997	160	SGT	June 1	June 30	96.6
2A	1998	160	SGT	May 10	May 24	69.6
1A	1998	160	SGT	May 25	June 15	105.5
5A	1999	185	SGT	May 12	May 21	45
3A	1999	194	SGT	May 22	June 9	98.7
5A	1999	185	SGT	June 10	June 16	31.2
3A	2000	194	SGT	May 12	May 28	67.6
5A	2000	185	SGT	May 29	June12	67.6
2A	2001	160	SGT	May 1	May 28	51
1A	2001	160	SGT	May 29	June 26	52.7
1A	2002	160	SGT	May 7	June 28	76.5
B1	2002	165	SUGT	Aug. 17	Sept. 13	102.0
2A	2003	160	SGT	May 15	June 23	63.6
2B	2003	400	SGT	May 4	June 4	202.5
3A	2006	160	SGT	May 15	June 15	103.4
1A	2006	160	SGT	May 16	May 30	44.6
2A	2007	160	SGT	May 15	June 15	103.3

SGT = Spring high intensity short duration treatment; SUGT = Summer high intensity short duration treatment.

MANAGEMENT OBJECTIVES AND STRATEGIES

GOAL: PROVIDE OUTDOOR RECREATIONAL AND EDUCATIONAL OPPORTUNITIES WHILE PROTECTING, ENHANCING, AND SUSTAINING DIVERSE WILDLIFE, FISH AND PLANT RESOURCES. (Focusing on the Future, A Plan for Nebraska's Fish, Wildlife and Parkland Resources, 1996)

Management Objective:	Control noxious weed populations including Canada thistle, purple loosestrife, leafy spurge, and musk thistle by reducing or maintaining at current population levels.
Strategy	A moderate infestation of noxious weeds exists in the Dry Creek portion of Calamus Reservoir. Integrated Pest Management will be implemented in order to control noxious weeds. IPM practices include chemical, biological, & mechanical control methods. (See attached strategic noxious weed plan)
Management Objective:	Suppress and/or eradication of but not limited, to smooth bromegrass, Kentucky bluegrass and eastern red cedar in order to enhance productivity of the native grasslands within 5 to 10 years.
Strategy	Use of prescribe fire to enhance productivity and diversity of the native grassland. Implementation of a grazing system in order to increase the productivity and plant species diversity of native sandhills grassland on Calamus Reservoir. A short duration with a high intensity grazing system rotations in which each pasture will have at least two years of consecutive rest. Implementation of patch-burn grazing management in to the landscape. Use of mechanical, chemical and/or prescribe fire to remove eastern red cedar trees, smooth bromegrass and Kentucky blue from the grasslands.

Management Objective:	Improve native grassland productivity and vigor in order to provide quality nesting, brood-rearing and winter cover for Greater Prairie Chicken, Plains Sharp-tailed Grouse and other wildlife over the next 5 to 10 years.
Strategy	Create and enhance native plant diversity by the suppression and eradication of smooth bromegrass, Kentucky bluegrass and eastern red cedar by prescribe fire, grazing management, patch-burn grazing, mechanical methods and plantings. Promote and create early/intermediate succession vegetation through the use of chemical and/or mechanical methods. Maintain, remove or renovate established tree and shrub plantings. Shrub rows and/or plantings will not be removed. Enhance native woody plant species diversity by the use of prescribe fire, grazing management, patch-burn grazing, chemical and mechanical methods. Create and maintain adequate structural heterogeneity of vegetation through manipulation/disturbance rotation.
Management Objective:	Implementation of habitat management in order to mitigate extreme weather impacts on Mule Deer, White-tailed Deer and other wildlife within 10 years.
Strategy	Establishment of grazing, prescribe fire and patch-burn grazing rotations that will provide a diversity of forbs and shrubs in early successional stages in the grasslands.
Strategy	Enhance native woody plant species diversity by the use of prescribe fire, grazing management, patch-burn grazing, chemical and mechanical techniques to provide thermal and escape habitat.

Biodiversity Conservation Objective	Monitoring, renovation and development of natural plant communities to enhance utilization by T & E species and other wildlife.
Strategy	To enhance competitive advantage of natural plant communities to prevent introduction and/or expansion of introduced, noxious and invasive species through the use of prescribe fire, grazing, patch-burn grazing, mechanical & chemical habitat management techniques.
Strategy	To the extent possible, monitor and inventory T & E species utilization and/or establishment.
Recreation Objective	Enhance recreational opportunities through adequate signing and maintain public use facilities on the area.
Strategy	Maintain and replace boundary signs when conducting annual fence maintenance or when performing other duties.
Strategy	Maintain and replace signage in parking lots.
Strategy	Coordinate with conservation officers and local authorities to reduce vandalism and littering.
Outdoor Education Objective	Encourage outdoor education on WMA's.
Strategy	Maintain Bald Eagle viewing Kiosk and parking lot.
Strategy	Inform the general public about educational opportunities on WMA's through local events & educational programs.
Infrastructure Maintenance Objective	Develop and modify boundary fence to a standard that controls livestock trespass while facilitating big game movement.
Strategy	When possible, consult with adjoining landowner to apply fenceline guidelines and specifications that are designed for big game movement (See appendix fence guideline). Modify existing fences to meet guidelines when conducting general fence maintenance.

Prepared By: Mark Feeney, Fish & Wildlife Biologist II, Sherman Reservoir
and Jim Conn, Coordinating Wildlife Biologist, Myrtle Hall WMA. March 2009

Approved By: Ben Rutten, District II Manager, Bassett District Office. March 2009.

STRATEGIC PLAN FOR NOXIOUS WEED MANAGEMENT ON DISTRICT II WMA'S

INTRODUCTION

Calamus Reservoir WMA is managed by the District II Wildlife Division of Nebraska Game & Parks Commission and consists of 4,818 acres which is located in Loup/Garfield Counties.

Calamus Reservoir has infestations of musk thistle, leafy spurge, purple loosestrife, and Canada thistle at the present time. These noxious weeds are all aggressive invader species that are designated as a noxious weed by the Director of the Nebraska Department of Agriculture, under the Nebraska's Noxious Weed Control Act.

The Nebraska Game and Parks Commission acknowledge and accept responsibility to comply with the Noxious Weed Control Act. However, this responsibility must be compatible with the Agency's primary responsibility of conserving Nebraska fish and wildlife and the protection of the environment. There are certain habitats and/or situations on Calamus Reservoir where noxious weed controls can be effective. However, there are certain control methods that may damage existing habitat or are not effective.

Goal 1. Provide for open lines of communication and cooperation with the Loup County and Garfield County noxious weed control authority and the Nebraska Department of Agriculture.

Strategy

1. Cooperate with the Loup County and Garfield County Weed Superintendents in delineating problem areas and soliciting advice on appropriate noxious weed control measure.

2. Respond to reports of uncontrolled noxious weed infestations received from Loup or Garfield County Weed Control Authority.

Goal 2. Map all leafy spurge infestations on Calamus Reservoir with reasonable mapping standards.

Strategy

1. All known leafy spurge sites will be identified with GPS coordinates and plotted on a map.

Goal 3. Locate and treat leafy spurge, purple loosestrife, Canada thistle or musk thistle plants that are directly encroaching onto private land.

Strategy

1. District II Wildlife personnel will spray those areas with approved herbicide.

2. Develop reasonable contracts with private companies to treat and/or assist us to treat infested areas using ground equipment.

3. Use mechanical control methods on accessible plants that are encroaching onto private land.

Goal 4. Manage musk thistle, Canada thistle, purple loosestrife, and leafy spurge on accessible upland areas on Calamus Reservoir.

Strategy

1. Treat accessible musk thistle, purple loosestrife, Canada thistle and leafy spurge on upland sites with spring and/or fall herbicide applications using ground spraying equipment.

Goal 5. Designate specific areas for possible biological control where it is feasible and/or applicable with other control methods.

Strategy

2. Identify certain areas that are most suited for establishment of biological control.

3. These sites will be monitored to determine its effectiveness in reducing the targeted noxious weed species.

4. The biological control sites will be protected from spraying of herbicides.

The Nebraska Game and Parks Commission will utilize the herbicide recommendations of the University of Nebraska contained in the annual Nebraska Cooperative Extension publication EC-130, Herbicide Use Guide in Nebraska and cooperative Extension NebGuide 680-590-A. Any herbicide usage that is different from these recommendations must be in compliance with the requirement of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), and not to exceed the rates specified on the label. Additionally, the herbicide utilized must be registered for that use by the Federal Environmental Protection Agency (EPA) and the Nebraska Department of Agriculture.

Mark Feeney, Fish & Wildlife Biologist II, Sherman Reservoir, January 15, 2003

APPENDIX

FENCE GUIDELINES TO FACILITATE BIG GAME MOVEMENT

Fence design and wire spacing from ground
(bw = barbed wire, st = smooth twisted wire, se = smooth electric wire)

Boundary and Right of Way Fence

4-Wire fence = 16" st, 23" bw, 30" bw, 42" bw

No woven wire

Interior Management Fence

1-Wire electric fence = 25" bw or se (electrified)

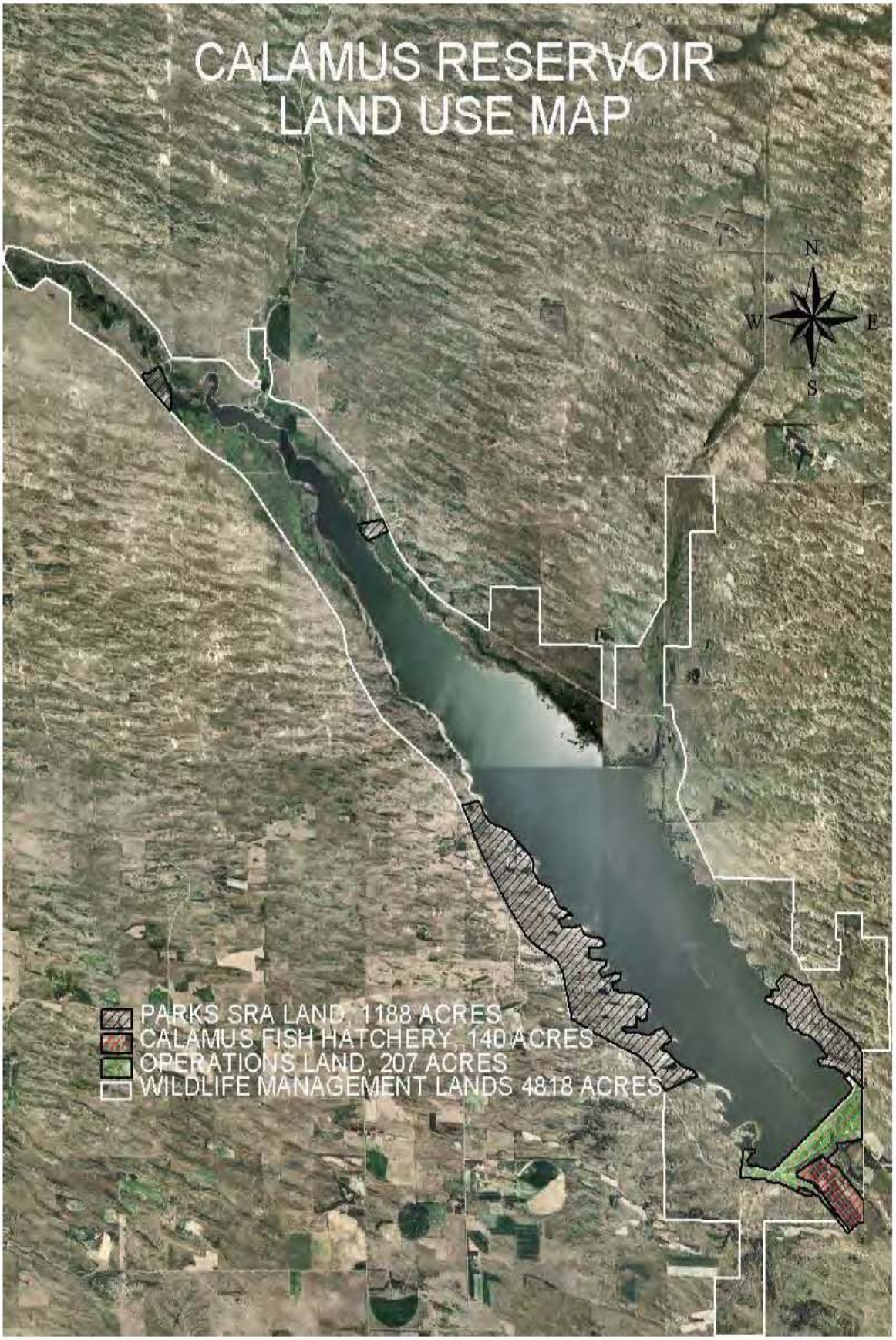
2-Wire electric fence = 20" se (ground wire), 30" bw or se (electrified)

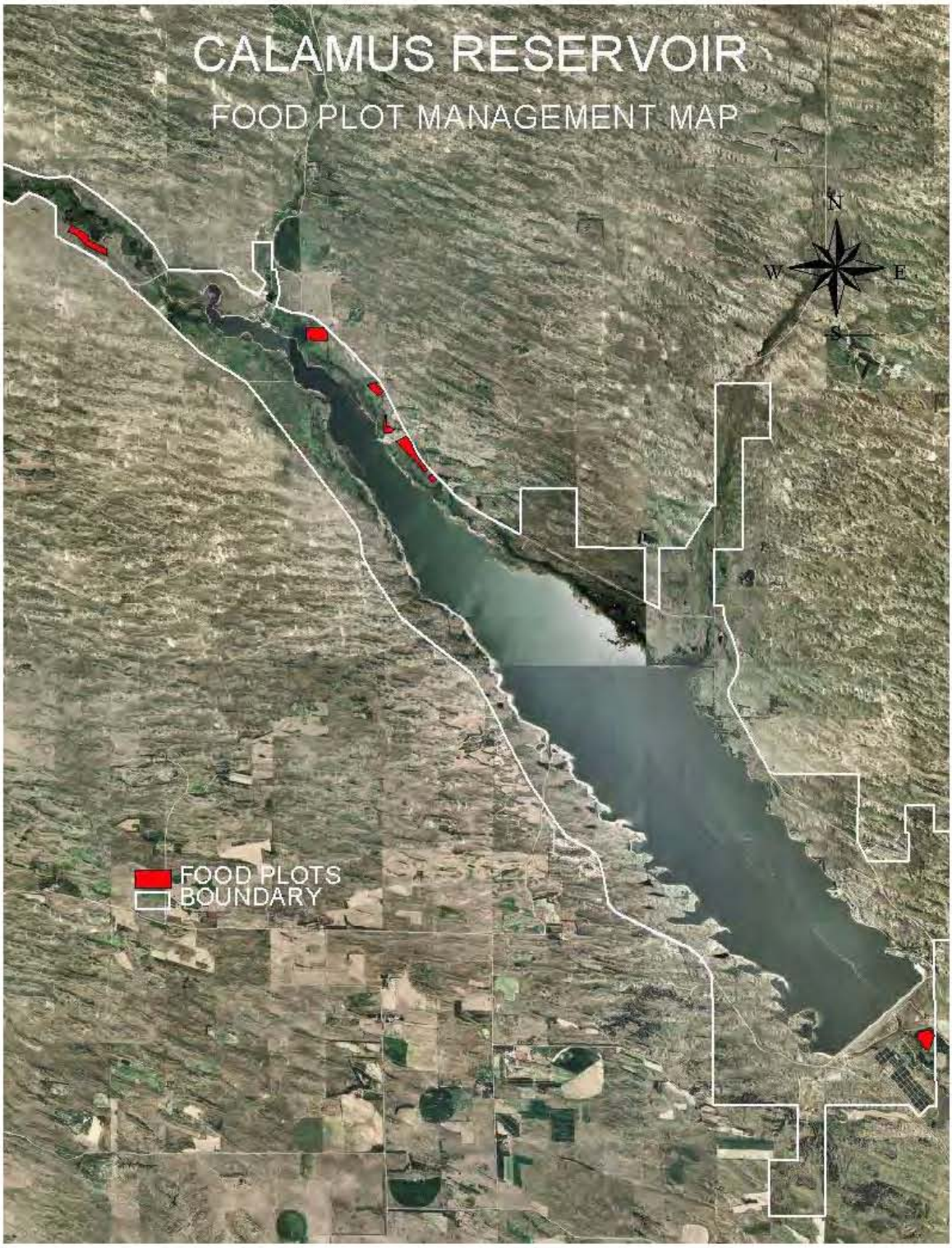
3-Wire electric fence = 22" se (electrified), 32" se (ground wire), 40" – 42" bw or se (electrified)

No Woven Wire

These guidelines are modified from the following reference and are designed to hold cattle while allowing safer and easier movement of big game. If needed, consult the reference below for additional guidelines on fencing domestic sheep while facilitating big game movement.

Karhu, R. 2004. Fencing guidelines for wildlife. Habitat Extension Bulletin No. 53, Wyoming Game and Fish Department, Cheyenne. 12pp.


CALAMUS RESERVOIR
LAND USE MAP
N
W
E
S
PARKS SRA LAND, 1188 ACRES
CALAMUS FISH HATCHERY, 140 ACRES
OPERATIONS LAND, 207 ACRES
WILDLIFE MANAGEMENT LANDS 4818 ACRES


CALAMUS RESERVOIR
FOOD PLOT MANAGEMENT MAP
N
W
E
S
FOOD PLOTS
BOUNDARY

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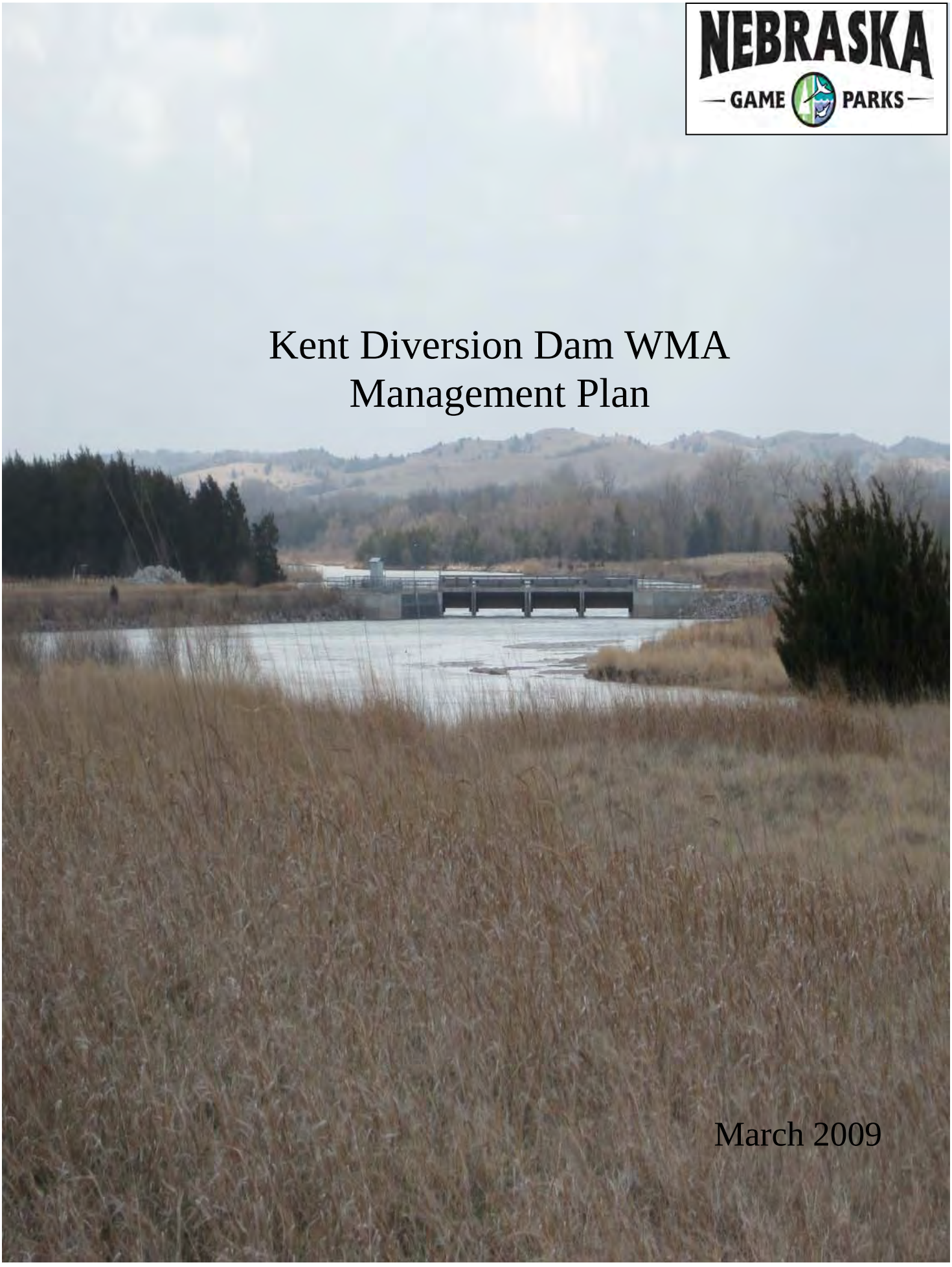

Kent Diversion Dam WMA
Management Plan

March 2009

Introduction

Kent Diversion Wildlife Management Area (WMA) is located approximately 6 miles east of Taylor on the North Loup River in Loup County, Nebraska. In 1976 construction of North Loup Division facilities began and were completed in 1994. Kent Diversion is included in the North Loup Division project. Twin Loups Irrigation District out of Scotia, Nebraska is responsible for management of the water distribution system.

The area encompasses a total of 194 acres; 114 acres are designated as WMA which is managed by Nebraska Game and Parks Commission. The Twin Loups Irrigation District manages 80 acres which is designated as operation lands. Access to the area is from State Hwy #91 on the south and a county graveled road on the north.

This management plan applies only to the WMA and focuses on terrestrial resources and management.

The management direction in this plan may be amended, modified, deleted or expanded in the future as a result of new information, changing management priorities or public input.

Site Description

Climate

The climate of Kent Diversion area is sub-humid, marked by seasonal fluctuations in temperatures ranging from a minimum of -34 F to a maximum of 112 F. The average daytime high temperatures ranges from 23 F to 85 F. The average growing season is 150 days which extends from late April to early October. Annual precipitation averages about 24 inches. (Calamus Reservoir Resource Management Plan, Bureau of Reclamation, 2009)

Soils

Soils in this area have been developed from sandy eolian & alluvium material. Soils consist of deep, poorly drained and very poorly drained, permeable soils associated with the river and subirrigated meadow. On the drier upland sites soil consists of deep, excessively drained and rapidly permeable.

Water

The main water source for wildlife use is the North Loup River.

Threatened, Endangered and Other At-Risk Species

Western prairie fringed orchid and wolf spikerush could exist on the area. (Tier 1 species, Nebraska Natural Legacy Project) The area has not been surveyed for the Western prairie-fringed orchid.

The bald eagle and golden eagle are still protected under Bald & Golden Eagle Protection Act. Recently the bald eagle has been de-listed as a federally threatened species. Bald eagle and golden eagle can be observed on the area during waterfowl migration.

The Whooping crane is a spring and fall migrant through Nebraska. No confirmed sightings of the whooping crane utilizing the area have been reported. However, on Calamus Reservoir there have been two confirmed sightings of whooping cranes. Two adult cranes were observed in 1992. Two adults and one juvenile were sighted in 1997 for four days.

The river otter has been re-introduced into the Loup River system between 1986 and 1991. The North Loup River was not a release site. It is likely that the river otters are using the North Loup River. No confirmed otter sightings have been reported.

Other terrestrial Tier 1 species that may be utilizing or observed on the WMA include regal fritillary, American burying beetle, blandings turtle, long-billed curlew, bell's vireo, piping plover and trumpeter swan. (Tier 1 species, Nebraska Natural Legacy Project)

Recreation

Kent Division provides public access for fisheries opportunities on the North Loup River. Harvestable populations of game fish include: channel catfish and common carp.

This WMA provides opportunities for waterfowl hunting on the North Loup River below and above the diversion structure.

There are some hunting opportunities for white-tailed deer, wild turkey, plains sharp-tailed grouse and greater prairie chicken. Small game hunting opportunities include: ring-necked pheasant, bobwhite quail, morning dove, cottontail and fox squirrel can be found through-out the area.

Wildlife viewing opportunities are available during the bird migrations, especially during the spring. Species available to be observed include: ducks, geese, shorebirds, herons, hawks, song birds, sharp-tailed grouse, greater-prairie chicken, white-tailed deer, furbearers and turtles.

Infrastructure

The public use facilities include 2 parking lots on the north and one on the south side with .5 mile of graveled access road. Approximately 1.5 miles of boundary fence are located on the WMA which consists of standard 4-strand barb wire fence. There is a handicap accessible parking lot and fishing access available on the area.

Vegetation

Sandhills prairie that is associated with fine sandy loam soils that are located on the terraces on the south and north side of the North Loup River contains a good diversity of native plants. Plant species include: big bluestem, switchgrass, Indiangrass, sideoats grama, false sunflower, Illinois bundleflower, porcupine-grass, white prairie clover, Canada tickclover, whole-leaf rosinweed, black-eyed Susan, mountain mint and small white aster. Generally, the plant communities are in good shape; however, smooth bromegrass, eastern red cedar and Russian olive are evident. (Steinauer. 1999)

A small portion of the area south of the North Loup River represents a Sandhills wet meadow that is associated with peaty soils. Common plant species include: false indigo, common three square, prairie cordgrass, blue joint, mountain mint, interior sedge and northern reedgrass. Exotic grass plant species are not common. There is some woody encroachment into the grassland by eastern red cedar and Russian olive. (Steinauer. 1999)

The wetland plant community associated with the North Loup River contains a mix of marsh and wet meadow. Dominate plant species include: false indigo, sandbar willow, cattails, common arrowhead, blue joint, giant bur-reed, prairie cordgrass, sensitive fern, Emory's sedge, marsh fern, soft stem bulrush and winged loostrife. Reed canarygrass is present at this site. (Steinauer. 1999)

Wildlife Habitat Management

Sandhills prairie evolved under a disturbance ecosystem in which the primary driving force was periodic fire and periodic grazing by native ungulates. The natural plant community's productivity and health are tied to these disturbances. The lack of these ecological disturbances within this ecosystem has reduced the vigor and competitive edge of the native plants. This has allowed introduced, exotic and invasive plant species to gain a foothold within the native plant communities. This has led to degraded native habitats which have a negative impact on wildlife populations. Habitat management techniques that mimic these disturbances will increase the productivity on the native sandhills grasslands thus enhancing wildlife habitat, wildlife populations and wildlife-related recreational opportunities.

This WMA is located within a biologically unique landscape (BUL) referred to as a Sandhills Ecoregion identified in the Nebraska Natural Legacy Plan. (Schneider et al. 2005). Priorities identified in the plan include protecting at-risk plant and animal species and conserving biodiversity.

Due to NG&PC staffing and budget limitations management techniques outlined in this plan are the highest in priority.

Management of Functional Native Habitats

PRESCRIBED BURNING

This technique will be used to manage habitat only when and where it can improve wildlife productivity on an area. The objective will be to manipulate vegetation to obtain desirable nesting, brood rearing and winter cover. In order to mimic historic fire regimes prescribe burning will be implemented mainly during the early spring through late summer. Historically fires did occur during fall and winter on the grasslands. However, fires during this time of the year could negatively impact vegetation due to climatic and soil conditions that exist on the area.

Plant succession has advanced to a state that can inhibit wildlife production. Proper burning under predetermined conditions will set back plant succession. This will allow a more desirable species composition including native grasses, annual grasses, forbs, and legumes to reappear in the plant community. Fire will suppress smooth bromegrass and Kentucky bluegrass which are invaders in a native sandhills prairie. Native warm season grasses react positively to a controlled burn. Seed production, tilling, plant vigor and competitiveness of native grass species are increased as a result of a burn. After a burn the recycling of available minerals and nutrients back into the soil are enhanced and the soil will warm more rapidly in the spring.

Native shrubs and trees are fire tolerant. Fire will cause the regeneration of over mature native shrubs. The use of fire will control and suppress woody invaders such as eastern red cedar, elm, Russian olive and cottonwoods.

Prescribed burning has proven to be a valuable habitat management tool that is both effective and economical. In order to achieve an effective burn certain factors must be taken into account. These factors include objectives, time of year, temperature, relative humidity, wind direction and velocity, residual cover, wildlife impacted and safety. All of these factors are considered when using burning management. Burning tracts will be established within the unit to facilitate effective management. Description of tracts will be based on acres, natural fireguards, terrain and establishment of firebreaks. These tracts will allow a burn/rest rotation to be established which will provide a diversity of different cover types within the unit. Each tract will be burned once every 4 to 8 years. Tree and shrub plantings will be protected.

GRAZING MANAGEMENT

The main threats to the native sandhills grasslands are smooth bromegrass, Kentucky bluegrass, eastern red cedar and to some extent cheatgrass. Management will be geared toward suppression and/or elimination of these invader species. Grazing management when implemented properly can be an effective habitat management technique. Grazing can reduce plant density, remove the dead litter layer, improve plant vigor, limit or enhance plant succession. Livestock utilization will incorporate seed into the soil through hoof action and maintain or improve desired plant species composition and communities. In some areas, due to the lack of hoof compaction soil has become soft and easily disturbed which can lead to an increase in vulnerability to wind erosion.

Certain factors related to grazing that impact vegetation are timing, intensity and duration. The vegetation response to grazing can be positive or negative. This technique can have a cumulative effect over a number of seasons and can change from a positive to a negative effect. Monitoring of the program will be done to prevent negative vegetation responses. On private ground most grazing systems involve season long grazing based on so many months (varying from 4 to 6 months) related to AUM’s or number of head.

Due to an exclusion of native ungulates, the result has been the increased presence of smooth bromegrass, Kentucky bluegrass and eastern red cedar in the species composition. The season long grazing system on surrounding private ground, leaves little if any residual cover is present. The presence of residual cover is very important for nesting greater-prairie chicken and sharp-tailed grouse.

When implementing a grazing system timing is critical. A properly designed system can suppress smooth bromegrass and Kentucky bluegrass, cause a positive change in plant species composition and increase plant species diversity in forbs, annuals, native grasses and woody species. The grazing system will encompass a short duration and high intensity system in early spring. This type of system mimics the grazing regime of the bison when they grazed the prairies in the past. Large herds of bison would move into an area, graze the vegetation then move on. It might be a number of years before the bison would return to graze the same area. This gave the vegetation time to recover from the disturbance. The native prairie community evolved under this type of grazing impact. A periodic summer, fall or winter grazing may be an option. This change in timing will help to encourage changes in species diversity composition that is not realized if the grazing is applied only in the spring.

Burn and prescribe grazing tracts will be evaluated. Units that still have a high component of bromegrass, reed canarygrass, eastern red cedar and Russian olive in the species composition or in areas where fire or grazing is not feasible may require implementation of other types of management. A more aggressive habitat manipulation maybe required on native grasslands.

HAYING: Rotational/periodic haying can remove litter layer, promote plant species diversity and early plant succession. Haying dates will be determined based on vegetative management objectives.

CHEMICAL: There are a number of chemicals available that offer control on both grass and woody species. For instance, a fall treatment of roundup is effective in controlling bromegrass and bluegrass. Tordon is an herbicide that is effective on red cedar trees. Herbicide treatments on functional native grassland communities will be closely monitored and scrutinized to ensure that native plants are not injured

MECHANICAL: Soil disturbance by light disking can be effective on smooth bromegrass and Kentucky bluegrass in creating early successional vegetation. Deep soil disturbance will be avoided on functional native grassland communities.

SEEDING NATIVE GRASSES, LEGUMES & FORBS: A high diversity native species seeding to supplement plant species diversity in already existing native grasslands is an option on this WMA. Establishment practices include: light disking/seeding, chemical suppression/seeding & sod seeding.

Past Management Activities

HAYING MANAGEMENT: The 15 acre wet meadow located to the south of the North Loup River has been periodically hayed in the past. This area is usually hayed once every three to four years during the month of August. This site was hayed in 1997, 2000, 2002 and 2006. During 2001 & 2002 there was a period of very little rainfall which resulted in a shortage of hay in the state. Game & Parks administration requested that some WMA's be hayed in order to assist local landowners during the drought period. This was allowed under the condition that the treatment would not negatively impact the habitat. This is why the meadow was hayed in 2002. A 15 acre piece of grassland was also hayed north of the river in 1998 during the month of August.

NOXIOUS WEED MANAGEMENT: Nebraska Game & Parks Personnel monitors and controls noxious weed infestations on an annually basis during the spring, summer and fall.

Management Objectives and Strategies

GOAL: PROVIDE OUTDOOR RECREATIONAL AND EDUCATIONAL OPPORTUNITIES WHILE PROTECTING, ENHANCING, AND SUSTAINING DIVERSE WILDLIFE, FISH AND PLANT RESOURCES. (Focusing on the Future, A Plan for Nebraska's Fish, Wildlife and Parkland Resources, 1996)

Management Objective:	Control noxious weed populations including Canada thistle, purple loosestrife, leafy spurge, and musk thistle by reducing or maintaining at current population levels
Strategy	Integrated Pest Management will be implemented in order to control noxious weeds. IPM practices include chemical, biological, & mechanical control methods.
Management Objective:	Suppress and/or eradication of but not limited to smooth bromegrass, reed canarygrass, eastern red cedar & Russian olive in order to enhance productivity of the native grasslands within 5 to 10 years.
Strategy	Use of prescribe fire to enhance productivity and diversity of the native grassland Utilization of periodic grazing and haying in order to increase the productivity and plant species diversity of native sandhills grassland. Use of mechanical, chemical and/or prescribe fire to remove eastern red cedar trees & Russian olive from the grasslands.
Management Objective:	Improve native grassland productivity and vigor in order to provide quality nesting, brood-rearing and winter cover for Greater Prairie Chicken, Plains Sharp-tailed Grouse and other wildlife over the next 5 to 10 years.
Strategy	Create and enhance native plant diversity by the suppressing and eradication of smooth bromegrass, Kentucky bluegrass and eastern red cedar by prescribe fire, grazing management, mechanical methods and plantings.
Strategy	Promote and create early/intermediate succession vegetation through the use of chemical and/or mechanical methods.

Strategy	Enhance native woody plant species diversity by the use of prescribe fire, grazing management, chemical and mechanical methods.
Strategy	Create and maintain adequate structural heterogeneity of vegetation through manipulation/disturbance rotation.
Biodiversity Conservation Objective	Monitor, renovate and development of natural plant communities to enhance utilization by T & E species and other wildlife
Strategy	To enhance competitive advantage of natural plant communities to prevent introduction and/or expansion of introduced, noxious and invasive species through the use of prescribe fire, grazing, mechanical & chemical habitat management techniques.
Strategy	To the extend possible, monitor and inventory T & E species utilization and/or establishment
Recreation Objective	Enhance recreational opportunities through adequate signing and maintain public use facilities on the area
Strategy	Maintain and replace boundary signs when conducting annual fence maintenance or when performing other duties.
Strategy	Maintain and replace signage in parking lots.
Strategy	Coordinate with conservation officers and local authorities to reduce vandalism and littering.
Outdoor Education Objective	Encourage outdoor education on WMA's

Strategy	Inform the general public about education opportunities on WMA's through local events & educational programs
Infrastructure Maintenance Objective	Develop and modify boundary fence to a standard that controls livestock trespass while facilitating big game movement.
Strategy	When possible, consult with adjoining landowner to apply fenceline guidelines and specifications that are designed for big game movement (See appendix fence guideline). Modify existing fences to meet guidelines when conducting general fence maintenance

Prepared By: Mark Feeney, Fish & Wildlife Biologist II, Sherman Reservoir, March 2009

Approved By: Ben Rutten, District II Manager, Bassett District Office. March 2009

APPENDIX

FENCE GUIDELINES TO FACILITATE BIG GAME MOVEMENT

Fence design and wire spacing from ground
(bw = barbed wire, st = smooth twisted wire, se = smooth electric wire)

Boundary and Right of Way Fence

4-Wire fence = 16” st, 23” bw, 30” bw, 42” bw

No woven wire

Interior Management Fence

1-Wire electric fence = 25” bw or se (electrified)

2-Wire electric fence = 20” se (ground wire), 30” bw or se (electrified)

3-Wire electric fence = 22” se (electrified), 32” se (ground wire), 40” – 42” bw or se (electrified)

No Woven Wire

These guidelines are modified from the following reference and are designed to hold cattle while allowing safer and easier movement of big game. If needed, consult the reference below for additional guidelines on fencing domestic sheep while facilitating big game movement.

Karhu, R. 2004. Fencing guidelines for wildlife. Habitat Extension Bulletin No. 53, Wyoming Game and Fish Department, Cheyenne. 12pp.


Kent Diversion Dam WMA
Land Use Map
N
W
E
S
HWY #91
Parking Lots
Irrigation District Lands
Wildlife Lands

References

Steinauer, Gerry. 2003. Terrestrial Natural Communities of Nebraska (Version III June 30, 2003) pg. 117 to 125

Focusing on the Future, A Plan for Nebraska's Fish, Wildlife and Parkland Resources. July 1996.

Schneider, Rick., Mark Humpert, Kristal Stoner, Gerry Steinauer, 2005. The Nebraska Natural Legacy Project.

Steinauer, Robert. 1999. Wildlife Management Area Threatened and Endangered Species Inventory. Final Report.

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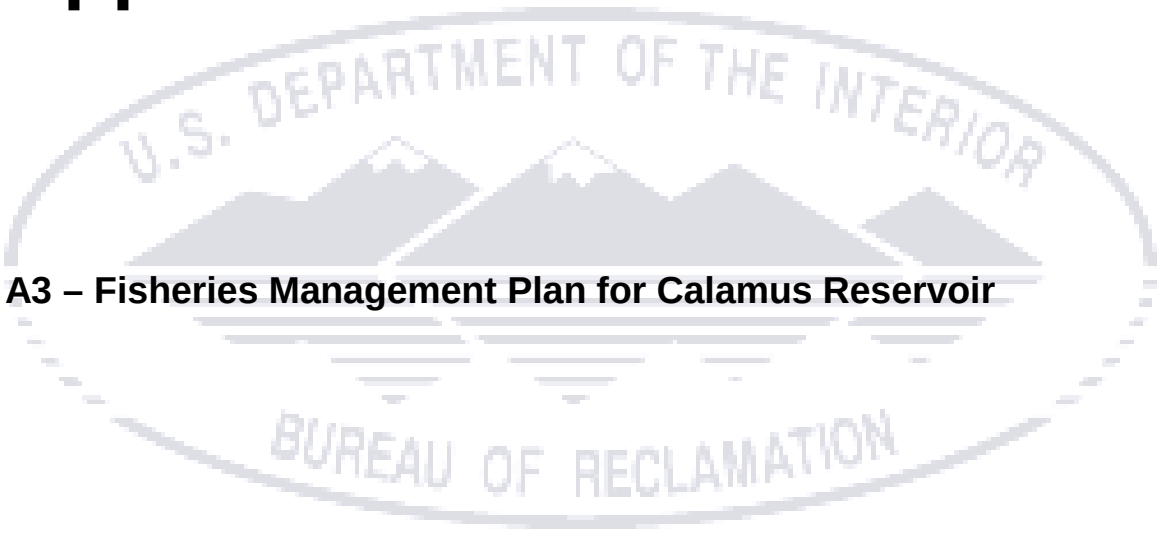
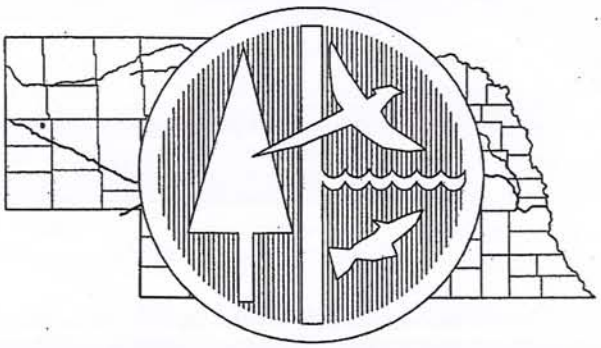
Appendix A3



A3 – Fisheries Management Plan for Calamus Reservoir

Management Plan
For
Calamus Reservoir

By
Joel Klammer
District 2 Supervisor
Bassett
September 7, 2000



Fisheries Division
Nebraska Game and Parks Commission

Fisheries Management Plan for Calamus Reservoir

Introduction

Calamus Reservoir is a 5280 acre water body impounded by Virginia Smith Dam. Completed in 1986, the dam and reservoir are features of the North Loup Division, Pick-Sloan Missouri Basin Program, within the Loup River drainage basin. The dam is a zoned, rolled earth fill structure on the Calamus River about 5.5 miles northwest of Burwell. The purpose of the project is to provide storage capacity for irrigation needs on the North Loup Division. The dam is owned by the Bureau of Reclamation with the irrigation system operated by the Twin Loups Irrigation District. The Nebraska Game and Parks Commission leases land surrounding the reservoir for recreational purposes. Six areas are operated and maintained by the Parks Division as State Recreation Areas. These provide recreational facilities including camp sites with amenities, boat ramps and fish cleaning stations. The Wildlife Division manages approximately 4860 acres around the reservoir as a Wildlife Management Area. This area provides public hunting, trapping and fishing opportunity. In addition, the Fisheries Division operates the Calamus Fish Hatchery on a 100 acre tract below the dam.

Project Operations

The North Loup Division is located in the Loup River drainage basin. Water is diverted from both the Calamus and North Loup Rivers for the irrigation of approximately 53,000 acres of project lands. Principal features of the division include Virginia Smith Dam and Calamus Reservoir, Kent Diversion Dam, Davis Creek Dam and Reservoir, five principal canals, one major and one small pumping plant and numerous open ditch and buried pipe laterals. Kent Diversion is located between Taylor and Burwell on the North Loup River. The primary function is to assist in filling Davis Creek Reservoir. Davis Creek Reservoir stores water for release into the Fullerton and Elba Canals.

Calamus Reservoir is normally held three to four feet below the top of conservation pool during the winter months. Maintaining the reservoir at this elevation during the winter helps avoid ice damage to the soil cement on the upstream face of the dam. After the ice clears in the spring, the reservoir is filled to conservation pool. The North Loup Division project operation is restricted to no water diversions from the Calamus and North Loup Rivers during the months of July and August, and also during the month of September whenever sufficient water is available in storage reservoirs to deliver canal design capacity. During this time, inflows to Calamus Reservoir are required to be bypassed under the Power Interference Agreement between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District and as required in the authorizing legislation. This results in relatively rapid declines in reservoir elevation during periods of high irrigation demand. Average summer draw down has been about 12 feet in elevation. This corresponds to about a 40% reduction in volume. In dry years, a drop of over 16 feet with a 60% reduction in volume can be expected. Following the irrigation season, the reservoir fills and is held at the winter level. Time required to fill is related to the prior seasons irrigation demand. However, inflows have been more than adequate to return the reservoir to full pool even in high demand years.

The Fishery

Overview

The initial filling of Calamus Reservoir provided ideal conditions for northern pike, carp and black bullhead. The flooded valley and grassland produced large populations of these species. While literally millions of largemouth bass, bluegill and yellow perch were stocked (Appendix 1), limited returns were seen. A brief fishery for largemouth bass occurred, but significant panfish populations failed to develop. As the reservoir quickly aged and the irrigation project was completed, habitat conditions favored open water species. Lack of shoreline vegetation due to annual irrigation draw down assured the limited success of bass, bluegill, perch and pike. In the late 80's and early 90's game fish populations were low and the few fish available were in poor body condition. To remedy this, gizzard shad were introduced as a prey species in 1993. Stocking of game fish concentrated on walleye, wiper, white bass, crappie and channel catfish during the next few years. As the shad became well established, game fish increased in numbers and condition. In 1995 Calamus began to emerge as a fishery and during the last half of the '90's was recognized as one of the top fisheries in Nebraska. In 2000 muskellunge were introduced into the lake to further utilize the shad population and hopefully create a trophy fishery in the future.

Fall gill net surveys have been standardized since 1993, although some variability in net locations is unavoidable due to variations in water levels at time of sampling. Additional sampling includes August beach seine for shad and fall electrofishing for young-of-year walleye. Trap netting was discontinued following the 1993 survey that yielded a catch of one fish per net. The low water levels during the fall sampling period result in very poor trap netting conditions.

Creel surveys have been conducted at Calamus in 1989-1991, 1995-1998, 2000 and 2001. The 1989-1991 creel was continuous, while the other years cover only the primary open water fishing season (May 1-Sept 30).

Walleye

Walleye are the primary sport fish in Calamus Reservoir and are well suited to this irrigation reservoir. The population is maintained through a stocking program as little preferred spawning habitat exists. An 18" minimum size limit is in effect with only one fish over 25" allowed in the daily bag. The objectives of the size limit are to provide high catch rates, increase the size of harvested fish while maintaining total weight of harvest, and to maintain a population of brood fish for egg take purposes.

In spite of annual stockings beginning in 1986, walleye numbers remained low through the early 1990's (Figure 1). Fry, fingerling and advanced fingerling were stocked at various rates with little success. In addition to the low numbers, condition of walleye was poor (Figure 2). Following the

Figure 1. Walleye Gill Net CPUE

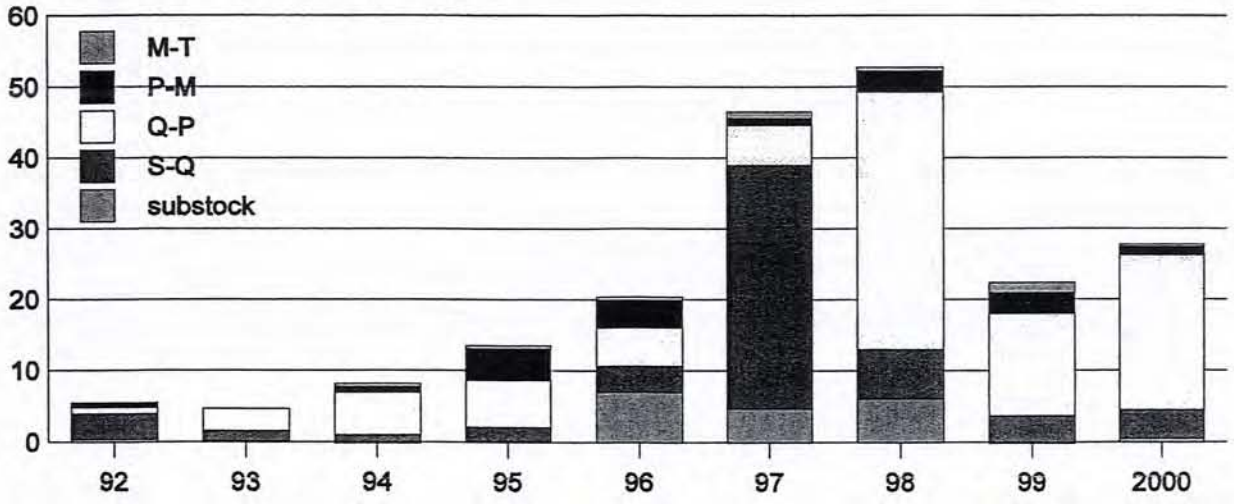
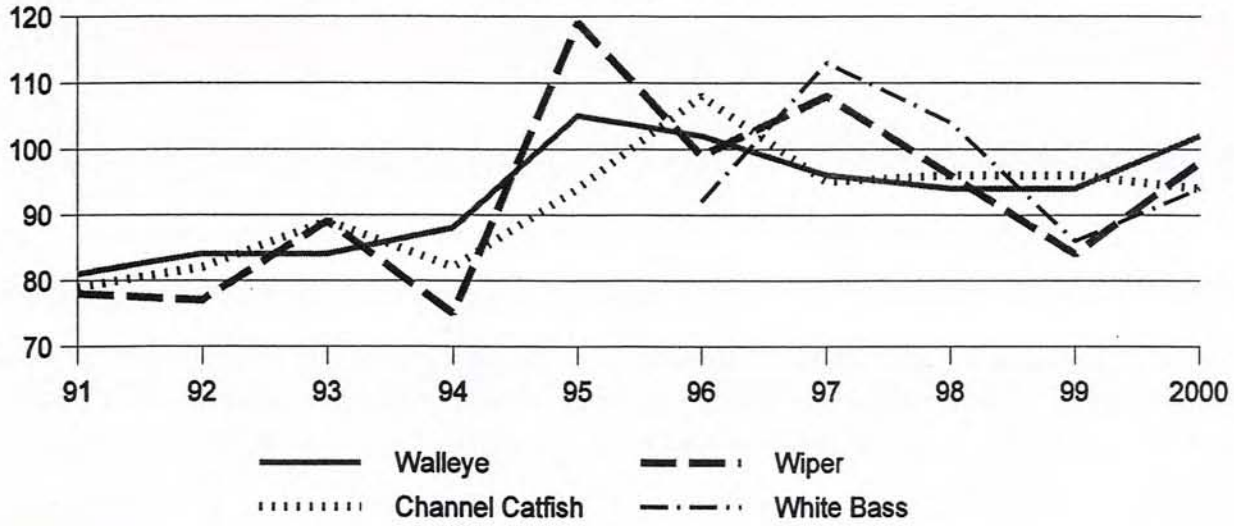
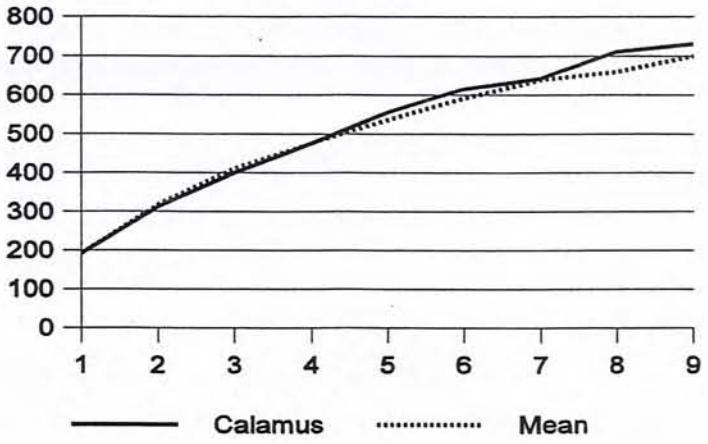


Figure 2. Calamus Reservoir Relative Weights



introduction of gizzard shad, walleye numbers and condition improved. Numbers showed a sharp increase from 1993 to 1998, fueled primarily by the very strong 1996 year class. The 1997 and 1998 gill net catch rates for walleye were some of the highest recorded in the state. As the '96 year class entered the legal harvest size, overall numbers dropped to a level that is probably more sustainable on an annual basis. Relative weights have increased from the low 80's to an average of near 100 over the past 6 years. With good condition factors, one would expect good growth rates. This is the case as growth is essentially equal to the statewide average* through age 4 and exceeds the average from ages 5 through 9 (Figure 3).

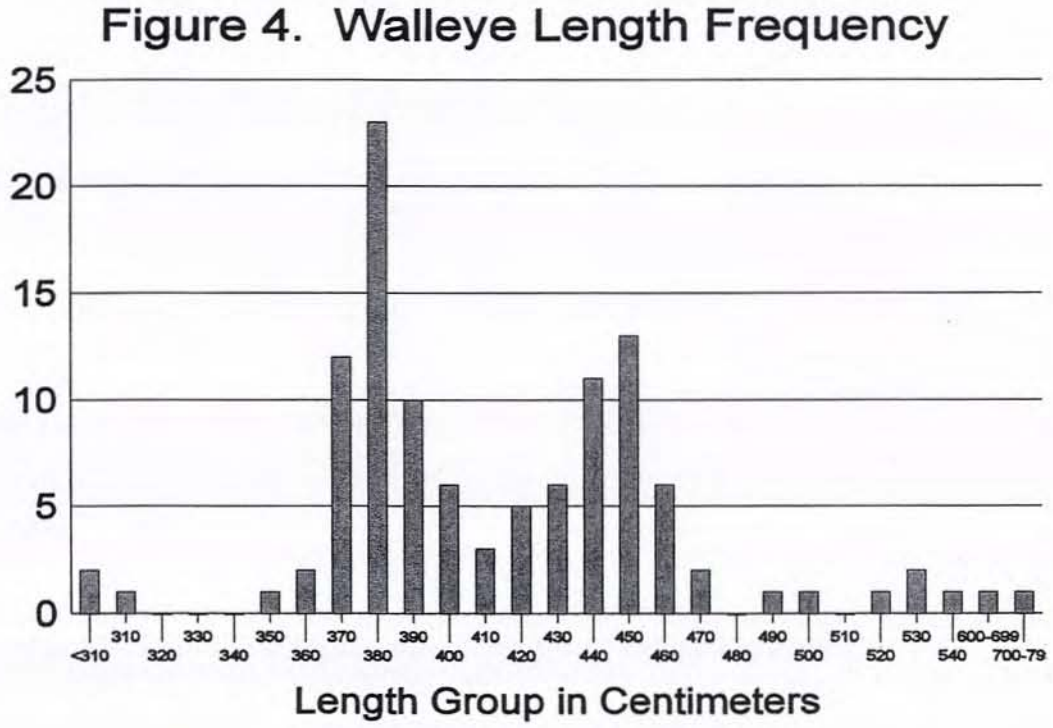
Figure 3. Walleye Growth



*Statewide average is average value for data collected from Irrigation and Power generation Reservoirs in Nebraska.

The walleye length frequency distribution for the 2000 survey sample is shown in Figure 4. The size distribution would suggest fairly heavy harvest based on the sharp reduction in numbers over the 18" (457mm) size limit. This does not create any real problems providing good recruitment is maintained. In this case, the '96, '97 and '98 year classes all show good recruitment and make up over 96% of the sample. The only negative at this point is the lack of the '99 year class. But it is normal to have weak year classes in the mix.

Calamus reservoir is part of a statewide project to evaluate our walleye stocking program. Preliminary results suggest that stocked fish make up a large portion of the year classes in Calamus. Since 1993 fingerling walleye have been stocked at rates of 20 to 100 per acre. The extremely successful 1996 year class was stocked at 50 per acre. This would suggest that 50 per acre is more than enough walleye to stock, although a final recommendation should wait until the study is complete (scheduled for 2002).



The 1996 through 2000 creel surveys show an average of 63% of the fishing effort at Calamus Reservoir is directed towards walleye. From 1995 to 2000, estimated fishing pressure on walleye grew from less than 9000 hours to nearly 80,000 hours. Estimated catch has likewise increased from 4,643 fish in 1995 to 87,284 in 2000. Table 1 summarizes the impressive growth of the walleye fishery as shown by the creel survey data. The 15 hours per acre of effort directed at walleye likely has a hand in creating the size distribution shown above.

	1995	1996	1997	1998	2000
Hours Effort	8833	24028	42852	49227	79198
% of Total Effort	35	66	65	57	63
Estimated Catch	4643	4100	23200	58739	87284
Estimated Harvest	1446	1462	2488	2301	7651
Catch/Hour (Sought)	.293	.139	.398	.660	.769
Harvest/Hour (Sought)	.077	.045	.041	.028	.083

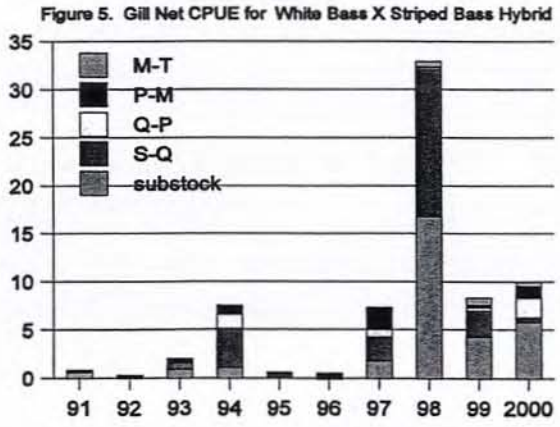
Table 1. Creel survey statistics for walleye in Calamus Reservoir.

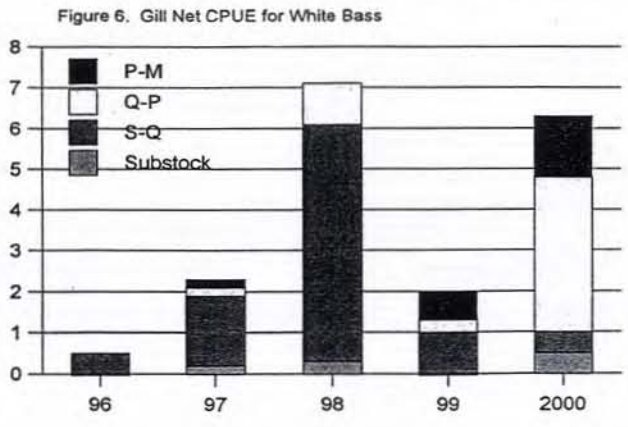
White Bass/Wiper

White bass and their Striped bass hybrids (wipers) are the other primary open water predators in Calamus Reservoir. Wipers were first introduced into Calamus in 1990. Annual stockings of about 25,000 fingerlings maintain the fishery. Similar to the walleye population, wipers did not thrive until gizzard shad became established. It was because of the poor condition of the wipers that white bass were not introduced until 1996. By this time the shad were well established and condition of the other primary game fish had improved (Figure 2). The current white bass population was established primarily through the stocking of a limited number of adult fish (Appendix 1). Prior to the introduction of white bass, a daily bag of 3 wipers was in effect. Due to the difficulty in identification, when white bass were introduced we switched to the statewide regulation of 15 in the daily bag with only one fish allowed over 18" long. Both "species" are currently found in good numbers and provide good fishing, particularly in the summer after walleye become difficult to catch.

Because of their schooling behavior, sampling data for Morone sp. can be quite variable. Figure 5 shows gill net catches for wipers, Figure 6 for White bass. Gill net catch for wipers

is generally slightly above the statewide average. Catches for white bass are slightly below





average. It is still early to predict what population level the white bass will occupy in Calamus. It is hoped the population will expand to fill the panfish void in the reservoir. Condition of both species dipped to the mid 80's in 1999 but rebounded to the mid 90's in 2000. Average Wr over the past 5 years has been 98 for white bass and 97 for wiper. Growth of wipers exceeds the statewide average for ages 1 through 3 (Figure 7). White bass growth is average for the first two years and then drops below average at age three (Figure 8). This would suggest that wipers have some advantage in Calamus, but sample sizes were limited, especially for older fish (none). One would hesitate to draw any firm conclusions from the age data until larger samples and older fish are obtained.

Figure 7. White Bass X Striped Bass growth rate

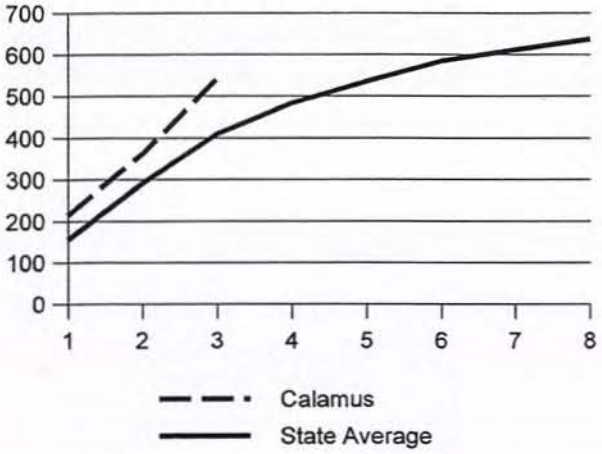
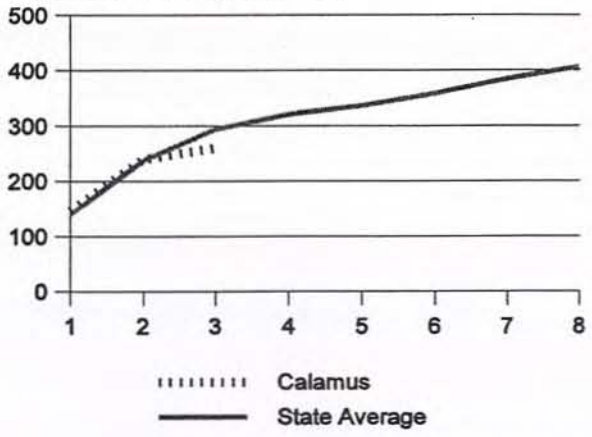


Figure 8. White Bass growth rates.



Creel data shows only a small percentage of fishing effort at Calamus is directed at wiper/White bass (1-3%). This is surprising since personal observations indicate many anglers targeting these fish in July and August. It may be that many of the generalists fishing for "anything" (25-30%) are indirectly targeting these fish. It may also be that the white bass population is "young" enough that it has not yet developed a following at Calamus. Increases in catch and harvest (Figures 9 and 10) indicate that anglers are utilizing this resource, on purpose or otherwise. The popularity of White bass at other reservoirs in Nebraska would suggest that future creel surveys will document more interest in these fish.

Figure 9. Estimated Number Caught

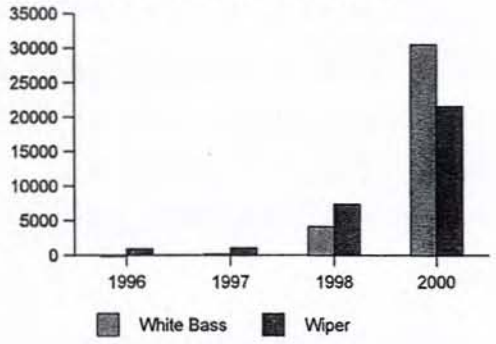
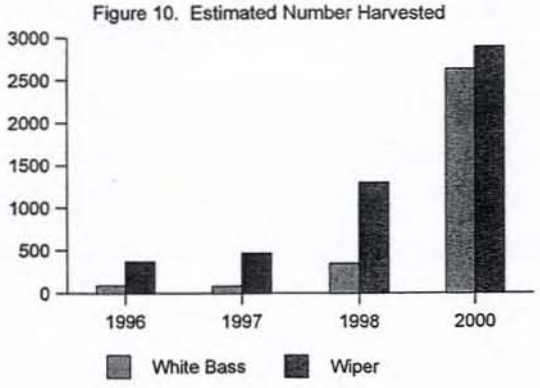


Figure 10. Estimated Number Harvested

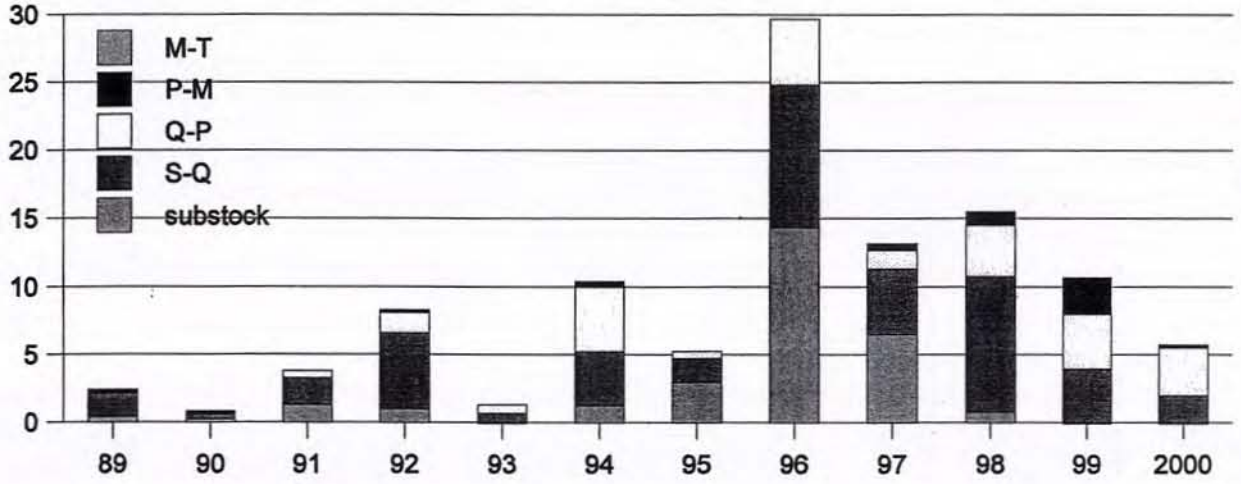


Overall the data suggest that White bass and wipers are expanding in Calamus. Gill net catches have been generally increasing. Relative weights and growth indicate good general health. The absence of many old fish and the sharp increases in catch and harvest indicate an expanding population. It will probably take a few more years for these species to stabilize in their niche.

Channel Catfish

A popular sport fish in Nebraska, Channel catfish are an important part of the Calamus Reservoir fishery. Found naturally in the Calamus River prior to impoundment, the population in the reservoir has been supplemented with the stocking of 8 to 10 inch fish. A moratorium on catfish stocking began in 1998 to determine if natural recruitment could sustain the population at desired levels. Young of the year catfish were commonly found during beach seine sampling for Gizzard shad. The question is whether these small catfish survive predation and recruit to the fishery. Gill net catch of channel catfish (Figure 11) shows a peak in 1996. However, this peak is

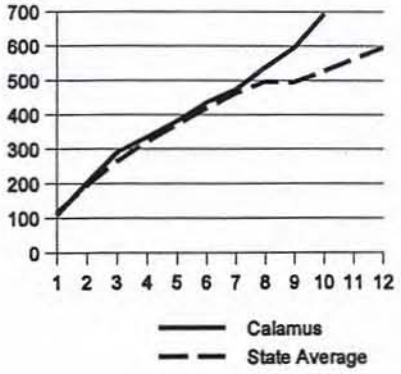
Figure 11. Channel catfish gill net CPUE



primarily the result of high numbers of substock fish. The 2000 survey does show a slight decline in catch compared to the previous 4 years. Also, no substock catfish were collected in the 1999 or 2000 surveys. It would appear that stocking of 8-10" yearling channel catfish may be necessary to maintain the desired population. Catch of stock length fish has met or exceeded the statewide average (6.0) in 6 of the last 9 years.

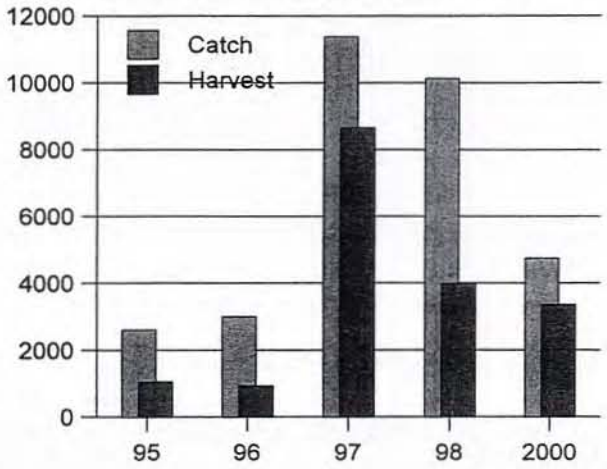
Condition of channel catfish (Figure 2) improved following the introduction of gizzard shad. Relative weights increased from an average in the mid 80's prior to 1995 to an average in the mid 90's over the past 6 years. This compares well with the statewide average of 92. Growth is slightly better than the statewide average through age 7 and then markedly faster through age 10 (Figure 12). Numbers, growth and condition indicate a healthy catfish population in Calamus Reservoir.

Figure 12. Channel Catfish Growth



Creel data shows catfish are second only to walleye in harvest number and weight. They were also the second most popular fish based on effort, with 7% of the anglers seeking channel catfish. Catch and number harvested are shown in Figure 13. Catfish anglers tend to be more harvest oriented as 30 to 76 percent of the annual catch was harvested. This compares with typical values of around 10 percent for walleye, wiper and white bass.

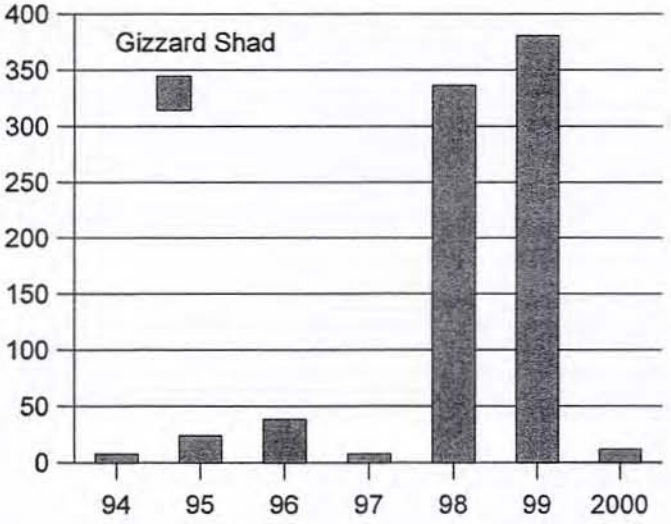
Figure 13. Channel Catfish catch and harvest numbers.



Gizzard Shad

As referenced several times, gizzard shad were introduced into Calamus Reservoir in 1993 (480 pre-spawn adults). The expansion of the shad population has keyed the growth of game fish numbers, growth and condition. Beach seine samples in August have documented annual recruitment (Figure 14). There does not seem to be any correlation between seine CPUE and predator condition. In fact, Wr's declined in '98 and '99 (Figure 2) when extremely high numbers of young-of-the-year shad were collected in the beach seine samples. It may be that seine samples best show a simple presence/absence, with relative numbers less important as compared to other species and sampling gear.

Figure 14. Beach Seine CPUE



Other Species

In addition to the species already discussed, gill net sampling in 2000 collected alewife, common carp, freshwater drum, river carpsucker and shorthead redhorse. Beach seine sampling collected fathead minnows, red shiners and emerald shiners in addition to gizzard shad. Northern pike, yellow perch, largemouth bass, bluegill, black crappie and black bullhead are also found in the reservoir. As previously mentioned, muskellunge were stocked in the spring of 2000. Of all these species, black crappie, yellow perch, carp and drum provide the most action for anglers. Catch of drum was estimated at 17,675. However, only 725 were harvested. Many anglers consider them a nuisance. Other estimates for the year 2000 show over 3000 carp and almost 1900 perch and crappie (each) were caught by anglers. Only the crappie had a significant harvest, with over 1000 fish kept. Perch stockings in 1993-94 appear to have resulted in a jump in harvest in 1997-98. However, maintenance stocking of panfish should not be pursued. Carpsucker are common in the reservoir, but rarely caught by anglers.

Northern pike are presently found in low numbers in Calamus. The initial filling of the reservoir provided ideal habitat for northern pike and they flourished from 1986-88. Estimated harvest in July-November 1989 was 11,580. By 1991 they were all but gone from the lake, with an estimated harvest of 180 fish in April-June. From 1995 through 1999 pike were stocked in an effort to boost the remnant population. These stockings appear to have been unsuccessful. Alewife were introduced into Calamus Reservoir in 1989 and 1990. They expanded quickly (gill net CPUE 295 in fall 1991) and disappeared just as quickly (gill net CPUE 0.0 in fall 1992). A remnant population still exists, but they appear to provide little consistent benefit to the predator populations. Walleye do seem to key in on alewife in the spring, but the 2000 survey data shows few alewife in the system (gill net CPUE 1.0).

Most of these other species mentioned will likely maintain remnant populations in Calamus and not emerge as major influences in the near future of the fishery. Muskellunge and crappie will hopefully be exceptions to this statement. It is expected that the recent introduction of muskellunge to the fishery will utilize the abundant shad population and produce an occasional trophy fish for the anglers. Perhaps they will also utilize some of the larger prey items in the reservoir such as shorthead redhorse and river carpsucker. Since no data is available, it is too early to make any major statements on the muskellunge program in Calamus. As for crappie, it was hoped that they would respond favorably to the shad introduction. To date, numbers remain low. Both black and white crappie were introduced with the blacks being dominant at this time. It may be beneficial to introduce more white crappie, since the only stocking was 1135 adults in 1996.

Creel Estimates

Because of differences in methodology, this discussion will concentrate on the 1995-2000 creel surveys and limit references to the 1989-1991 data. Fishing pressure measured by number of anglers and hours of effort has increased considerably over the past 5 years (Figure 15). Estimates for the year 2000 were 60.5 hours per hectare and 10.6 anglers per hectare. This is in the middle of the range for large irrigation reservoirs in Nebraska (unpublished data).

As mentioned earlier, most of the angling pressure at Calamus is directed towards walleye. Figure 16 shows the percent of effort applied towards each species, or "anything" for those anglers not specializing on a particular fish species. Channel catfish remain the number two most sought species. Carp have declined in popularity while white bass/wipers are slowly gaining a following. Generalists fishing for "anything that bites" make up slightly more than one fourth of the angling population at Calamus. It is clear that other than walleye and channel catfish, few anglers have specifically targeted the other fish species in Calamus Reservoir. Catch and harvest data for the most part reflect the effort targeted at walleye and catfish (Figures 17

Figure 15. Fishing pressure estimates at Calamus

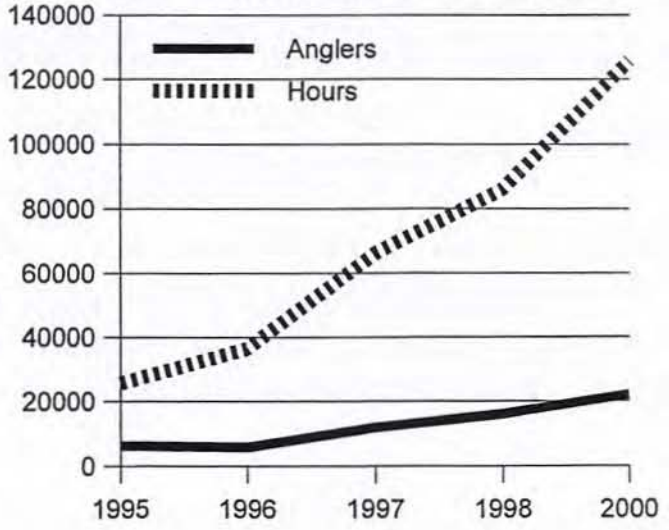


Figure 16. Percent hours of fishing effort at Calamus Reservroir.

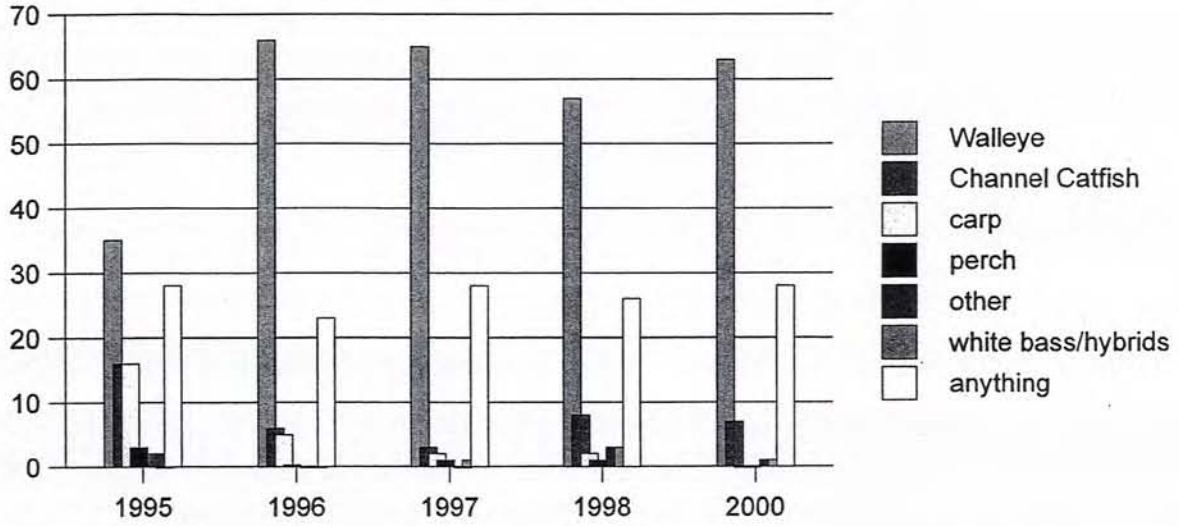


Figure 17. Number caught at Calamus Reservoir.

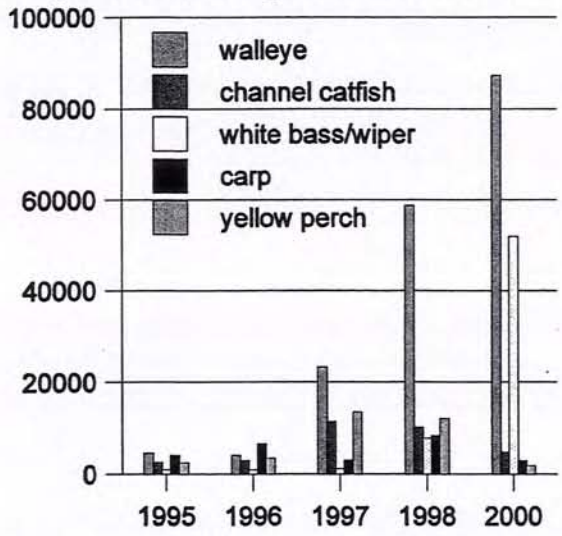
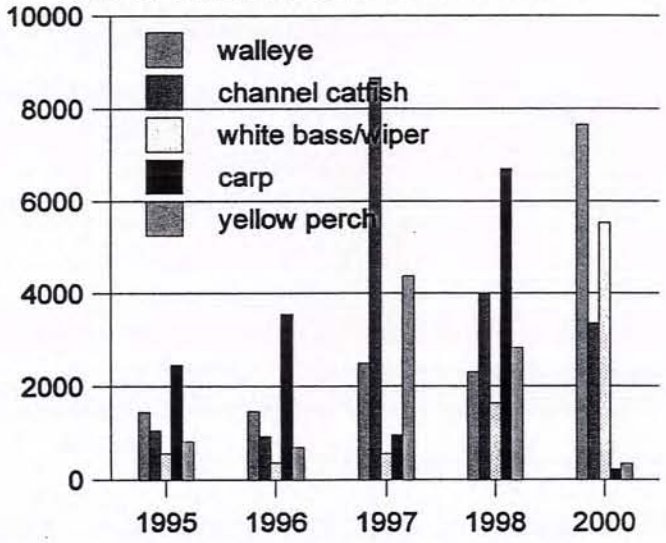


Figure 18. Number harvested from Calamus Reservoir.



and 18). As previously noted, the catch of white bass/wipers has recently grown to make up a significant portion of the catch. Black crappie catch was estimated at 630 fish in 2000, with 460 of those fish harvested. In previous years, carp and yellow perch have made up a large part of the catch and harvest, although in 2000 the numbers dropped off sharply.

Summary of the Data

Most of the data indicates an expanding fishery in the Calamus Reservoir. In particular, the open water predator populations (walleye, white bass and wipers) have shown outstanding growth over the past 5+ years. This growth has been fueled by new species introductions (gizzard shad, white bass) and restrictive harvest (18" minimum size limit on walleye, early bag limit of 3 on wiper) Some of the wide fluctuations seen, particularly in gill net CPUE, suggest the fish have responded well to open niches. It is likely that these populations will level out and be

maintained, although there may be room for continued growth of the white bass population. Of course in "natural" systems there will always be some fluctuation. Overall, fish numbers, condition, growth and angler catch statistics indicate a healthy fishery.

Management Objectives/Recommendations

Objective 1. Walleye gill net CPUE of 30 with Wr's >90 and an RSDp >10.

a. Stock fingerling at 25 to 50 per acre, annually. This rate and size has provided strong year classes in the past.

b. Maintain a restrictive size limit. The 18" minimum has done a good job of providing high catch rates and maintaining a larger size fish to harvest. It would be reasonable to maintain the current size limit. However, many anglers would like to see a lower minimum size limit. Consideration for a lower minimum size with more restrictive harvest of larger fish (ie a 16"minimum with only one fish over 20") should be given. Modeling to determine population effects and consideration for how Calamus fits into our statewide walleye program need to be weighed in the final decision.

Objective 2. Hybrid striped bass gill net CPUE of 10 with Wr's >90 and an RSDp >50.

a. Stock fingerling at 5 per acre, annually.

b. Reduce the size of the "one fish over" restriction on wipers and white bass from 18" to 15". This would help utilize the trophy potential of these fish by providing protection to age 2 fish, allowing more fish to reach larger sizes. It would have no effect on harvest of white bass.

Objective 3. Channel catfish gill net CPUE of 10 with Wr's >90.

a. Stock age 1 (8-10") at 5 per acre, annually.

Objective 4. White bass gill net CPUE of 10 with Wr's >90.

a. Monitor population.

Objective 5. Muskellunge catch of 100 fish per year by anglers, with a minimum of 10 Master Angler reports.

a. Stock 1000, 12-15" fish in late fall or spring, in alternate years.

While other fish are important to the system (gizzard shad) or would be desirable in greater numbers (crappie), at this time no specific management activities are directed at these species. In the case of gizzard shad, the only practical management tool would be to restock in the event of a catastrophic loss. Winter kill is the most likely cause of this type of event. With the relatively warm winter inflows from Gracie creek and the Calamus river, a severe winter die off of shad is not likely. Crappie appear to be limited by recruitment, which is likely related to lack of bays and annual drawdown of the reservoir. While more crappie would be beneficial, it is hoped that white bass will continue to expand and fill the role of panfish in this system. White bass are better suited to this large, windswept, fluctuating reservoir with abundant gizzard shad.

Appendix 1. Stocking records for Calamus Reservoir.

	WAE	CCF	WHB X STB	WHB	YEP	BLG	LMB	NOP	BLC
1985	13,200 2"	249,200 3"			139,280 1"	2.46M 1-3"	247,359 1-3"		
1986	47,729 2"	617,377 3"			358,000 1-3"	2.52M 1-3"	562,317 1-3"		
1987	61,000 2"	492,574 3"			398,555 2"	648,677 1-3"	589,055 1-4"		
1988	48,500 2"	406,720 3"			142,000 2"	243,378 1-5"	264,913 2"	20 24"	
1989	39,500 3.5"	384,498 3"				852,908 0.5-1"			
1990	81,760 2"	28,363	14,058 2"						
1991	5.85M FRY 69,000 2-4"	15,216 8"	4,250 2.5"		1.26M eggs			4.5M FRY	7,840 3"
1992	12.92M FRY 25,200 4-6"	37,825 8"	39,652 1"						5,012 3"
1993	100,228 1"	15,000 8"	23,761 1-2"		153,000 3"				26,669 1-4"
1994	177,206 1.5"	24,745 8"	25,085 1"		139,142 3"			1.04M FRY	14,400 1"
1995	128,841 1"	43,146 8-10"	6,700 3-4"					120,000 FRY 37,175 2-10"	56 Adult
1996	270,415 1"	35,694 9"		4,592 1.5" 79 Adult	10,163 4"			79,760 1-5"	84 Adult
1997	260,000 1.5"	21,357 10"	19,920 1.4"	152 Adult				150,000 FRY 82,749 2-4"	
1998	250,090 1.5"		43,600 1.4"					10,380 2"	
1999	130,550 1.4"		51,000 1.3"					936 4"	
2000	130,695 1.2"		25,000 1.4"						

Other stockings: 1985-151,640 FHM, 1986-3554 2" ROB, 1988-3 18" FHC, 4 24" Tiger MUE, 1989-21,000 Alewife, 1990-15,000 Alewife, 1993-480 Adult Gizzard Shad, 1996-1135 Adult WHC, 2000-1,000 13.1" Muskellunge.

2007 Calamus Reservoir Data Summary and Fishing Outlook

Calamus reservoir provides a wide range of fishing opportunity. There are a number of species available to suit a variety of angling preferences. The following graphs are from a long-term data set to show trends in the Calamus fish population. The data is from gill nets that are set each fall to sample open water species of fish. The nets are set each year at the same locations and approximate dates. This reduces variability and allows the data to be used to evaluate population trends in numbers and sizes. Walleye are the primary fish sought at Calamus, but channel catfish, white bass, and wipers provide angling opportunity before, during, and after the walleye bite. Other species available include: carp, black crappie, northern pike, musky, perch, drum and black bullhead.

Muskellunge and Northern Pike

Northern pike provided some fabulous fishing when Calamus reservoir first filled. But as the reservoir aged, pike habitat became limited, and few northern are now caught at the lake. Muskellunge were stocked for the first time in 2000, with stocking scheduled every three years. Fish from the initial stocking are now over the 40 inch minimum size limit. The daily bag on musky is one fish. Northern pike have no size limit at Calamus and a daily bag of three, so proper identification is a must. As a rule, a musky has a light background with dark bars or spots, while pike have a dark background with light markings. Also, a musky has six or more sensory pores on the underside of their jaw while pike have five or less. And finally a musky has scales only on the upper half of their cheek and the pike's is fully scaled.

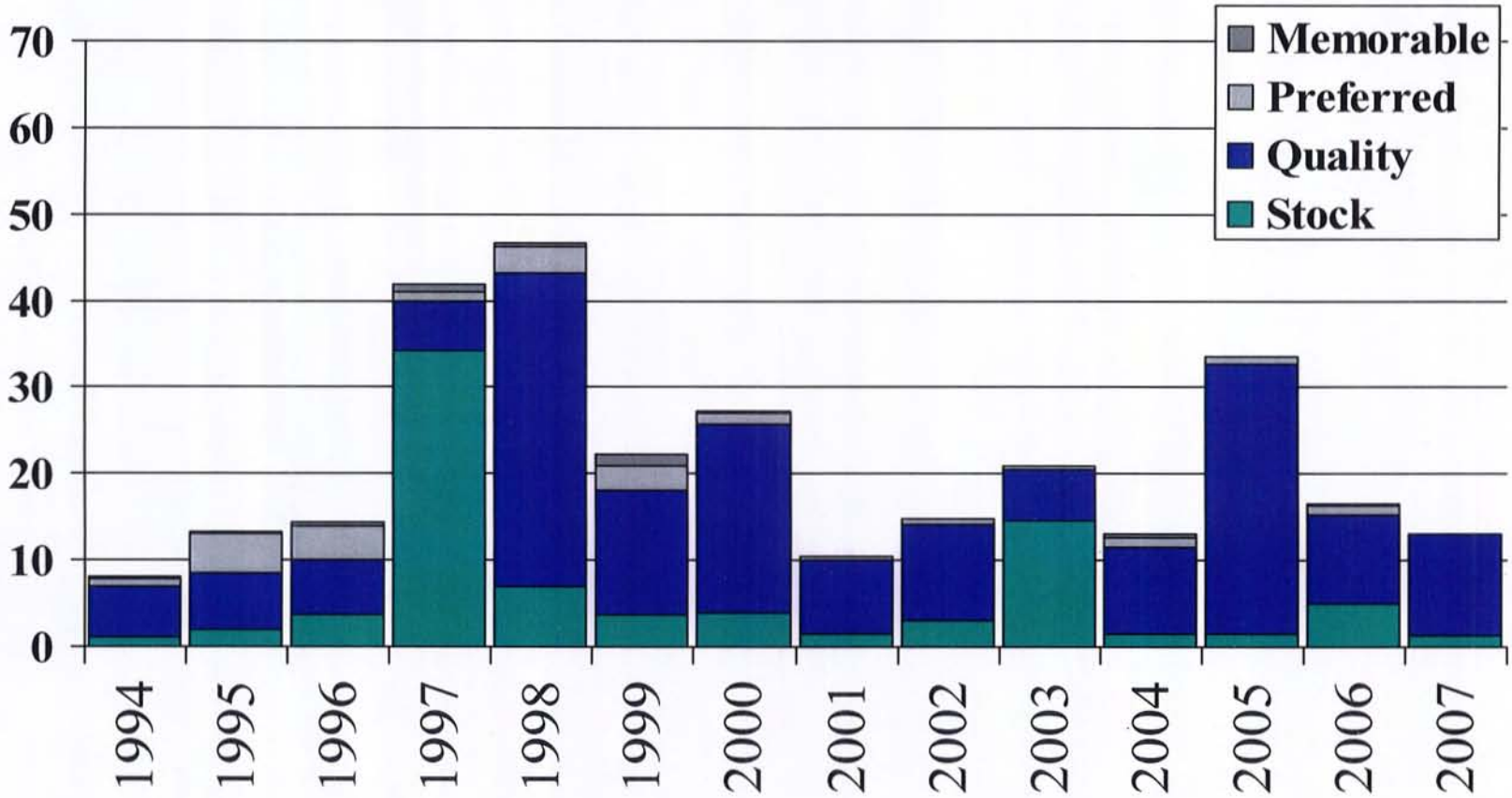
Walleye

Walleye gill net catch in 2007 was about average compared with the past 6 to 8 years. Most of the fish collected were between 15 and 20 inches long. In fact, a large portion of the walleye population in Calamus is below 18" long. This is due to high catchability of the walleye in this lake, resulting in harvest once they reach the minimum legal size of 18 inches. Anglers can expect to catch a lot of walleye at Calamus, but most of the catch will be less than 18 inches. Walleye growth at Calamus is about average compared to other Nebraska reservoirs, attaining a length of 18 inches during their fourth summer in the lake. Although some natural reproduction occurs, studies indicate the walleye population in Calamus is maintained through annual stockings. Different stocking rates were also evaluated and a rate between 25 and 50 fingerling (one to two inches) per acre works well at this lake.

Walleye fishing generally picks up on the upper end of the lake in mid to late April. As the season progresses, action picks up on main lake points. Bait fishing with leeches or crawlers is very effective, but walleye are also taken by anglers trolling crank baits. When small gizzard shad become available as walleye food in early summer, fishing tapers off, and many anglers focus on other species.

Walleye Gill Net CPUE

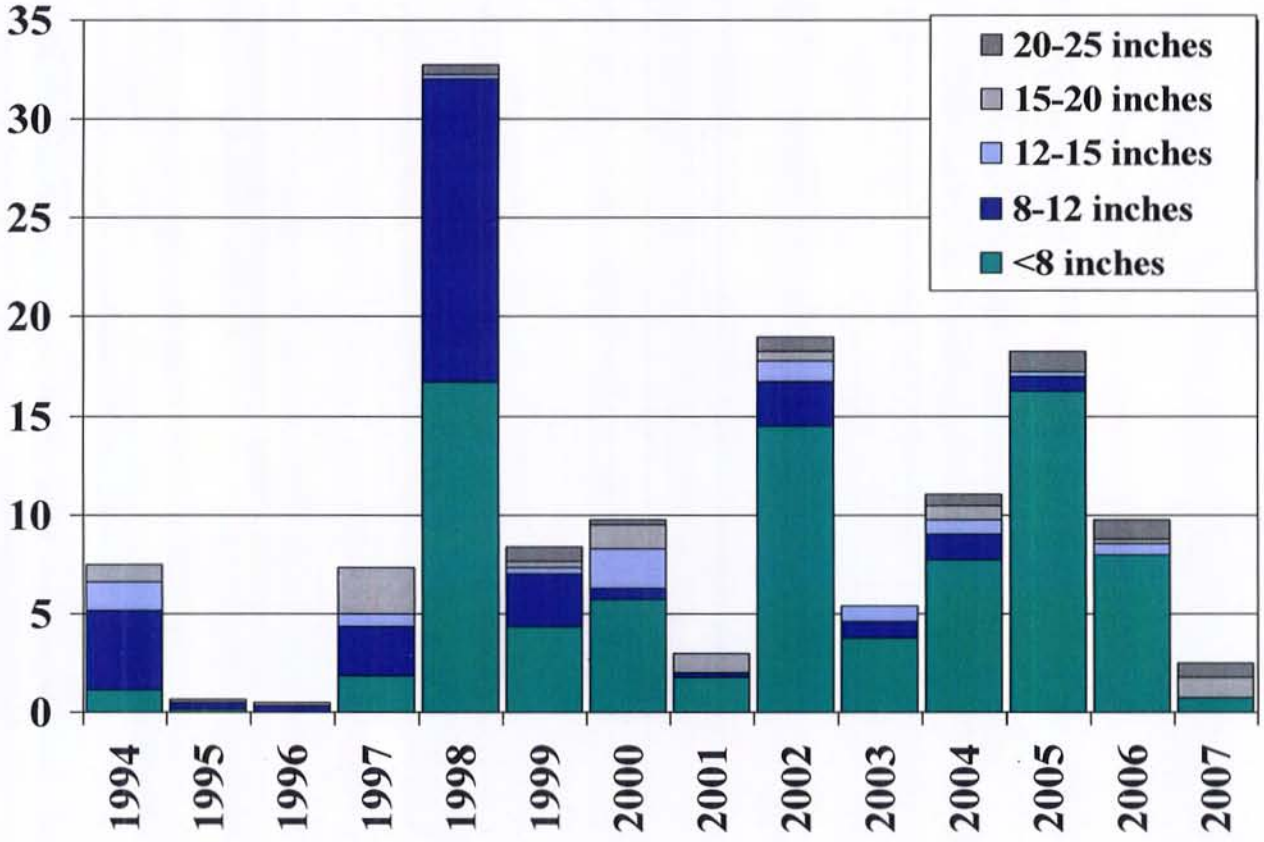
Calamus Reservoir



Striped bass hybrid (wiper)

Wiper gill net catches vary, primarily due to swings in catch of small fish. The net catch of larger wipers is low, but consistent. The 2007 survey showed a high catch of young of the year wipers, along with good representation of larger sizes. Fish up to 10 pounds are available and when a school of wipers is located it can lead to some of the most exciting fishing found. Early in the spring wipers show up in the upper portion of the reservoir. As the season moves along look for sunken islands and schools of shad on your electronics. Also watch for bird activity and splashing on the surface that signals a wiper feeding frenzy.

Calamus Reservoir
Wiper Gill Net Catch

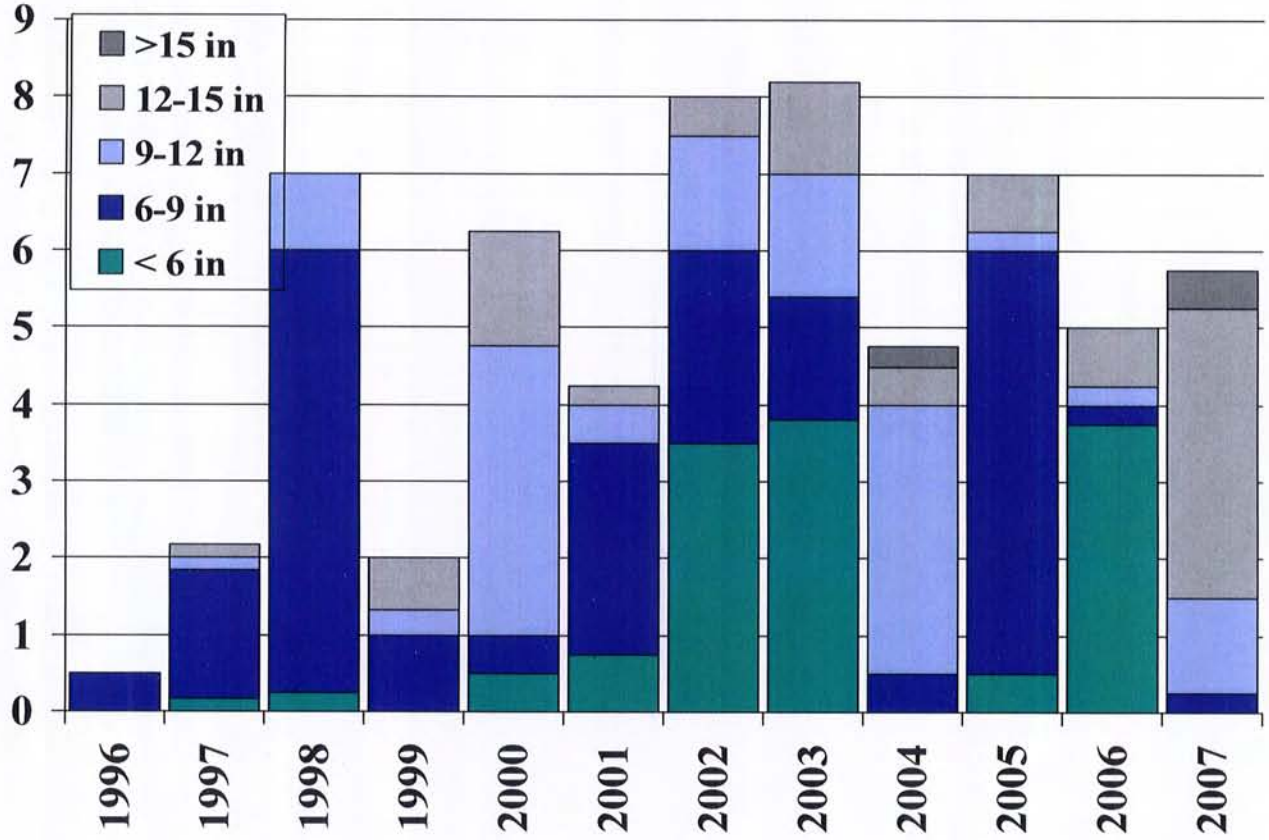


White bass

Following the successful establishment of gizzard shad, white bass were introduced to Calamus in 1996 to provide an additional sport fish for anglers. White bass are well adapted to irrigation reservoirs and they have filled a niche in Calamus. Gill net catch in 2007 showed a good numbers of fish over 12 inches. Growth is about average, with fish exceeding 10 inches after 3 years.

Fishing patterns for white bass at Calamus are generally similar to those for wipers.

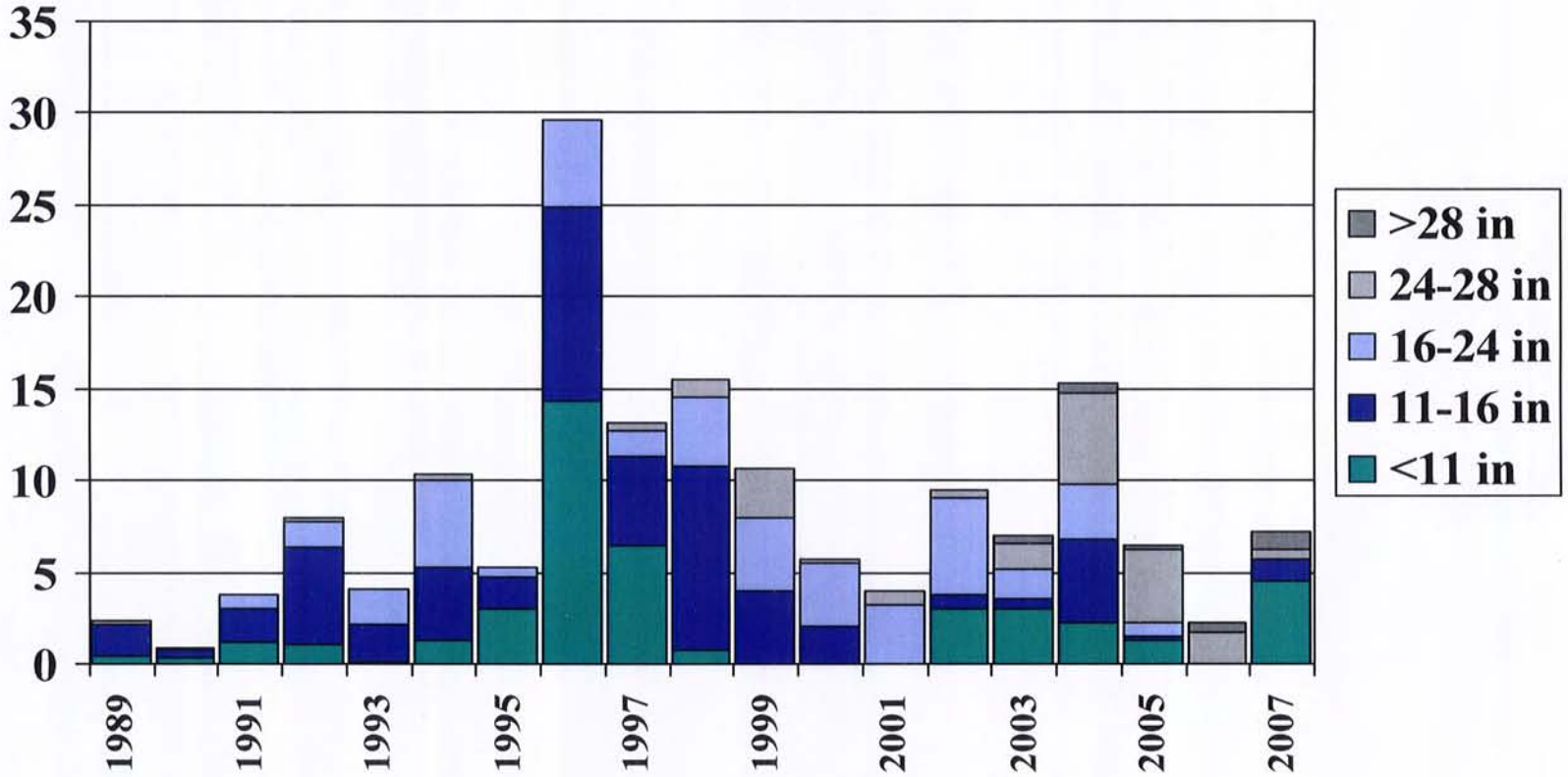
Calamus Reservoir
White Bass Gill Net Catch



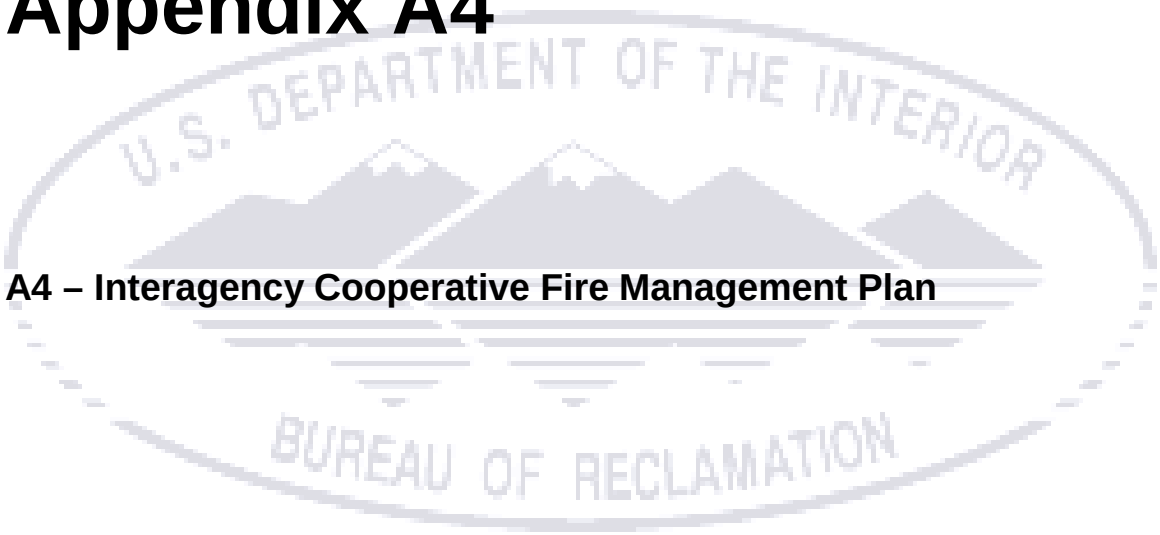
Channel catfish

The 2007 net catch for catfish rebounded from a low number in 2006 to about average. And more good news is that large fish are present in good numbers. The catch of big catfish over 28 inches was the most ever. Growth of catfish in Calamus is above average, with older fish showing excellent growth. The population is maintained with an annual stocking of five catfish per acre. Channel catfish provide important early spring fishing in the upper end of the reservoir to late fall fishing off the beaches.

Calamus Reservoir
Channel Catfish Gill Net Catch



Appendix A4



A4 – Interagency Cooperative Fire Management Plan

INTERAGENCY COOPERATIVE FIRE MANAGEMENT AGREEMENT

Between

USDI, National Park Service, Midwest Region
USDI, Bureau of Indian Affairs, Great Plains Region
USDI, Bureau of Reclamation, Great Plains Region, Agreement No. 07AG02227
USDI, Fish and Wildlife Service, Mountain Prairie Region, Agreement No. 14-48-60139-07-K003
USDA, Forest Service, Rocky Mountain Region, Agreement No. 07-FI-11020000-002

And

The State of Nebraska
Nebraska Emergency Management Agency
Nebraska Forest Service
Nebraska Game and Parks Commission
Nebraska Military Department
Nebraska State Fire Marshal

IN ACCORDANCE WITH
Acts of Congress

June 30, 1932, (31 U. S. C. 1535), Economy Act
April 24, 1950, (16 U. S. C. Section 572), Granger-Thye Act
May 27, 1955, (42 U. S. C. 1856a) Reciprocal Fire Protection Act
August 18, 1970, (U. S. C. 1b-1), National Park System General Authorities Act
May 22, 1974, (42 U. S. C. 5121 as amended) Disaster Relief/Emergency Assistance Act
December 12, 1975, (16 U. S. C. 565 a-1), Cooperative Funds and Deposits Act
October 21, 1976, (43 U. S. C. 1701), Federal Land Policy and Management Act
Federal Water Project Recreation Act (P.L. 89-72), July 9, 1965
Reclamation Act of 1902, June 17, 1902
Cooperative Funds Act of June 30, 1914 (16 U.S.C. 498)
National Interagency Agreement for Fire Management, 02-1A-11132543-21, Am. No. 1
Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (42 USC 5121 *et seq*)
P.L. 105-277, Section 323 as amended by P.L. 109-54, Section 434

Nebraska Revised Statutes and Procedures

Nebraska Emergency Management Act of 1996
Nebraska State Emergency Operations Plan
State of Nebraska Annual Wildfire Operating Plan
Governor's Emergency Fund/Guidelines for Public Officials, May 2001
Revised Statutes of Nebraska 1943 Sections 85-161.01 through 85-162.05

CONTENTS

PURPOSE

The purpose of this Interagency Cooperative Fire Management Agreement (hereinafter referred to as the Agreement) is to document agreement and commitment to fire management assistance and cooperation. This Agreement is entered into by and between:

The State of Nebraska, through the Nebraska Emergency Management Agency, the Nebraska Forest Service, the Nebraska Game and Parks Commission, the Nebraska Military Department and the Nebraska State Fire Marshal, hereinafter called the State; and

The United States Department of Agriculture Forest Service, through the Regional Forester for Region 2, Rocky Mountain Region, hereinafter called the US Forest Service; and

The United States Department of the Interior, National Park Service, Midwest Region, hereinafter called the Park Service; and

The United States Department of Interior, Fish and Wildlife Service, Mountain Prairie Region, hereinafter called Fish and Wildlife Service; and

The United States Department of Interior, Bureau of Indian Affairs, Great Plains Region, hereinafter called the BIA; and

The United States Department of Interior, Bureau of Reclamation, Great Plains Region, hereinafter called Reclamation; and

The US Forest Service, Park Service, Fish and Wildlife Service, Bureau of Reclamation, and BIA may hereinafter be jointly referred to as the “Federal Agencies”.

All Federal Agencies and the State may hereinafter be jointly referred to as the “Agencies”.

Words and phrases used herein may have different meanings or interpretations for different readers. In order to establish a common understanding, words and phrases as used herein are defined in a Glossary attached as Exhibit A.

RECITALS

Whereas: The State will act as the coordinator for State fire suppression support to local Rural Fire Protection Districts when the wildfires are beyond local control, per Emergency Support Function (ESF) 4, Appendix 1, of the Nebraska State Emergency Operations Plan and Annex B of the Governor’s Emergency Fund/Guidelines for Public Officials;

Whereas: State, Private, and Federal lands within Nebraska Rural Fire Protection Districts are intermingled or adjacent in some areas of Nebraska, and wildland fires on these intermingled or adjacent lands may present a threat to the lands of the other;

Whereas: The Federal Agencies maintain fire protection organizations for protection of Federal lands within the United States, and the State provides support to Rural Fire Protection Districts for organized fire protection on State lands and privately owned lands;

Whereas: The Nebraska Fire Protection Districts have wildland fire protection responsibilities and provide wildland fire suppression services on State and privately owned lands; and the State provides assistance to Rural Fire Protection Districts in wildfire emergency situations that are beyond the Districts' capabilities;

Whereas: It is to the mutual advantage of the State and the Federal Agencies to coordinate efforts for the prevention, readiness, detection, and suppression of wildland fires in and adjacent to their areas of responsibility, to avoid duplication, and to improve efficiency and effectiveness;

Whereas: It is the intent of the parties hereto that State resources may be available to assist in the suppression of wildland fires on all Federal lands, and on other lands upon which the Federal Agencies provide fire suppression support, including other States;

Whereas: It is the intent of the parties hereto that Federal resources may be available to assist in the suppression of wildland fires on all Rural Fire Protection District lands;

NOW, THEREFORE, in consideration of the mutual premises and conditions herein made, it is agreed as follows:

INTERAGENCY COOPERATION AND COORDINATION

1. **State Authorities, Roles and Responsibilities**:

   A. **Rural Fire Protection Districts**: Rural Fire Protection Districts have wildland fire suppression responsibilities on State and private lands within their Districts and may maintain Cooperative Fire Protection Agreements with the Federal Agencies for wildland fire management activities. Such Agreements are considered to be Local in scope and do not bind the State. When an incident exceeds the local Fire Protection District's capabilities, requests for additional resources and/or financial assistance may be placed with the Nebraska Emergency Management Agency.

   B. **Nebraska Emergency Management Agency**: The Nebraska Emergency Management Agency (NEMA) provides overall coordination of State and local activities related to emergency management to prevent, minimize, assess, and respond to damage resulting from disasters. Upon request of a Rural Fire Protection District and approval of the Governor, the Nebraska Emergency Management Agency will initiate the State of Nebraska Emergency Operations Plan (SEOP) and request a State Emergency proclamation if necessary. If the Governor proclaims an emergency, NEMA acts as the State Coordinating Agency for interface between Local Fire Protection Districts and the Federal Agencies to obtain additional resources.

C. **Nebraska Forest Service**: Under the direction of the Board of Regents of the University of Nebraska, the Nebraska State Forester has general supervision of service programs related to forestry and forestation, including but not limited to planting, wildland fire protection through pre-suppression activities, development, protection and use of forest resources and other programs promoting forest management and forestation. The State Forester does not maintain a wildland fire suppression capability but provides staff to serve as an ESF#4 Coordinator (ESFC) as described in Emergency Support Function (ESF) 4 of the SEOP and as defined in the Exhibit A Glossary.

D. **Nebraska Game and Parks Commission**: Under the Nebraska Interlocal Cooperation Act, the Nebraska Game and Parks Commission may enter into agreements for the provision of such public safety services as law enforcement, fire protection and emergency response services. The Commission will make available wildland fire suppression assets owned and controlled by the Commission at the request of Rural Fire Protection Districts as members of Mutual Aid Districts.

E. **Nebraska Military Department:** The Nebraska National Guard is responsible for maintaining and providing State assets of military ground and aerial wildfire suppression personnel and equipment when authorized by proclamation by the Governor under the Nebraska Emergency Management Act.

F. **Nebraska State Fire Marshal:** The State Fire Marshal serves as an ESF#4 Coordinator (ESFC), as defined in the Exhibit A Glossary, and is responsible for regulation of fire codes, fire investigation, fire inspection and fire plan review. The Training Division, with financial support from the Nebraska Forest Service Fire Control Section, provides a training curriculum to local fire departments that includes wildland fire control, aerial application, incident command, etc.

G. **Nebraska Wildfire Coordinating Council:** The Nebraska Governor has appointed one representative of each of the State Agencies which are signatory to this Cooperative Fire Agreement and one representative of the Nebraska Volunteer Firefighters Association to an Advisory Council called the Nebraska Wildfire Coordinating Council (NWCC). The purpose of the NWCC is to establish a basis for wildfire management activities on the state level, coordinate policy and procedures within state agencies to request and utilize state and national resources to assist local Fire Protection Districts when state and/or national resources are requested, and meet each year with Federal Agencies to update the Statewide Annual Operating Plan. (See Clause 6 below)

2. **Joint Projects:** The State or any of the Federal Agencies may jointly conduct mutual interest projects, within their statutory authority, to maintain or improve the fire management capability of the Agencies. These projects may be in such activities as suppression, preparedness, land rehabilitation, fuel management, prescribed fire, training, rural fire assistance, prevention, public affairs, wildland/urban interface fire coordination and other beneficial efforts. Such projects will be documented in the Annual Operating Plan, or other appropriate written documents. Documentation will include the authority, objectives, role of each agency, and each Agency's share of costs.

3. **Incident Command System:** The Agencies will operate under the concepts of the National Incident Management System (NIMS) and its Incident Command System (ICS) as appropriate for providing qualified resources and for the management of incidents under the terms of this agreement. Resource qualifications will meet National Wildfire Coordinating Group (NWCG) standards and will be specified in the Annual Operating Plan. Resources requested and utilized outside their normal operational jurisdiction for Federal incidents will meet NWCG qualifications and resource typing standards.

4. **Interagency Dispatch/Service Centers:** The Agencies agree to maintain, support, encourage, and participate in Interagency Dispatch Centers. Agencies agree to use the Rocky Mountain Area Coordination Center and the Great Plains Interagency Dispatch Center as the centers for national and statewide intelligence gathering, coordination and prioritization of resources for wildland fire emergencies.

5. **Multi-Agency Coordinating (MAC) Groups:** During periods when fire activity is significant enough to require prioritization of fires in order to allocate critical or scarce resources, MAC groups will be established to accomplish that priority setting. Three levels of MAC groups may be assembled as appropriate in geographic, State, or local area.

6. **Annual Operating Plan:** An Annual Statewide Operating Plan will be developed by the Nebraska Wildfire Coordinating Council and Federal Agencies as Appendix 1 of Emergency Support Function (ESF) 4 of the Nebraska State Emergency Operations Plan (SEOP). Subjects identified in the Annual Operating Plan Outline Guide, attached as Exhibit B will be addressed.

7. **Suppression Responsibilities**: Suppression responsibilities will be outlined in the Annual Operating Plan.

8. **Notification of Federal Excess Property**: Every effort will be made to notify the State of fire related property and equipment that is to become excess to the needs of any Federal Agency, for use in the State Cooperative Fire Program.

9. **Fire Prevention Policies:** The NWCC, including Federal partners, will ensure that wildland fire prevention goals, objectives, and activities are planned at statewide levels and are addressed in the Nebraska SEOP.

10. **Prescribed Fire and Fuels Management:** The Agencies agree to cooperate in the development, planning, and implementation of prescribed fire, manual and mechanical fuels management, and wildland fire use programs and projects.

    Cooperative prescribed fire and fuels management programs include cost sharing, reimbursement, and jurisdictional responsibility for planning, implementation, and monitoring. These shall be agreed upon and included in the approved project planning document. See Exhibit D.

Parties to this agreement will pursue all avenues available within law, statute, policy, and procedure to cooperate across jurisdictional and political boundaries for program and project planning, implementation, and support.

Wildland fires, resulting from escaped prescribed burns ignited by a party to this Agreement on lands that it manages, shall be the responsibility of that party. The responsible party will reimburse other parties to this Agreement consistent with the terms and conditions contained herein for costs incurred in suppression of such fires. Joint projects will be the shared responsibility of the jurisdictions bound by the approved planning documents. Qualifications of personnel involved in interagency prescribed burning projects will comply with their agency's standards.

11. **Training:** The Agencies will cooperate in wildland fire, prescribed fire, and aviation training, including training scheduling, course development, course presentation, and selection of trainees. Local cooperators will be included in this cooperative approach. If an agency hosts an NWCG training course for multi-agency participation, course content and instructor competency will meet NWCG standards.

12. **Communication Systems:** The Agencies may mutually agree to allow one another the use of communications systems such as radio frequencies, computer system access, data transmission lines, and communication sites where there is a mutual benefit to the parties. Such agreement shall be approved only by authorized personnel for each Agency and will be documented in the Annual Operating Plan, or other agency-specific documentation.

13. **Licensing:** Drivers and equipment operators will hold appropriate operating licenses to meet their respective Agency, State, and/or Federal regulations. Individuals meeting their respective Agency or County regulations are authorized to drive or operate other agencies or counties vehicles or equipment. Drivers and operators will not be exempt from U.S. Department of Transportation requirements, including commercial driver's licensing, if required. Cooperating agencies will accept each others driving qualifications.

14. **Automatic Weather Stations:** The Agencies will cooperate in the gathering, processing, and use of fire weather data, including the purchase of compatible sensing systems and joint use of computer software, as authorized. The Agencies will jointly evaluate and agree to any deletions or additions to the system.

15. **Aviation Operations**

    A. General: The Agencies agree to cooperate in use of aviation resources to foster safe, effective and efficient use of aircraft and personnel. All aviation activities shall be conducted in accordance with each Agency's aviation rules, policies and directives, and Aviation Operation Plans.

    B. Interagency Aviation Operations: Interagency funding, staffing, and utilization of operations will be pursued when an interagency approach is appropriate and cost effective. Inventories of and/or procedures for aviation operations will be provided in

the appropriate geographic area mobilization guide. If State helicopter resources are assigned to a Federal incident, a NWCG qualified Helicopter Manager will also be assigned to work with each aircraft.

C. Pilot and Aircraft Approvals: Federal policy requires Federal and State pilots and aircraft to be inspected and approved by carding or letter of certification by the US Forest Service or the USDI Aviation Management Directorate (USDI-AMD) for Federal Agency missions or transport of Federal employees.

D. Contract/Rental Vendors: Federal policy requires that pilots and aircraft be inspected and carded, either by the US Forest Service or by the USDI Aviation Management Directorate, as required. This inspection process may be done jointly by the Federal agencies, or by one Federal agency acting in the lead role. Upon request, State of Nebraska staff may participate in the USDI-AMD and/or US Forest Service inspection and carding of vendors located within the State of Nebraska.

E. National Guard Aircraft: National Guard pilots and aircraft will be issued an annual letter of certification and approval by the US Forest Service Regional Helicopter Operations Specialist. VHF-AM and VHF-FM radios will be installed in all helicopters assigned to an incident to allow necessary communications with all other resources assigned. Regional/State Aviation Technical Specialists, Incident Air Operations personnel, and experienced Fire Suppression Specialists will provide annual interagency training. Training will include aviation policy, incident air operations, organization, coordination, communications, dispatching procedures, fire tactics/behavior, and water bucket techniques.

F. State Aerial Fire Suppression Program: Guidelines for the program are outlined in the NFS Emergency Assistance for Wildfire Control booklet. Unless aircraft and pilot meet requirements listed previously in 15 C and D, they will be restricted to use on non-federal land.

USE OF AND REIMBURSEMENT FOR SHARED RESOURCES

16. **Appropriated Fund Limitation:** Nothing herein shall be interpreted as obligating the Federal Agencies or the State to expend funds, or as involving the United States or the State of Nebraska in any contract or other obligation for the future payment of money in excess of appropriations authorized by law and administratively allocated for the work contemplated in this Agreement.

17. **Reimbursable Assistance:** Reimbursable Assistance refers to those fire suppression resources that are to be paid for by the Protecting Agency. Reimbursable Assistance resources must be requested by the Protecting Agency or supplied through automatic or mutual aid systems. Such resources must be recorded by the resource order process within the dispatching systems of both the Protecting Agency and Assisting Agencies; if such documentation is not completed, these resources are not reimbursable. Except as otherwise provided, all costs incurred as the result of an incident and documented as stated above are generally reimbursable, such as but not limited to:

a. Costs incurred for suppression and move-up and cover resources.

b. Transportation, salary, benefits, and per diem of individuals assigned to the incident.

c. Additional support dispatching services requested through a resource order.

d. Cost of equipment in support of the incident; contract equipment costs and operating cost for Agency equipment.

e. Aircraft, airport fees, foam, and retardant costs.

f. Cost of reasonable and prudent supplies expended in support of the incident.

g. Charges from the State for State controlled resources.

The resources of the State of Nebraska are defined as cooperators, not contractors for the purposes of fire management activities. Rates established annually in the Cooperative Resource Rates Form are accepted by all Agencies and will be used for reimbursement calculations for both in-state and out-of-state incidents. Emergency Equipment Rental Agreements will be used to hire equipment that was not listed for availability prior to the incident, and reimbursement rates for the equipment will follow Regional Incident Business Management Handbook guidance.

18. **Cost Sharing:** A cost share agreement will be prepared by NEMA and the Federal Agencies when the Governor has proclaimed an Emergency and Federal assistance is required in support of local Fire Protection District efforts. See EXHIBIT C for a sample cost share agreement.

19. **Procurement:** The State receives its procurement authority from State laws, and is therefore not subject to Federal procurement laws. Whenever the State is responsible for the management of an incident (including an incident within the direct protection area of a Federal Agency), the State will comply with State laws and regulations covering procurement. Procurement costs by one Agency in support of another that are reasonable and prudent may be charged back to the Protecting Agency. All resource ordering is subject to concurrence and accountability to the Protecting Agency.

20. **Loaned Equipment:** Equipment loaned, without operator by one Agency to another shall become the responsibility of the borrower, and shall be returned in the same condition as when received, fair wear and tear expected. The borrower will repair or reimburse for damages in excess of normal wear and tear and will replace or reimburse items lost or destroyed.

21. **Billing Procedures** (Refer to Exhibit D for the Required Documents for Money Transfer)

A. Fire Suppression Billings

1. Federal Billings: Federal Agencies will not bill each other for fire suppression support. Federal Agencies will submit bills to the Nebraska Emergency Management Agency.

2. State Billings: State Agencies will not bill each other for fire suppression support. Any time State resources respond to a fire outside of Nebraska, NEMA will submit bills to the applicable Federal agency (billing addresses are listed in Paragraph 7 below).

3. Billing amounts do not apply to Reciprocal Fire Protection (Mutual Aid).

4. Fire Numbers: Agencies will share their respective individual fire numbers for cross-referencing purposes.

5. Billing Estimates/Time Frames: On fires where costs are incurred pursuant to the terms of this agreement, the billing Agency shall submit a bill or estimate for reimbursement as soon as possible, but not later than 120 days after the fire is controlled. If the total cost is not known at the time of initial billing, a partial bill, so identified, may be submitted. A final bill, so identified, will be issued within 270 days after control of the fire.

Billing deadlines set forth herein are intended merely to encourage prompt billing, and failure to meet billing deadlines shall not be construed as a release or waiver of claims for reimbursement against the other party.

For obligation purposes, the Federal Agencies will submit unpaid obligational figures to the State by May 15. The State will submit unpaid obligational figures to the appropriate Federal Agency by September 15 for the current Federal fiscal year.

After the final billing has been sent and additional costs are identified, a supplemental billing may be issued if agreeable to applicable parties.

6. Billing Content: A separate bill, invoice, will be submitted for each fire. Bills will be identified by incident name, location, accounting code, jurisdictional unit, incident number, appropriate resource order (if available) or resource number, inclusive dates, and will be supported by adequate documentation by the paying agency. Provide summary cost data for the amount being billed. Use incident generated cost information or standard generated cost reports provided by the State or Federal agency to support billing whenever possible.

- For State Employees:
  - Summary showing Incident Pay for each employee (pay)
  - Post-Trip Travel Voucher
  - Resource Orders

- For Local Fire Departments (non-State) reimbursement made to the State, copies of the following are needed:

  - OF-288
  - OF-286
  - Lodging and fuel receipts (Travel Documentation)
  - Resource Orders

If a Federal agency is making direct payment to the Fire Department, the originals of the above are needed for payment, along with equipment shift tickets.

If a resource order in not available, an explanation needs to be submitted with the billing information that clarifies why none exists (e.g., initial attack, reassignment to XYZ fire, etc.)

Documentation at paying agency may include the following:

Bill for Collection and/or Fire Suppression Cost Summaries
Narrative cover letter
Originals or copies of Fire Time Reports, SF-288
Summary of travel charges and receipts
Daily shift tickets and/or Equipment Use Invoice
Credit card bill, list of purchases

When Cost Share Agreements are needed, the billing breakout will be done using the agency's reports showing their paid cost. When applicable and if necessary I-Suite may be used to identify cost for a specific period of time within an incident and when cost cannot be efficiently identified otherwise. (i.e., payroll is often hand calculated and still results in estimates.) Using programs within I-Suite to generate cost is more efficient and effective when there is no other report to figure the cost. This will be agreed upon by jurisdictional agencies for the incident.

Additional documentation from Federal agencies may be required for fires with a FEMA declaration.

Federal payments for State resources will be made direct to the Nebraska Emergency Management Agency for deposit into the Governor's Emergency Fund. The State will handle billing questions or disputes with the appropriate fire service entity.

7. Billing Addresses: Unless otherwise provided for in the Annual Operating Plan, all bills for services will be provided to the Nebraska Emergency Management Agency at the following address:

Nebraska Emergency Management Agency
1300 Military Road
Lincoln, Nebraska 68508-1090

All bills for services provided to the US Forest Service outside Nebraska will be mailed to the following address:

USDA Forest Service
Attn: Incident Business Management Specialist
P.0. Box 25127
Lakewood, CO 80225

All bills for services provided by the State to Federal Agencies within Nebraska will be mailed to the following addresses:

Bureau of Reclamation
Attn: Resources
203 West 2d Street
P.O. Box 1607
Grand Island, NE 68802-1607

National Park Service
Midwest Regional Office
601 Riverfront Drive
Omaha, NE 68102

Bureau of Indian Affairs
Great Plains Region
115 4th Avenue SE
MC 301
Aberdeen, SD 57401

US Fish and Wildlife Service
NWRS, Fire Program
P.O. Box 25486, DFC
Denver, CO 80225-0486

Nebraska National Forest
125 North Main Street
Chadron, NE 69337

8. Payment Due Dates: All bills will have a payment due date 60 days after the date of issuance. If payment cannot be made before the 60 days expire, then a 30-day extension, with oral or written justification, may be requested.

9. Disputed Billings: Written notice that a bill is contested will be mailed to the billing agency within 60 days of issuance of the final bill, and will fully explain the area of dispute. Contested items will be resolved not later than 60 days following receipt of written notice. The uncontested portion of the bill will be paid and a new bill will be issued for the contested amount.

10. Payments: Payments will refer to the bill number and fire name and will be sent to the appropriate office.

11. Late Payment Charges: Late payment charges may be waived by the billing agency unless late payment charges are mandated or required by law. An agency

may subtract unpaid obligations from bills received by agencies with delinquent payments.

B. Fire Preparedness, Prevention, Prescribed Fire, and Other Fire Activity Billings: Agencies may bill one another for preparedness activities and administrative charges may be applied, as authorized. Billings for preparedness and prevention activities will be addressed in the Annual Operating Plan or separate agreement. Provisions described above pertaining to suppression billing procedures, addresses, payment due dates, obligation information, and payments also apply to preparedness billings. Billings will outline services performed and include a copy of the Annual Operating Plan. Wildland fire resulting from escaped prescribed fire ignited by a party to this agreement on lands it manages, shall be the responsibility of that party. The party responsible for the wildfire will reimburse other parties to this agreement for all suppression costs of supporting agencies.

22. **Examination and Audit**: Agencies shall be subject to examination and audit for 3 years after final payment under the terms of this Agreement. Examination and audit shall be confined to those matters connected with the performance of this Agreement including, but not limited to, the cost of administration.

GENERAL PROVISIONS

23. **Mutual Sharing of Information**: Agencies will furnish, or otherwise make available upon request, such maps, documents, instructions, records, and reports including, but not limited to, fire reports, employment records, and investigation and law enforcement reports as either party considers necessary in connection with the Agreement, in accordance with applicable State and Federal rules and regulations.

24. **Accident/Incident Investigations**: When an accident/incident occurs involving the equipment or personnel of an Agency, immediate steps will be taken to notify that Agency. As soon as practical, the Jurisdictional Agency, in accordance with their policy, shall initiate an investigation of the accident. The investigation shall be conducted by a team made up of appropriate representatives from affected agencies, as appropriate.

25. **Non-Wildland Fire and Medical Aid Responses**: This Agreement is limited to wildland fire protection and does not include non-wildland fire protection and medical aid responses. However, this Agreement does not preclude Agencies from supporting one another in emergency situations as provided by their respective statutory authority, policies, procedures, or other agreements. In the event of a Presidential Disaster Declaration, the Agencies may assist one another under the provisions of this agreement, if so tasked by the Federal Emergency Management Agency, and as long as requested resources are available and all other provisions of this agreement are met.

Funding shall be available to reimburse State and other cooperating entities for services provided in response to wildfire and other emergencies or disasters to the extent that authority is provided in the current year appropriation bill and such reimbursements by the US Forest

Service for non-fire emergencies are fully repaid by the responsible emergency management agency.

Reimbursement for non-wildfire, non-Presidential Disaster Declaration incidents will be negotiated on an incident by incident basis utilizing accepted business management practices, authorities, policies, procedures, and other agreements of the Agencies involved.

26. **Existing Agreements**: Existing agreements remain in effect to the extent that they do not conflict with the provisions of this Agreement, but only until such time that all activities and conditions covered by those agreements can be incorporated into the Annual Operating Plan provided for under this Agreement, and not later than one year after date of execution of this agreement.

27. **Employment Policy**: To the extent permitted by Federal law, when State personnel are suppressing wildland fires on lands for which the Federal Agencies are responsible, and at such time when they are specifically assigned to the direct supervision of the Federal Agencies, such State personnel although not Federal employees for any other purposes, shall be considered as Federal employees for the purpose of the Federal Employees Compensation Act and Federal Tort Claims Act in consequence of the performance under this Agreement.

28. **Duration of Assignments:** Agencies agree that Incident Commanders will release suppression resources to their primary responsibilities as soon as priorities allow. Federal resources are expected to be released after 14 operational days. Incident Commanders shall also adhere to rest and rotation policies of respective responding agencies.

29. **Suppression and Damage Collection**: Nothing in this Agreement shall preclude the Federal Agencies or the State from collecting damages and suppression costs from third parties (civil actions for recovery may be taken independently) under the civil liability provisions of Federal and/or State statutes and/or common law in a manner provided by applicable law. However, whenever such collections have the effect of reducing the net expenditures of the billing Agency, then the bill will be reduced proportionate to the amount collected.

30. **Waiver of Claims**: The State and Federal Agencies hereby waive all claims between and against each other for compensation for loss, damage, and personal injury, including death, to each other's property, employees, agents, and contractors occurring in the performance of this Agreement.

31. **Third Party Claims**: Any liability to third parties which may arise under the performance of this Agreement shall be determined solely under the Federal Tort Claims Act as to the Federal Agencies. This Agreement is for the benefit of the parties only, and may not be enforced by any other person or entity. The State of Nebraska does not waive its sovereign immunity by entering into this agreement, and fully retains all immunities and defenses provided by law with regard to any action related to this agreement.

32. **Amendments Procedure**: The terms of this Agreement may be amended at any time by written mutual consent of all parties hereto.

33. **Civil Rights**: The Agencies shall comply with all State of Nebraska and Federal statutes relating to nondiscrimination including, but not limited to: (a) the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, handicap, or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. 1681-1683, and 1685-1686) which prohibits discrimination on the basis of sex.

34. **Duration of Agreement**: The term of this Agreement shall commence for each Agency upon the date of the last signature below and shall continue for 5 years, unless terminated earlier, or subject to extension. Any party shall have the right to terminate their participation in this Agreement upon written notice to all parties.

35. **County and Local Fire Service Entities**: To facilitate the purpose and intent of this Agreement, the State Agencies will use their best efforts to establish cooperative fire agreements with the local Fire Protection Districts in Nebraska which have local wildland fire responsibilities.

36. **Previous Agreements:** This Agreement replaces the Nebraska Interagency Cooperative Fire Management Agreement signed in 2002.

37. **Authorized Representatives:** By signature below, the Agencies certify that the individuals listed in this document as representatives of the Agencies are authorized to act in their respective areas for matters related to this agreement.

THE PARTIES HERETO, as evidenced by their authorized signature below, have executed, and thereby entered into, this agreement upon the date of the last signature below.

STATE OF NEBRASKA
EMERGENCY MANAGEMENT AGENCY

/s/Al Berndt 7/3/2007
Assistant Director Date

USDA FOREST SERVICE
ROCKY MOUNTAIN REGION

/s/Greg Griffith for 7/2/2007
Regional Forester Date

USDI BUREAU OF INDIAN AFFAIRS
GREAT PLAINS REGION

/s/Alice A. Harwood 7/27/2007
Acting Regional Director Date

USDI NATIONAL PARK SERVICE
MIDWEST REGION

/s/Ernest Quintana 7/17/2007
Regional Director Date

USDI FISH AND WILDLIFE SERVICE
MOUNTAIN PRAIRIE REGION

/s/Sharon R. Rose 7/11/2007
Acting Regional Director Date

USDI BUREAU OF RECLAMATION
GREAT PLAINS REGION

/s/Mike Ryan 7/6/2007
Regional Director Date

STATE OF NEBRASKA
NEBRASKA FOREST SERVICE

/s/Scott Josiah 8/21/2007
State Forester Date

STATE OF NEBRASKA
GAME AND PARKS COMMISSION

/s/Rex Amack 8/9/2007
Director Date

STATE OF NEBRASKA
MILITARY DEPARTMENT

/s/Roger P. Lempke 7/3/2007
Adjutant General Date

STATE OF NEBRASKA
STATE FIRE MARSHAL

/s/John E.Falgione 8/27/2007
State Fire Marshal Date

The authority and format of this instrument has been reviewed and approved for signature.

/s/LuAnn Waida 6/29/2007
FS Agreements Coordinator Date

USDI BUREAU OF INDIAN AFFAIRS
GREAT PLAINS REGION

/s/Richard G. Zephier 7/24/2007
Contracting Officer Date

EXHIBIT A

GLOSSARY OF TERMS

Administrative Costs (Charges): Any expenses not charged directly to a program, project, or fire. They include general overhead personnel and administrative services. For the State, the administrative charge is identified as those charges and expenses used to determine the "indirect rate". All activities that can be identified and charged to specific projects, and not excluded elsewhere in this agreement, are considered direct costs and may be billed with proper documentation.

Agencies: The parties to this agreement.

Agency Administrator: Agency officials who are signatory to this agreement, as follows: Nebraska Emergency Management Agency, Nebraska Forest Service, Nebraska Game and Parks Commission, Nebraska Military Department, Nebraska State Fire Marshal. US Forest Service, Rocky Mountain Region, Regional Forester; Bureau of Indian Affairs, Regional Director; National Park Service, Regional Director; Fish and Wildlife Service, Regional Director; Bureau of Reclamation, Regional Director.

Agency Representative: An individual assigned to an incident with full authority to make decisions on all matters affecting that Agency's participation at the incident.

Annual Operating Plan: An annually updated document authorized by the appropriate officials for implementing the Interagency Cooperative Fire Management Agreement in their respective areas of responsibilities.

Assisting Agency: An Agency or organization providing fire suppression or other support and resources to the Protecting Agency.

Boundary Line Fire: This includes (i) a fire burning jointly on lands of two or more parties or will soon burn across the boundary line and the boundary line is known, (ii) where the fire location is known, but the jurisdictional boundary on the ground is uncertain, or (iii) where the location of a reported fire is uncertain in relation to the jurisdictional boundary.

Once the exact location of the fire is determined in relation to the jurisdictional boundary, it ceases to be a boundary fire unless falling in category (i) above.

Closest Forces Concept: The philosophy of committing the closest available appropriate resources, regardless of agency, for initial attack or for critical need.

Control: To complete a fireline around a fire, and cool down all hot spots that are immediate threat to the control line.

Cooperator: Organized fire forces of other agencies, paid or volunteers, public or private, at the local, municipal, State, or Federal level.

Cost Share Agreement: A document prepared between a Federal, State and/or local agencies to distribute costs on a multi-jurisdictional incident or an incident which threatens or burns across boundaries of direct protection areas of the agencies.

Direct Costs: All costs associated with direct fireline/fireground operations and incident support ordered by or for the incident. Excludes Overhead Costs.

Emergency Support Function #4 (ESF4) Coordinator: Facilitates the delivery of critical resources, assets, and assistance during disaster operations. Agencies are assigned to be the lead or support agency for the ESF based on authorities, resources and capabilities.

Fire Management: Activities and programs that include: the use of fire as a resource management tool, and protection of values from unwanted, uncontrolled wildland fire.

ICS (Incident Command System): The common emergency incident management system used on any incident or event and tailored to fit the specific management needs of the incident/event.

Jurisdictional Agency: The Agency or organization that has overall land and resource management and/or protection responsibility as provided by Federal or State law.

Nebraska Emergency Management Agency (NEMA): The State Agency responsible for the coordination and administration of State and Federal assistance to Local Fire Protection Districts.

Nebraska Wildfire Coordinating Council: Nebraska State agencies involved with wildfire management activities

Overhead Costs: Indirect administrative costs that cannot be readily identified with specifically financed programs and functions.

Preparedness: Activities before fire occurrence to ensure effective suppression action. Includes training, planning, procuring and maintaining equipment, development of fire defense improvements, and maintaining cooperative arrangements with other Agencies.

Prescribed Fire: The planned and/or permitted use of fire to accomplish specific land management objectives.

Prevention: Activities directed at reducing the number of human-caused fires, including such items as public education, law enforcement, dissemination of information, engineering, and the reduction of hazards.

Protecting Agency: The Agency or organization responsible for providing direct wildland fire protection to a given area pursuant to this agreement.

Resources: All personnel, items of equipment and aircraft available for assignment of tasks.

Rocky Mountain Coordinating Group: A group consisting of the Agency Administrators or their designated representatives to oversee the terms of this Agreement and to provide general oversight for interagency wildland fire activities in Nebraska.

Suppression: All the work of confining and extinguishing a fire beginning with its discovery through the conclusion of the incident.

Values to be Protected: Include property, structures, physical improvements, natural and cultural resources, community infrastructure, and economic, environmental, and social values.

Wildland: Lands with few or no permanent improvements.

Wildland Fire: Any non-structural fire that occurs on wildland.

Wildland Urban Interface (WUI): Defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

EXHIBIT B

ANNUAL OPERATING PLAN OUTLINE GUIDE

The Statewide Annual Operating Plan will be a working document for the purpose of implementing the Interagency Cooperative Fire Management Agreement. The Annual Operating Plan shall become part of the Interagency Cooperative Fire Management Agreement. This Annual Operating Plan covers specific actions and relationships that are best coordinated on a State level for continuity across the State.

The Plan must address items called for in the Agreement and document agreement between parties pertinent to working relationships, exchange of funds, etc. for the current year. The following outline provides a checklist of items deserving consideration in developing an Operating Plan:

1. Plan approvals from authorized Agency representatives with dates

2. Identification of the jurisdictions within the area of the Plan.

3. Authority for Plan, cite Interagency Cooperative Fire Management Agreement among the State and Federal Agencies.

4. Purpose of plan, brief narrative

5. Definitions and description of:
    A. Fire Management Responsibilities and Priorities
    B. Mutual Aid Response Areas by Dispatch Levels
    C. Mutual Aid Move up and Cover Facilities
    D. Special Management Considerations (wilderness areas, Wild and Scenic Rivers, research natural areas, archeological sites, roadless areas, other areas identified in land management planning documents, urban interface areas, or otherwise requiring special fire management procedures)
    E. Responsibility for Non-Wildland Fire Emergencies
    F. Repair of Wildland fire Suppression Damage

6. Fire Protection Resource List including prevention, detection, ground and air attack units, supervisory personnel, draw down levels, and other cooperating agencies.
    A. Kind (by ICS type; i.e. Crews, Dozers, Engines, etc.)
    B. Location
    C. Anticipated Availability Period
    D. Staffing Levels
    E. Contact Points and Names
    F. Fire Caches

7. Protection Area Maps Showing;
    A. Jurisdictional Agency, Protection Unit, County boundary, area of responsibility and

other plan needs.
B. Fire Protection facilities by Agency and location
C. Direct Protection Areas
D. Mutual Aid Dispatch Areas
E. Special Management Consideration Areas
F. Date Effective

8. Fire Readiness
   A. Fire Planning
      1. Preparedness plans
      2. Prevention plans
      3. Prescribed fire plans
   B. Wildland fire Training Needs and Coordination
   C. Inspection Schedules

9. Wildland Fire Suppression Procedures
   A. ICS Use
   B. Detection Standards
   C. Relationship with local mobilization guide
   D. Notification about Fires
   E. Establishment and Revision of Mutual Aid Dispatch Areas
   F. Initial Attack Dispatch Levels and their determination
   G. Dispatching and Resource Order Process
      1. Unified Command
      2. Boundary Fires
   H. Reinforcements and Support
      1. Move up and Cover Locations and Procedures
   J. Interagency procurement, loaning, sharing, or exchanging and maintenance of facilities, equipment, and support services
   K. Interagency Sharing of Communications Systems and Frequencies
   L. Wildland Fire Situation Analysis/Delegation of Authority
   M. State Emergency Fire Fund
   N. Dispatch Centers or other incident support facilities
   0. Post incident Action Analysis
   P. Out of jurisdiction Assignments
      1. Standards
      2. Procedures

10. Aviation Procedures
    A. Aviation map and narrative
       1. Hazards
       2. Sensitive Zones (urban interface, aquatic, wilderness, etc.)
       3. Helispots, dip sites
       4. Automatic dispatch zones (tied to preparedness planning)
       5. Detection routes

6. Foam/retardant restriction areas

B. Flight following/frequency management
C. CWN aircraft, tactical and support aircraft
D. Fixed wing base management
E. Single Engine Attack Tanker Bases
F. Leadplane/Air Attack Activation
G. Aviation Requests and Operations
   1. Initial Attack
   2. Boundary Fires
   3. Wildland Urban Interface
   4. Mutual Aid Procedures
   5. Air Space Restrictions
H. Inspection Schedules

11. Fire Prevention
   A. General Cooperative Activities
   B. Information and Education
      1. Fire Danger Information
         a. Fire Weather Station Locations
         b. Data Sharing and Methods
         c. Fire Danger dissemination
         d. Fire Prevention Signs
      2. Joint or Single Agency Press Releases
      3. Smokey Bear Program
      4. "Let's Talk Fire" Programs
      5. Red Flag Operations
      6. Firewise Communities Programs
   C. Engineering
      1. Land Use Planning (wildland urban interface)
      2. Defensible space and fuels treatments
      3. Railroads and Utilities
   D. Enforcement
      1. Issuing Open Burning and Campfire Permits
      2. Restrictions and Closures, (initiating, enforcement, and lifting)
      3. Fire Investigations

12. Fuel Management and Prescribed Fire Considerations

13. Cost Reimbursements
   A. Non-Reimbursable Items
   B. Reimbursable items
   C. Wildland fire Prevention
   D. Wildland fire Readiness
   E. Wildland Fire Suppression

1. Dispatching
2. Initial Attack
3. Mutual Aid
4. Reinforcements
5. Aviation
6. Cost Share Plan
7. Out-of-jurisdiction Assignments
8. Billing Procedures
9. Resource Use Rates

14. General Procedures. How to handle:
    A. Periodic Program Reviews
    B. Annual Updating of the Plan
    C. Changes During Year (due to budget cuts or supplemental funding)
    D. Resolution of Disputes Procedure

15. Directory of Personnel and/or Authorized Agency Representatives
    A. Bureau of Reclamation
    B. USDA Forest Service
    C. Bureau of Indian Affairs
    D. National Park Service
    E. Fish and Wildlife Service
    F. Nebraska Emergency Management Agency
    G. Nebraska Forest Service
    H. Nebraska Game and Parks Commission
    I. Nebraska Military Department
    J. Nebraska State Fire Marshal

EXHIBIT C

SAMPLE COST SHARE AGREEMENT

Per the master Nebraska Cooperative Fire Management Agreement, this Cost Share Agreement between the Agencies identified below is negotiated for the following incident.

INCIDENT NAME: _____

INCIDENT NUMBERS BY AGENCY: _____

INCIDENT START DATE AND TIME: _____

JURISDICTIONS/CAUSE: _____ _____

INCIDENT COMMANDER(S):_____

This Cost Share Agreement is in effect from _____ at _____ hours until the end of the incident or until amended at the request of any party.

This Cost Share Agreement between _____ and _____, as prepared under the following authorities provided by:

1. The Interagency Cooperative Fire Management Agreement between the State of Nebraska, USDA Forest Service, USDI Bureau of Land Management, USDI National Park Service, USDI Bureau of Indian Affairs, USDI Fish and Wildlife Service, and USDI Bureau of Reclamation.

2. Nebraska Statewide Annual Operating Plan.

3. _____

Agency Representatives participating in development of Cost Share Agreement:

Agency: _____	Agency: _____
Name: _____	Name: _____
Title: _____	Title: _____
Agency: _____	Agency: _____
Name:_____	Name: _____

Title: _____ Title: _____

COST SHARE AGREEMENT FOR THE _____ INCIDENT

It is hereby agreed that the cost basis on this Incident will be shared as follows:

_____

_____

_____

_____

Rationale used in developing this cost agreement:

_____

_____

_____

_____

The following section is optional but will be used only if costs are calculated on a percentage basis and a computer-based incident cost accounting system is not available:

AGENCY	DIRECT COSTS	AIR/RETARDANT COSTS
_____	_____%	_____%
_____	_____%	_____%
_____	_____%	_____%
_____	_____%	_____%
TOTAL	100%	100%

This Agreement and the apportionment contained are our best judgments of Agency cost responsibilities on the date/time shown. Additional Cost Share Agreements for this incident may

be approved for future time periods as conditions and fire spread change.

Signature: _____ Date/Time: _____

Agency: _____ Phone:_____

Mailing Address: _____

Signature: _____ Date/Time: _____

Agency: _____ Phone:_____

Mailing Address: _____

Signature: _____ Date/Time: _____

Agency: _____ Phone:_____

Mailing Address: _____

ITEMS TO CONSIDER WHEN NEGOTIATING A COST SHARE AGREEMENT

Negotiating cost share agreements within the State of Nebraska has been delegated to the respective unit administrators in the Interagency Cooperative Fire Management Agreement. Local Fire Protection District officials must also be included. Cost share agreements are to be documented, including the basis or rationale used. The following guidelines should be considered when negotiating a cost share agreement. These are intended to help field personnel in negotiating an equitable agreement and are not intended to be mandatory.

Unit Administrator (Line Officer): The individual assigned administrative responsibilities for an established organizational unit, such as Forest Supervisors or District Rangers (USFS), Assistant State Forester, Fire Management, or State Forester Designate (State), Agency Administrator (BOR), Regional Director or Refuge Manager (USFWS), Park Superintendent (NPS), and Agency Superintendent (BIA), and may include a County commissioner, County fire warden, fire district board, or joint powers board at the local level.

General Guidelines:

1. Agency budgeted costs normally are not shared.

2. Responsibility for tort claim costs or compensation for injury costs will not be a part of this agreement and will be determined outside of this agreement.

3. Rehabilitation costs other than on the fireline are the responsibility of the jurisdictional agency.

4. All cost share negotiations should include consideration to each agency's values at risk and resources assigned.

5. Cost share agreements should normally be reviewed at the end of each burning period and documented with review date and time.

Method 1: Cost can be shared proportionately based upon the acreage burned.

Method 2: Costs between the agencies can be approximated on a summary of daily estimated incident costs and each agency's proportionate share thereof. If this method is used, daily cost sharing should be properly documented by the Incident Commander. Aircraft and retardant should be on an actual use basis.

Method 3: Costs can be shared based upon direct fireline resources assigned basis. Aviation resources, retardant, etc. should be on an actual use basis. Indirect costs are then shared proportional to direct costs. This is the most equitable method and should be utilized on incidents when a Type I or II Incident Management Team is assigned.

Definitions

Direct Costs: All costs associated with direct fireline/fireground and operations including aircraft, except airtankers and their retardant, and incident support ordered by or for the incident prior to completion of the cost share agreement. Airtanker costs and associated retardant costs are direct costs but normally are calculated at a separate cost share rate.

Indirect Costs: All other costs ordered by or for the incident but not defined as direct costs. Indirect costs may include office support personnel, mobilization/demobilization centers, dispatching, airbase operations, transportation from home base to camp, and minor or major equipment repairs to incident-assigned and damaged equipment (except those costs included in equipment rental rates). Indirect costs can be shared proportionately with direct costs except where identified to be shared differently in the cost share agreement.

EXHIBIT D

DOCUMENTS REQUIRED TO TRANSFER MONEY BETWEEN FEDERAL AGENCIES AND THE NEBRASKA FOREST SERVICE

1. Please enter the type of document(s) required by your Agency to TRANSFER monies to the Nebraska Forest Service.

FEDERAL AGENCIES	FIRE SUPPRESSION	RURAL FIRE ACTIVITIES	PRESCRIBED BURNS
U.S. Forest Service	Cooperative Fire Agreement	Grant	Participating Agreement
U.S. Bureau of Land Management	Purchase Order	Cooperative Agreement	Purchase Order
U.S. National Park Service	Cooperative Agreement	Grant	Cooperative Agreement
U.S. Fish & Wildlife Service	Purchase Order	Cooperative Agreement	Purchase Order
U.S. Bureau of Reclamation	Procurement	Financial Assistance	Procurement
U.S. Bureau of Indian Affairs	Purchase Order	Cooperative Agreement	Purchase Order

2. Please enter the type of document(s) required by your Agency to TRANSFER monies to other Federal Agencies.

FEDERAL AGENCY BUYER	FIRE SUPPRESSION	RURAL FIRE ACTIVITIES	PRESCRIBED BURNS
U.S. Forest Service	Not applicable	AD-672	AD-672
U.S. Bureau of Land Management	Interagency Agreement (IDEAS) Articles IGO 1681-3 (IDEAS)	Interagency Agreement (IDEAS) Articles IGO 1681-3 (IDEAS)	Interagency Agreement (IDEAS) Articles IGO 1681-3 (IDEAS)
U.S. National Park Service	Interagency Agreement (IDEAS) Without Articles (NPS form not numbered	Interagency Agreement (IDEAS) Articles IGO 1681-3 (IDEAS)	Interagency Agreement (IDEAS) Articles IGO 1681-3 (IDEAS)
U.S. Fish & Wildlife Service	Interagency Agreement/Intra-Agency Agreement	Interagency Agreement/Intra-Agency Agreement	Interagency Agreement/Intra-Agency Agreement
U.S. Bureau of Reclamation	Interagency Agreement	Interagency Agreement	Interagency Agreement
U.S. Bureau of Indian Affairs	Interagency Agreement	Interagency Agreement	Interagency Agreement

(For internal operating procedures or internal documents, contact your local Contracting Officer/Assistance Officer or Grants & Agreements Specialist.)

3. Please enter the type of document(s) required by your Agency to RECEIVE monies from other Federal Agencies.

FEDERAL AGENCY SELLER	FIRE SUPPRESSION	RURAL FIRE ACTIVITIES	PRESCRIBED BURNS
U.S. Forest Service	Not applicable	AD-672	AD-672
U.S. Bureau of Land Management	1681-3 (WORD) Statement of Work Attached Other Agency Form	1681-3 (WORD) Statement of Work Attached Other Agency Form	1681-3 (WORD) Statement of Work Attached Other Agency Form
U.S. National Park Service	Interagency Agreement (Will accept other Agency format, but needs to meet basic NPS key elements)	1681-3 (WORD) Statement of Work Attached Other Agency Form	1681-3 (WORD) Statement of Work Attached Other Agency Form
U.S. Fish & Wildlife Service	Interagency Agreement (Other Agency Form acceptable)	Interagency Agreement Initiated by Other Agency (Other Agency Form acceptable)	Interagency Agreement (Other Agency Form acceptable)
U.S. Bureau of Reclamation	Interagency Agreement	Interagency Agreement	Interagency Agreement
U.S. Bureau of Indian Affairs	Interagency Agreement	Interagency Agreement	Interagency Agreement

(For internal operating procedures or internal documents, contact your local Fiscal/Financial/Budget Officer.)

Appendix A5

A5 – MOU between Twin Loups Reclamation District and the Nebraska Game and Parks Commission

MEMORANDUM OF UNDERSTANDING BETWEEN TWIN LOUPS RECLAMATION DISTRICT AND NEBRASKA GAME AND PARKS COMMISSION FOR PRIORITY OF USE OF STORAGE WATER FROM CALAMUS RESERVOIR AND DIRECT FLOW FROM CALAMUS RIVER

THIS MEMORANDUM OF UNDERSTANDING is executed this 28th day of July, 1988, between the Twin Loups Reclamation District hereinafter referred to as the District and Nebraska Game and Parks Commission herein referred to as the Commissin. The purpose of this memorandum is to establish priorities of use for water stored in Calamus Reservoir in Nebraska and priority of use of direct flow of Calamus River.

RECITALS

1. The Reclamation District has filed application number A-9517 for the right to store up to 139,000 acre-feet of water in Calamus Dam and Reservoir. The water right listing in the Forty-fifth Biennial Report of the Department of Water Resources indicates a storage right of 129,400 acre-feet. The Commission has filed an application for a permit to impound water being Application Number A-16638.

2. The District has filed applications for permits to appropriate water from the Calamus River and the Commission has filed application for a permit to appropriate water from the Calamus River.

3. The agreement is entered into for purposes of recognizing priorities and to reduce conflict between the parties to the use of water from the Calamus River.

TERMS

1. Exhibit "A" is attached hereto and incorporated herein by reference as if fully set forth herein. Exhibit "A" is a diagram of the elevations of the Calamus Reservoir.

The parties agree that the Commission may use from the storage water of the District at the Calamus Reservoir from January 1st to September 15th of each year, 2,500 acre feet of water from the storage pool above elevation 2208.0, (which pool is commonly referred to as the Active and Inactive Storage). Further, the Commission may use from September 15th to December 31st, 2,500 acre feet of District's Storage from the "conservation pool" which is shown on the attached Exhibit "A" from elevation 2185.0 to 2208.0. Unused portions of the Commission's storage water shall not accrue to the following year.

2. The parties further understand that a full supply of water may not be available from the pool due to Safety of Dam Requirements, maintenance on the dam and reservoir, repair of outlets, losses, lack of supply, or other reasons due to conditions beyond the control of the District. In the event of storage supply shortages the District and the Commission agree to share any such shortages on a pro rata basis, determined by dividing the amount of storage actually available by the total number of acre feet which is normally available under full reservoir conditions.

3. The parties further understand and agree that an agreement between the District and the Commission was entered into on or about the 26th day of April, 1982, concerning cost sharing in the operation, maintenance and replacement costs of fish and wildlife mitigation lands and facilities of North Loup Division Pick-Sloan Missouri River Basin Program. In this agreement, the District obligated itself to a share of operation, maintenance and replacement costs of fish and wildlife mitigation lands and facilities. The Commission further understands that the District is obligated to operate and maintain the dam and reservoir structure and outlet works areas by virtue of an agreement with the United States of America. Allocation of storage water from the reservoir would obligate the Commission to share in the cost of operation and maintenance of the dam and outlet works. The District believes that the Commission would be obligated to share in water service storage costs. The parties have analyzed the cost of water storage service and operation and maintenance by the District for the dam and outlet works, and the operation and maintenance of fish and wildlife mitigation lands. It has been determined that the Commission's cost for the water storage service and share of the maintenance of dam and outlet works and the share of the District's operation and maintenance of the fish and wildlife mitigation lands are approximately equal. Therefore, the parties waive the requirement that the Commission be billed for water storage service and a share of the operation and maintenance of the dam and outlet works and the Commission waives the requirement for billing the District for its share of operation and maintenance of fish and wildlife mitigation lands as set forth in the agreement dated April 26, 1982. The parties understand that neither party will contribute to or share in the other party's obligation for the water storage costs and the dam and outlet works and the fish and wildlife mitigation lands.

OPERATIONAL STANDARDS

4. The Commission further agrees that in the event it becomes evident that operation of the fish Hatchery will effect discharges by the District to the Mirdan Canal System, the District shall be notified and have the right to require notice from the Commission for changes in the Commission's diversion amounts or rate. The Commission understands that prior to any request for a rate of delivery of the 5,000 acre feet it shall so notify the District's Reservoir Caretaker and he shall make such discharges to the Fish Hatchery as allowed under this agreement. Any requests for changes in the rate of delivery will be given to the District's Reservoir Caretaker at least 24 hours in advance of such change.

5. The Commission further understands that in the event of emergency or other event which may threaten the integrity of the structure, that being the dam and outlet works, District retains the right to immediately halt the delivery of water to the Fish Hatchery, it being understood that District will take the necessary action to correct the emergency, the situation or event which is threatening the integrity of the dam or outlet works as soon as possible.

6. District and the Commission understand that the District will, at least semi-annually, need to check all emergency gates and outlet works for proper operation. This operation and inspection will result in no flow conditions to the Fish Hatchery, however, the District will attempt to perform this inspection at times when the use of reservoir water is at its minimum by Commission. The District agrees to provide the Commission with notice of the time and date of these inspections at least 24 hours in advance. The Commission and District understand that this operation will last for a period of time from 30 minutes to 3 hours.

RIGHTS TO DIRECT FLOW AND STORAGE

7. The Commission further acknowledges that District has the following permits to the use of the Calamus River as follows:

Permit No. A9642 with priority date 8-28-58;
Permit No. A15089 with priority date 8-24-77; and
Permit No. A9517 with priority date 6-17-57. (Calamus Storage)
Permit No. A9518 with priority date 6-17-57 (Davis Creek Storage)
Permit No. A15091 with priority date 8-24-77 (Supplemental Davis Creek)

The Commission acknowledges that these permits to appropriate or store water of the Calamus River by District are prior to the Commission's permit(s) to appropriate water from the Calamus River or to store water in the Fish Hatchery. The parties further understand that approval by the Department of Water Resources of the Commission's Applications A-16638 and A-16639 are subject to the terms of this agreement.

8. The Commission acknowledges the District's prior right to appropriate water from the Calamus River and the total use of the water in the Calamus River could total 757.14 Cubic Feet per second. Applicant acknowledges that in a normal year the direct flow rights of the District will exceed the flow of the river.

OPERATION

9. The Commission acknowledges that during the months of April, May and June, District will use its direct flow rights to the Calamus River to prime, fill and make farm deliveries of water to farmers. The Commission further understands that the District cannot utilize its direct flow in the months of July and August and in the month of September, if storage is available in September. Therefore, in April, May and June the Commission may not have water available from natural flow, if the use of the water by the District and other senior holders exceeds the flow of the Calamus River.

10. The Commission agrees to hold harmless the District, its successors, assigns, agents, employees and other representatives from any claim for damage, loss or injury relating to the Fish Hatchery which may be caused by the delivery or nondelivery of water to the Commission by

the District, as contemplated by this Agreement, or resulting from the general operation and maintenance of the Calamus Dam and outlet works and appurtenances including but not limited to Mirdan Canal.

11. This agreement and the terms hereof are binding upon the parties and all assignees of the parties. The parties further understand that should the District transfer any water rights to a third party, the terms of this Agreement shall be binding upon the assignee of the District to said water rights. Should the Commission desire to transfer water rights, or no longer require the use of storage water, the Commission shall transfer said water rights to the District or obtain the District's approval prior to any transfer, all subject to the laws of the State of Nebraska.

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Understanding as of the day and year first before written.

THE TWIN LOUPS RECLAMATION DISTRICT

Attest:

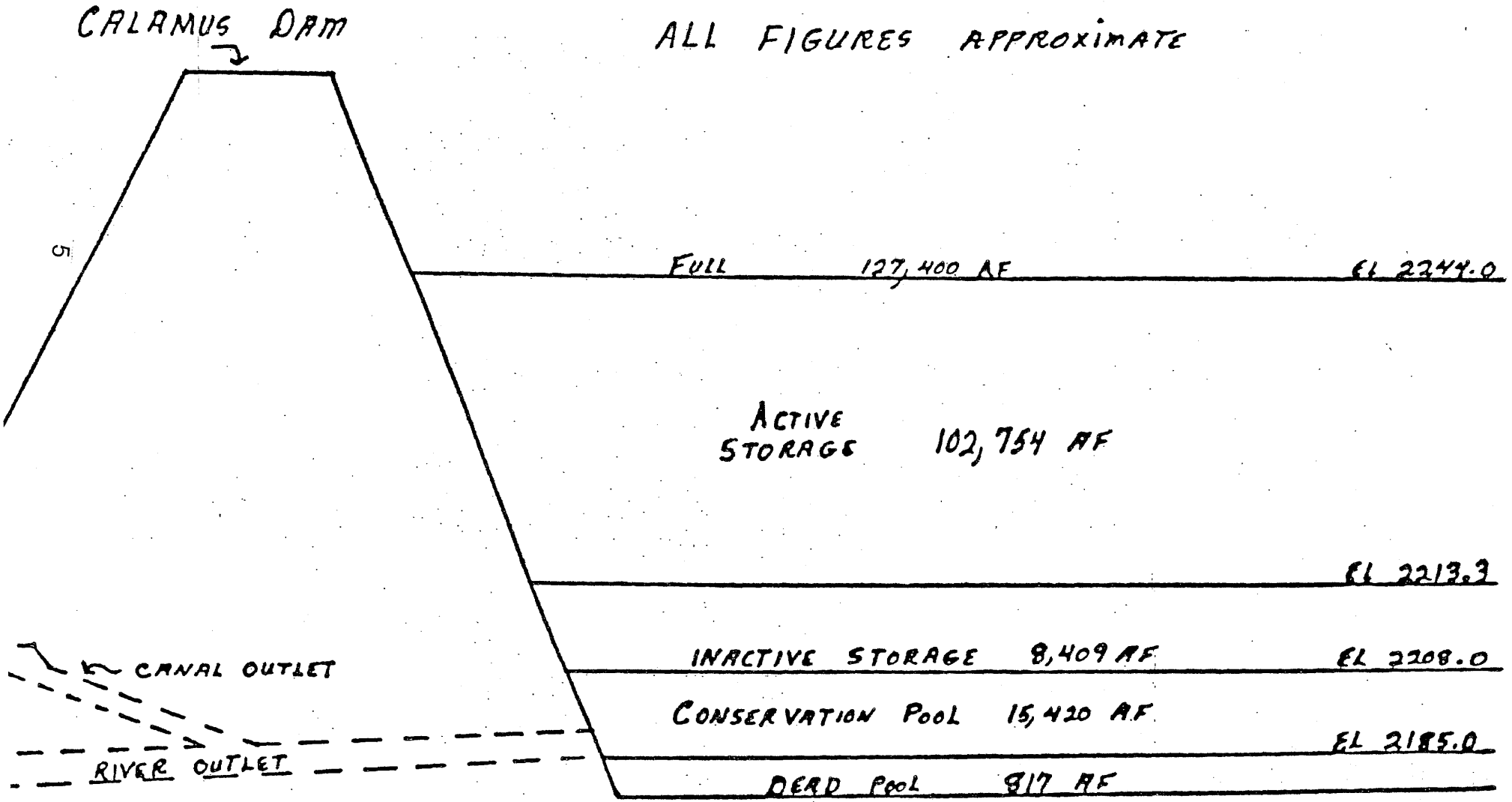
Henry L. Longe
Secretary-Treasurer

By
Title: President

STATE OF NEBRASKA
NEBRASKA GAME AND PARKS COMMISSION

Rex Amack
Rex Amack, Director

EXHIBIT "A"

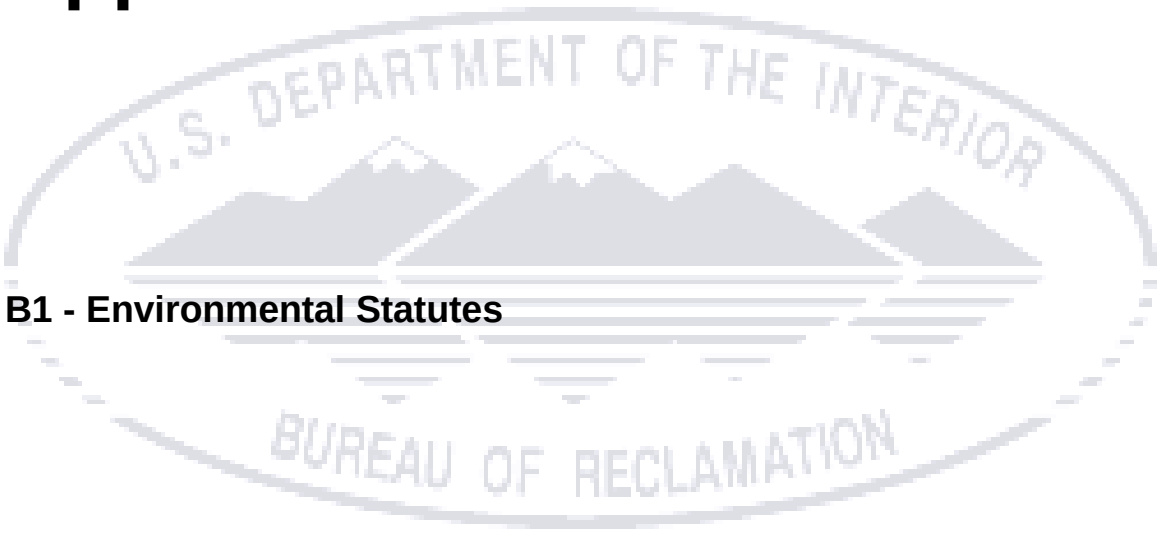

CALAMUS DAM
ALL FIGURES APPROXIMATE
5
FULL 127,400 AF EL 2244.0
ACTIVE STORAGE 102,754 AF
EL 2213.3
INACTIVE STORAGE 8,409 AF EL 2208.0
CONSERVATION POOL 15,420 AF
EL 2185.0
DEAD POOL 817 AF
CANAL OUTLET
RIVER OUTLET

Appendix B

Regulations

B1 - Environmental Statutes
B2 - GP 135 Stipulations

Appendix B1



B1 - Environmental Statutes

COMPLIANCE WITH ENVIRONMENTAL STATUTES

National Environmental Policy Act (NEPA) of 1969

The National Environmental Policy Act (NEPA) requires all federal agencies to consult with each other and to employ systematic and interdisciplinary techniques in planning and decision making. NEPA requirements also include a full and honest disclosure of all environmental impacts associated with alternatives of the proposed action.

Endangered Species Act (ESA) of 1973

The Endangered Species Act requires consultation with USFWS for federally listed threatened and endangered species identified to exist or potentially exist in the project area.

Fish and Wildlife Coordination Act (FWCA) of 1958

The Fish and Wildlife Coordination Act, as amended, requires that whenever the federal Government authorizes, sponsors, or issues a permit to impound, modify, divert, or otherwise control the waters of any stream or body of water for any purpose by any entity, the entity must consult with USFWS and the state's fish and wildlife management agency.

Clean Water Act (CWA) of 1972 - Section 401

This section of the Clean Water Act, although administered by EPA, is the responsibility of the state and eligible Indian tribes to develop and enforce. Section 401 provides the states with authority to grant or deny certification for a federally permitted or licensed activity that may result in a discharge to waters of the United States. States also may waive water quality certification.

Clean Water Act of 1972 - Section 404

Section 404 of the Clean Water Act of 1972, as amended, is administered by COE with oversight from EPA. All activities involving the placement of dredged or fill materials in waters of the United States, including wetlands, are subject to the COE permitting process. Both nationwide and individual permits are issued under Section 404. Nationwide permits are issued on a state, regional, or nationwide basis for any category of activities where such activities are similar in nature and will cause only minimal adverse environmental effects both individually and cumulatively. Individual Section 404 permits are issued for specific activities within specific waters.

Clean Air Act (CAA) of 1972

The Clean Air Act requires that any federal entity engaged in an activity that may result in the discharge of air pollutants must comply with all applicable air pollution control laws and regulations (federal, state, tribal, or local). The Act requires the EPA to publish national primary standards to protect public health and more stringent national secondary standards to protect public welfare. States, tribes, and local governments are responsible for the prevention and control of air pollution. Measures will be incorporated into contractor specifications to ensure compliance with these laws and regulations.

Executive Order 12898, Environmental Justice

Executive Order 11898 directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Executive orders represent administrative policy and do not have the force of law that comes with delegation of authority provided by Congress.

American Indian Religious Freedom Act of 1978 (PL 95341) and Religious Freedom Restoration Act of 1993 (42 USC 2000)

The American Indian Religious Freedom Act of 1978 (AIRFA) requires federal agencies to consider the impacts of projects on the ability of American Indians to continue their traditional cultural and religious practices. The Religious Freedom Restoration Act of 1993 (RFRA) protects everyone's practice of religion and establishes tests that must be met before a federal agency can "substantially burden a person's exercise of religion."

Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95)

Permits are required to remove archeological resources from federal or Indian lands. Permits may be issued to educational or scientific institutions only if the removal would increase knowledge about archeological resources.

Archaeological and Historic Preservation Act of 1974 (PL 93-291)

The Archaeological and Historic Preservation Act (AHPA) authorizes federal agencies to protect historical and archaeological data that might be lost as a result of construction of an irrigation project or other federal activity.

National Historic Preservation Act (NHPA) of 1966 (PL89-665) as amended through 1992 (PL 102-575)

The National Historic Preservation Act (NHPA) establishes the federal policy concerning the protection of historic properties. Federal agencies are required to carry out all activities under NHPA in cooperation with states, tribes and local governments. The act designates the state historic preservation officer (SHPO) as the responsible entity in each state for administering programs under NHPA. The responsibilities of the SHPO may be assumed by a tribal historic preservation office (THPO). The act also creates the Advisory Council on Historic Preservation (ACHP) to serve as the advisory body to the Executive Branch on historic preservation issues. Section 106 of the act requires federal agencies to consider the effects of their undertakings on historic resources and to give the SHPO (or THPO) and the ACHP reasonable opportunity to comment on the effects of those undertakings.

Finally, the 1992 amendments require the federal agency to consider the impacts of undertakings on properties of traditional religious and cultural importance to American Indians and to involve American Indian tribes to participate in the consultation process, should such resources be affected.

Native American Graves Protection and Repatriation Act (PL 101 - 601)

The Native American Graves Protection and Repatriation Act (NAGPRA) establishes federal policy with respect to Native American burials and graves located on federal or Indian lands. Federal agencies are required to consult with and to obtain the concurrence of the appropriate tribes with respect to activities that may result in the disturbance and/or removal of such burials and graves on federal or reservation lands.

Access to Religious Sites for Native Americans, Executive Order 13007

Issued May 24, 1996, the President directed federal agencies to accommodate Indian tribes' requirements for access to and ceremonial use of sacred sites on public lands and to avoid damaging the physical integrity of such sites.

Executive Order 11988, Flood Plain Management

Executive Order 11988 directs federal agencies to take flood plain management into account when formulating or evaluating water or land use plans.

Executive Order 11990, Protection of Wetlands

Executive Order 11990 directs each federal agency to provide leadership and take action to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out agency duties and responsibilities.

COMPLIANCE WITH POLICY, REGULATIONS AND EXECUTIVE ORDERS

The following laws, policy, Federal regulations, and Executive Orders apply to management of Reclamation lands and facilities:

Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 USC 6901 et seq.) - Hazardous waste management.

Federal Insecticide, Fungicide, and Rodenticide Act of 1972 (FIFRA) (7 USC 1361, as amended November, 28, 1975, by PL 94-140 - Herbicide and pesticide application.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 USC 9603) - Hazardous waste site cleanup.

Public Law 98-552 - Authority for the Secretary of the Interior to Cooperate with Local Law Enforcement Officials - Law enforcement.

Act of October 30, 1984 (98 Stat. 2823, Section 3) - Law enforcement.

The Flood Control Act of 1944 (PL 534) - Recreation management.

Soil and Moisture Conservation (S&MC) Act of 1935 (49 Stat. 163, Ch. 85) - Controlling and preventing soil erosion; includes fencing, road construction and vegetation management.

Procedures to Process and Recover the Value of Rights-of-Use and Administrative Costs Incurred in Permitting Such Use (43 CFR 429) - Charging and collecting money for outgrants.

Executive Order 11988 - Flood plain management.

Executive Order 11990 - Management of wetlands.

Executive Order 11644 - Off-road vehicle use.

43 CFR 420, July 20, 1974 - Off-road vehicle use.

Endangered Species Act (Sec. 7, 16 USC, Sec. 1531 et seq.) - Endangered and threatened species management.

Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 USC 1856a) - Fire suppression.

Disaster Relief Act of May 22, 1974 (Stat. 143; 16 USC 5121) - Coordination of disaster preparedness and relief programs.

Protection Act of September 20, 1922 (42 Stat. 857, 16 USC 594) - Fire protection.

Protection of Historic and Cultural Properties (36 CFR Part 800) - Protection of historic and cultural properties on public lands.

Archaeological Resource Protection Act of 1979 (ARPA) (92 Stat. 469, 42 USC 470) - Issuing of permits for scientific excavation of archaeological resources on public lands, development of public education programs, establishment of criminal penalties for looting of resources on public lands.

National Historic Preservation Act of 1966, as amended (16 USC 470) - Causes federal agencies to consider impacts on cultural resources as a result of its activities.

Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001, 104 Stat. 3048) - Requires federal agencies to inventory their archaeological collections for Native American human remains and return them, as appropriate.

Occupancy of Cabin Sites on Public Conservation and Recreation Areas (43 CFR 21) - Administration of exclusive use areas.

Executive Order 11724 and FPMR 101-47, Utilization and Disposal of Real Property - Real property management.

Architectural and Transportation Barriers Act of 1968 (ABA) (42 USC 4151-4157, PL 90-480 - Handicapped access.

Wild and Scenic Rivers Act (PL 90-542, 16 USC 1274 et seq.) - Wild and scenic rivers management.

Wilderness Act (PL 88-577) - Wilderness management.

Mineral Locations in Reclamation Withdrawals, April 23, 1932 (43 CFR 3816.1; 47 Stat. 136; 43 USC 1540 - Vacation of withdrawals.

Appendix B2

B2 – GP 135 Stipulations

GP-135
Revised (03/2010)

SPECIAL STIPULATION – BUREAU OF RECLAMATION

To avoid interference with recreation development and/or impacts to fish and wildlife habitat and to assist in preventing damage to any Bureau of Reclamation dams, reservoirs, canals, ditches, laterals, tunnels, and related facilities, and contamination of the water supply therein, the lessee agrees that the following conditions shall apply to all exploration and developmental activities and other operation of the works thereafter on lands covered by this lease:

1. Prior to commencement of any surface-disturbing work including drilling, access road work, and well location construction, a surface use and operations plan will be filed with the appropriate officials. A copy of this plan will be furnished to the Regional Director, Great Plains Region, Bureau of Reclamation, P.O. Box 36900, Billings, MT 59107-6900, for review and consent prior to approval of the plan. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, water pollution, and unnecessary damages to the surface vegetation and other resources, including cultural resources, of the United States, its lessees, permittees, or licensees, and to provide for the restoration of the land surface and vegetation. The plan shall contain provisions as the Bureau of Reclamation may deem necessary to maintain proper management of the water, recreation, lands, structures, and resources, including cultural resources, within the prospecting, drilling, or construction area.

Drilling sites for all wells and associated investigations such as seismograph work shall be included in the above-mentioned surface use and operation plan.

If later explorations require departure from or additions to the approved plan, these revisions or amendments, together with a justification statement for proposed revisions, will be submitted for approval to the Regional Director, Great Plains Region, Bureau of Reclamation, or his/her authorized representative.

Any operations conducted in advance of approval of an original, revised, or amended prospecting plan, or which are not in accordance with an approved plan constitute a violation of the terms of this lease. The Bureau of Reclamation reserves the right to close down operations until such corrective action, as is deemed necessary, is taken by the lessee.

2. No occupancy of the surface of the following excluded areas is authorized by this lease. It is understood and agreed that the use of these areas for Bureau of Reclamation purposes is superior to any other use. The following restrictions apply only to mineral tracts, located within the boundary of a Bureau of Reclamation project, where the United States owns 100 percent of the fee mineral interest in said tract, or tracts.

a. Within 500 feet on either side of the centerline of any and all roads or highways within the leased area.

b. Within 200 feet on either side of the centerline of any and all trails within the leased area.

c. Within 500 feet of the normal high-water line of any and all streams in the leased area.

d. Within 400 feet of any and all recreation developments within the leased area.

e. Within 400 feet of any improvements either owned, permitted, leased, or otherwise authorized by the Bureau of Reclamation within the leased area.

f. Within 200 feet of established crop fields, food plots, and tree/shrub plantings within the leased area.

g. Within 200 feet of slopes steeper than 2:1 gradient within the leased area.

h. Within established rights-or-way of canals, laterals, and drainage ditches within the leased area.

i. Within a minimum of 500 feet horizontal from the centerline of the facility or 50 feet from the outside toe of the canal, lateral, or drain embankment, whichever distance is greater, for irrigation facilities without clearly marked rights-of-way within the leased area.

3. No occupancy of the surface or surface drilling will be allowed in the following areas. In addition, no directional drilling will be allowed that would intersect the subsurface zones delineated by a vertical plane in these areas. The following restrictions apply only to mineral tracts, located within the boundary of a Bureau of Reclamation project, where the United States owns 100 percent of the fee mineral interest in said tract, or tracts.

a. Within 1,000 feet of the maximum water surface, as defined in the Standard Operating Procedures (SOP), of any reservoirs and related facilities located within the lease area.

b. Within 2,000 feet of dam embankments and appurtenance structures such as spillway structures, outlet works, etc.

c. Within one-half (1/2) mile horizontal from the centerline of any tunnel within the leased area.

4. The distances stated in items 2 and 3 above are intended to be general indicators only. The Bureau of Reclamation reserves the right to revise the distances as needed to protect Bureau of Reclamation facilities.

5. The use of explosives in any manner shall be so controlled that the works and facilities of the United States, its successors and assigns, will in no way be endangered or damaged. In this connection, an explosives use plan shall be submitted to and approved by the Regional Director, Great Plains Region, Bureau of Reclamation, or his/her authorized representative.

6. The lessee shall be liable for all damage to the property of the United States, its successors or assigns, resulting from the exploration, development, or operation of the works contemplated by this lease, and shall further hold the United States, its successors or assigns, and its officers, agents, and employees, harmless from all claims of third parties for injury or damage sustained in any way resulting from the exercise of the rights and privileges conferred by the lease.

7. The lessee shall be liable for all damages to crops or improvements of any entryman, nonmineral applicant, or patentee, their successors or assigns, caused by or resulting from the drilling or other operations of the lessee, including reimbursement of any entryman or patentee, their successors or assigns, for all construction, operation, and maintenance charges becoming due on any portion of their said lands damaged as a result of the drilling or other operation of the lessee.

8. In addition to any other bond required under the provisions of this lease, the lessee shall provide such bond as the United States may at any time require for damages which may arise under the liability provisions of Section six (6) and seven (7) above.

_____. _____.

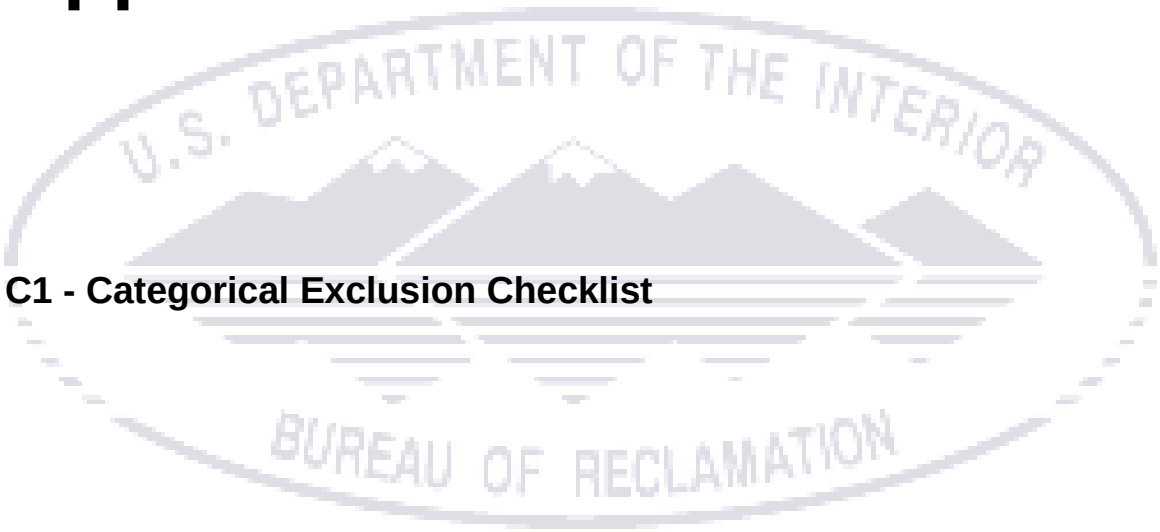
Date Signature of Lessee

Appendix C

Exhibits

C1 - Categorical Exclusion Checklist
C2 - Land Use Authorization Forms – SF 299 and Form 7-2540

Appendix C1



C1 - Categorical Exclusion Checklist

CATEGORICAL EXCLUSION CHECKLIST

PROJECT: Calamus Reservoir Resource Management Plan 628 - 1005 - CR/KDD - RMP

DATE: May 17, 2010

NATURE OF ACTION: The Bureau of Reclamation's (Reclamation) Nebraska-Kansas Area Office, in cooperation with the Nebraska Game and Parks Commission (Commission), has developed the Calamus Reservoir Resource Management Plan (RMP) in accordance with; Public Law 102-575, Title 28, Section 2805 (106 Stat. 4690), and the Reclamation Recreation Management Act of October 30, 1992; which provides Reclamation with the authority to prepare an RMP. The RMP document provides guidance for land use and resource management decisions to ensure public resources are protected, and used according to; authorized project purposes, laws, regulations, and recognized standards, while considering the needs and desires of the public. The purpose of the RMP is to establish a 10 year plan detailing the administration and management for the conservation, protection, enhancement, development, and use of resources at Calamus Reservoir and Kent Diversion Dam. The scope of the RMP includes the 11,477 acres of land and water at Calamus Reservoir and the 194 acres of land and water at Kent Diversion Dam - acquired by the United States as components of the North Loup Division. The lands and waters at Calamus Reservoir and Kent Diversion Dam are managed for recreation, wildlife and fisheries, and operations. The RMP primarily addresses the following topics; land use, recreation management, fish and wildlife management, agency responsibilities, and reservoir operations.

EXCLUSION CATEGORY. 516 DM 6 Appendix 9. C. Project Implementation Activities: # 4. Approval of land management plans where implementation will only result in minor construction activities and resultant increased operation and maintenance activities.

EVALUATION OF EXTRADORINARY CIRCUMSTANCES FOR CATEGORICAL EXCLUSION (516 DM 2 Appendix 2):

Extraordinary Circumstances Exist For This Action Which May:

1. Have significant impacts on public health or safety — No _X_ Uncertain ___ Yes____
2. Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands, wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas — No _X_ Uncertain ___ Yes____
3. Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA Section 102 (2)(E)]. — No _X_ Uncertain ___ Yes____
4. Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks. — No _X_ Uncertain ___ Yes ___
5. Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects. — No _X_ Uncertain ___ Yes___
6. Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects. — No _X_ Uncertain ___ Yes___
7. Have a significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by either the bureau or office. BRC 6/1/2010 — No _X_ Uncertain ___ Yes___

CATEGORICAL EXCLUSION CHECKLIST (CONTINUED)

8. Have significant impacts on species listed, or proposed to be listed on the list of Endangered or Threatened Species, or have significant impacts designated Critical Habitat for these species. No _X_ Uncertain ___ Yes___

9. Violate a Federal law, or State, local, or tribal law or requirement imposed for the protection of the environment. No _X_ Uncertain ___ Yes___

10. Have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898). No _X_ Uncertain ___ Yes___

11. Limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly Adversely affect the physical integrity of such sacred sites (Executive Order 13007). No _X_ Uncertain ___ Yes___

12. Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112). No _X_ Uncertain ___ Yes___

INDIAN TRUST ASSETS:

This action will affect Indian Trust assets (ITAs). (To be completed by the ITA Coordinator): BRC (initials) 6/1/2010 No _X_ Uncertain ___ Yes___

NEPA ACTION RECOMMENDED:

☒ Categorical Exclusion ☐ Environmental Assessment ☐ Environmental Impact Statement

ENVIRONMENTAL AND TRUST ASSET COMMITMENTS, EXPLANATION AND/OR COMMENTS:

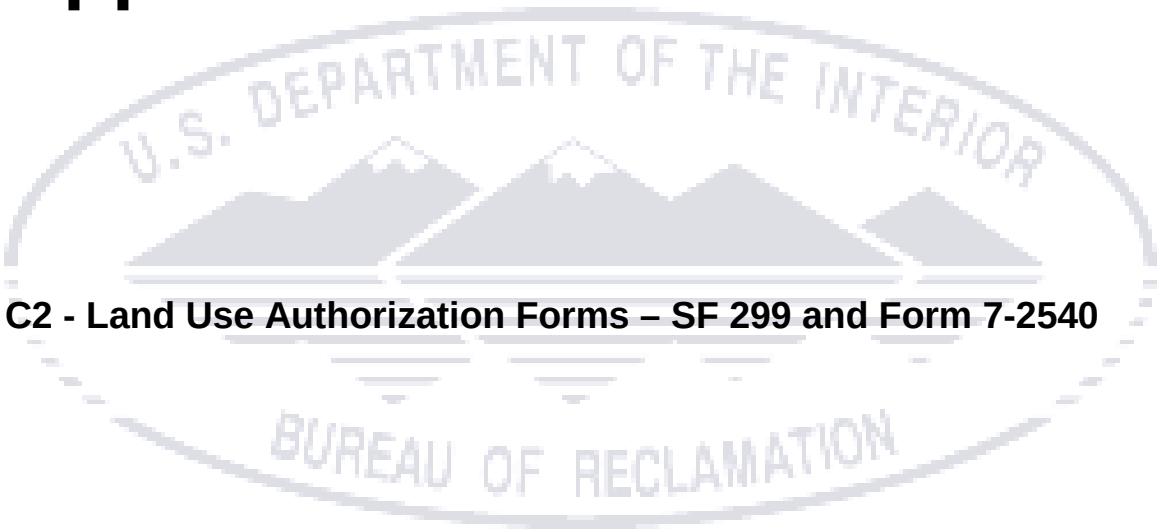
The Nebraska Game and Parks Commission has completed wildlife management plans for Calamus Reservoir and Kent Diversion Dam and a fisheries management plan for Calamus Reservoir. These plans address specific wildlife and fisheries management activities employed by the Commission at these project areas. The plans are included in Appendix A of the RMP.

This Categorical Exclusion Checklist addresses only the implementation of the RMP as the overall guidance document for Calamus Reservoir and Kent Diversion Dam. All future development activities proposed for either of these two project areas will be assessed individually to determine the applicability of environmental and historical properties protection laws and regulations (such as the: National Environmental Policy Act, National Historic Preservation Act; Clean Water Act, Endangered Species Act, Migratory Bird Treaty Act, etc.) - to determine the level of compliance documentation needed for project clearance.

PREPARER'S NAME AND TITLE: Micheal J. Delvaux, Natural Resource Specialist

APPROVED: _____ DATE: 6/3/2010
Area Manager

Appendix C2



C2 - Land Use Authorization Forms – SF 299 and Form 7-2540

STANDARD FORM 299 (6/99)
Prescribed by DOI/USDA/DOT
P.L. 96-487 and Federal
Register Notice 5-22-95

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

FORM APPROVED
OMB NO. 0596-0082

FOR AGENCY USE ONLY

NOTE: Before completing and filing the application, the applicant should completely review this package and schedule a preapplication meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the preapplication meeting.

Application Number

Date Filed

1. Name and address of applicant (*include zip code)*

2. Name, title, and address of authorized agent if different from item 1 *(include zip code)*

3. Telephone (area code)

Applicant

Authorized Agent

4. As applicant are you? *(check one)*
   a. [ ] Individual
   b. [ ] Corporation*
   c. [ ] Partnership/Association*
   d. [ ] State Government/State Agency
   e. [ ] Local Government
   f. [ ] Federal Agency

** If checked, complete supplemental page*

5. Specify what application is for: *(check one)*
   a. [ ] New authorization
   b. [ ] Renewing existing authorization No.
   c. [ ] Amend existing authorization No.
   d. [ ] Assign existing authorization No.
   e. [ ] Existing use for which no authorization has been received *
   f. [ ] Other*

** If checked, provide details under item 7*

6. If an individual, or partnership are you a citizen(s) of the United States? [ ] Yes [ ] No

7. Project description (describe in detail): (a) Type of system or facility, *(e.g., canal, pipeline, road);* (b) related structures and facilities; (c) physical specifications *(Length, width, grading, etc.*); (d) term of years needed: (e) time of year of use or operation; (f) Volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction *(Attach additional sheets, if additional space is needed.)*

8. Attach a map covering area and show location of project proposal

9. State or Local government approval: [ ] Attached [ ] Applied for [ ] Not Required

10. Nonreturnable application fee: [ ] Attached [ ] Not required

11. Does project cross international boundary or affect international waterways? [ ] Yes [ ] No *(if "yes," indicate on map)*

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

(Continued on reverse)

13a. Describe other reasonable alternative routes and modes considered.

b. Why were these alternatives not selected?

c. Give explanation as to why it is necessary to cross Federal Lands.

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. *(Specify number, date, code, or name)*

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plantlife, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

19. State whether any hazardous material, as defined in this paragraph, will be used, produced, transported or stored on or within the right-of-way or any of the right-of-way facilities, or used in the construction, operation, maintenance or termination of the right-of-way or any of its facilities. "Hazardous material" means any substance, pollutant or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations. The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 6901 et seq., and its regulations. The term hazardous materials also includes any nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCIA Section 101(14), 42 U.S.C. 9601(14), nor does the term include natural gas.

20. Name all the Department(s)/Agency(ies) where this application is being filed.

I HEREBY CERTIFY, That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

Signature of Applicant	Date

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS
AND FACILITIES ON FEDERAL LANDS

GENERAL INFORMATION
ALASKA NATIONAL INTEREST LANDS

This application will be used when applying for a right-of-way, permit, license, lease, or certificate for the use of Federal lands which lie within conservation system units and National Recreation or Conservation Areas as defined in the Alaska National Interest lands Conservation Act. Conservation system units include the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, and National Forest Monuments.

Transportation and utility systems and facility uses for which the application may be used are:

1. Canals, ditches, flumes, laterals, pipes, pipelines, tunnels, and other systems for the transportation of water.

2. Pipelines and other systems for the transportation of liquids other than water, including oil, natural gas, synthetic liquid and gaseous fuels, and any refined product produced therefrom.

3. Pipelines, slurry and emulsion systems, and conveyor belts for transportation of solid materials.

4. Systems for the transmission and distribution of electric energy.

5. Systems for transmission or reception of radio, television, telephone, telegraph, and other electronic signals, and other means of communications.

6. Improved right-of-way for snow machines, air cushion vehicles, and all-terrain vehicles.

7. Roads, highways, railroads, tunnels, tramways, airports, landing strips, docks, and other systems of general transportation.

This application must be filed simultaneously with each Federal department or agency requiring authorization to establish and operate your proposal.

In Alaska, the following agencies will help the applicant file an application and identify the other agencies the applicant should contact and possibly file with:

Department of Agriculture
Regional Forester, Forest Service (USFS)
Federal Office Building,
P.O. Box 21628
Juneau, Alaska 99802-1628
Telephone: (907) 586-7847 *(or a local Forest Service Office)*

Department of the Interior
Bureau of Indian Affairs (BIA)
Juneau Area Office
Federal Building Annex
9109 Mendenhall Mall Road, Suite 5
Juneau, Alaska 99802
Telephone: (907) 586-7177

Department of the Interior
Bureau of Land Management
222 West 7th Avenue
P.O. Box 13
Anchorage, Alaska 99513-7599
Telephone: (907) 271-5477 (or a local BLM Office)

National Park Service (NPS)
Alaska Regional Office
2525 Gambell Street, Room 107
Anchorage, Alaska 99503-2892
Telephone: (907) 257-2585

U.S. Fish & Wildlife Service (FWS)
Office of the Regional Director
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: (907) 786-3440

Note - Filings with any Interior agency may be filed with any office noted above or with the Office of the Secretary of the Interior, Regional Environmental Office,r P.O. Box 120, 1675 C Street, Anchorage, Alaska 99513.

Department of Transportation
Federal Aviation Administration
Alaska Region AAL-4, 222 West 7th Ave., Box 14
Anchorage, Alaska 99513-7587
Telephone: (907) 271-5285

NOTE - The Department of Transportation has established the above central filing point for agencies within that Department. Affected agencies are: Federal Aviation Administration (FAA), Coast Guard (USCG), Federal Highway Administration (FHWA), Federal Railroad Administration (FRA).

OTHER THAN ALASKA NATIONAL INTEREST LANDS

Use of this form is not limited to National Interest Conservation Lands of Alaska.

Individual department/agencies may authorize the use of this form by applicants for transportation and utility systems and facilities on other Federal lands outside those areas described above.

For proposals located outside of Alaska, applications will be filed at the local agency office or at a location specified by the responsible Federal agency.

SPECIFIC INSTRUCTIONS
(Items not listed are self-explanatory)

Item

7 Attach preliminary site and facility construction plans. The responsible agency will provide instructions whenever specific plans are required.

8 Generally, the map must show the section(s), township(s), and range(s) within which the project is to be located. Show the proposed location of the project on the map as accurately as possible. Some agencies require detailed survey maps. The responsible agency will provide additional instructions.

9 10, and 12 - The responsible agency will provide additional instructions.

13 Providing information on alternate routes and modes in as much detail as possible, discussing why certain routes or modes were rejected and why it is necessary to cross Federal lands will assist the agency(ies) in processing your application and reaching a final decision. Include only reasonable alternate routes and modes as related to current technology and economics.

14 The responsible agency will provide instructions.

15 Generally, a simple statement of the purpose of the proposal will be sufficient. However, major proposals located in critical or sensitive areas may require a full analysis with additional specific information. The responsible agency will provide additional instructions.

16 through 19 - Providing this information is as much detail as possible will assist the Federal agency(ies) in processing the application and reaching a decision. When completing these items, you should use a sound judgment in furnishing relevant information. Fore example, if the project is not near a stream or other body of water, do not address this subject. The responsible agency will provide additional instructions.

Application must be signed by the applicant or applicant's authorized representative.

EFFECT OF NOT PROVIDING INFORMATION: Disclosure of the information is voluntary. If all the information is not provided, the application may be rejected.

DATA COLLECTION STATEMENT

The Federal agencies collect this information from applicants requesting right-of-way, permit, license, lease, or certification for the use of Federal lands.

The Federal agencies use this information to evaluate the applicant's proposal.

The public is obligated to submit this form if they wish to obtain permission to use Federal lands.

(*For supplemental, see reverse)*

SUPPLEMENTAL

NOTE: The responsible agency(ies) will provide instructions	CHECK APPROPRIATE BLOCK	
I - PRIVATE CORPORATIONS	ATTACHED	FILED*
a. Articles of Incorporation		
b. Corporation Bylaws		
c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State		
c. Copy of resolution authorizing filing		
e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.		
f. If application is for an oil or gas pipeline, describe any related right-of-way or temporary use permit applications, and identify previous applications.		
g. If application is for an oil and gas pipeline, identify all Federal lands by agency impacted by proposal.		
II - PUBLIC CORPORATIONS		
a. Copy of law forming corporation		
b. Proof of organization		
c. Copy of Bylaws		
d. Copy of resolution authorizing filing		
e. If application is for an oil or gas pipeline, provide information required by item "I-f" and "I-g" above.		
III - PARTNERSHIP OR OTHER UNINCORPORATED ENTITY		
a. Articles of association, if any		
b. If one partner is authorized to sign, resolution authorizing action is		
c. Name and address of each participant, partner, association, or other		
d. If application is for an oil or gas pipeline, provide information required by item "I-f" and "I-g" above.		

* If the required information is already filed with the agency processing this application and is current, check block entitled "Filed." Provide the file identification information *(e.g., number, date, code, name)*. If not on file or current, attach the requested information.

NOTICE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate the requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act , Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations or the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, Stop 7602, 1400 Independence Avenue S.W. Washington DC 20250-7602; and to the Office of Management and Budget, Office of Regulatory Affairs , Desk Officer for Forest Service, Washington, D.C. 20503.

OMB Control No.: 1006-0003
OMB Expiration Date: May 31, 2012

BUREAU OF RECLAMATION USE AUTHORIZATION APPLICATION

Applicants: Use this form to apply for short-term uses of Bureau of Reclamation (Reclamation) lands, facilities, or waterbodies, such as recreation and sporting events; commercial filming and photography; archaeological research projects; and any other similar uses deemed appropriate by Reclamation. [For right-of-way requests, please refer to instructions on the next page.]

Fill out the following application completely. Use "N/A" if a question does not apply. If additional space is needed, attach separate sheet(s) of paper, as necessary. Refer to the second page of this form for detailed instructions.

1. Information about the applicant requesting the use:

Applicant: _____

Company Name: _____

Address: _____

City, State, and Zip Code: _____

Telephone Numbers (include area code): Day: _____ Evening: _____ FAX: _____ | Email address: _____

Tax ID or Social Security Number (as applicable): _____

2. Location of the proposed use: *[A map or drawing showing the location of the proposed use is required]*

3. Purpose of proposed use: *[provide a full description of activity or event]*

4. Description of the requested use: *[provide full description of activity or event]*

Maximum Number of Anticipated Participants/Spectators/Crew: _____

Number and Types of Vehicles: _____

Description of Props, Tents, and other Equipment: _____

Will Reclamation roads and/or trails be used? Yes ☐ No ☐

Describe Facilities You Intend to Provide: *[such as sanitation facilities, emergency personnel, food services, or vendors and attach plans]*

_____

5. Dates of requested use [during the following times and dates (specify below)]:

START			END		
DATE	TIME		DATE	TIME	
(Month, Day, Year)	AM	PM	*(Month, Day, Year)*	AM	PM

6. Is this request for a new use authorization or a renewal of an existing use authorization? Renewal ☐ New ☐

Office issuing permit	Date of latest permit

7. Name of Insurance Carrier: _____

8. Have you, or your organization, forfeited any portion of any previous permit, bond, or surety submitted for use of Federal lands, or is any investigation or legal action pending against you or your organization for use of Federal lands? Yes ☐ No ☐
[If "Yes", attach details on separate sheet.]

9. Applicant Certification: I certify that the information given in this application is true, complete, and correct to the best of my knowledge and belief and is given in good faith. I acknowledge that I (we) am (are) required to comply with any conditions or stipulations that are required by the Bureau of Reclamation when the use authorization is issued.

_____ _____
Date Signature of Applicant

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

Paperwork Reduction Act (Act): This information is needed to evaluate short-term use requests such as those listed on this application. Responses are necessary to receive or maintain a benefit; without this information Reclamation may not grant your request. Under the Act, the reporting burden to the public for this form is estimated to average 2 hours per response, including time for reviewing instructions, and completing and reviewing the form. In accordance with the Act, Reclamation may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget control number.

Privacy Act Statement
Information obtained by this form is protected by the Privacy Act of 1974 systems of records INTERIOR/WBR-17 and INTERIOR/WBR-32 and will be used to maintain land status information and proof of use authorization for legal purposes. If you fail to complete the information requested, Reclamation may refuse to grant a use authorization.

OMB Control No.: 1006-0003
OMB Expiration Date: 05-31-2012

INSTRUCTIONS FOR COMPLETION OF THE RECLAMATION USE AUTHORIZATION APPLICATION

Short -Term Uses Requested on Reclamation Lands, Facilities, and Waterbodies

The following short-term uses of Reclamation's lands, facilities, and waterbodies are commonly requested by using this use authorization application. This list is intended to provide examples of such uses and should not be considered as all inclusive:

- Commercial filming and photography;
- Commercial guiding and outfitting;
- Commercial or organized sporting events;
- Organized recreational activities, public gatherings, and other special events;
- Removal of, or exploration for, sand, gravel, and other mineral materials;
- Timber harvesting, or removal of commercial forest products or other vegetative resources; and
- Any other uses deemed appropriate by Reclamation, subject to the exclusions listed in the Code of Federal Regulations (43 CFR 429.4).

Applicants requesting rights-of-way for such activities as placement and construction of transmission lines, pipe lines, and telecommunications sites or cables, should refer to www.ntia.doc.gov/FROWsite/rowapplprocess.htm to access the Standard Form (SF) 299, *Application for Transportation and Utility Systems and Facilities on Federal Lands*.

Application Process

1. Complete the Use Application. Complete all parts of the use authorization application. If a particular question or response does not apply to the proposed use, please indicate "not applicable" or "N/A". Attach additional sheets if more space is needed. If you have additional questions, please contact your local Reclamation office. A complete list of all offices can be found at the following web site address: http://www.usbr.gov.

2. The following must be submitted with the application or attested to before the application may be approved by Reclamation: Two copies of all maps and other information pertinent to the location for the requested use must be submitted with the application before processing can proceed. Under 43 CFR 429.13(a), Reclamation may require the applicant to furnish additional material before granting a use authorization.

3. Enclose an application fee of $100, payable to the Bureau of Reclamation when submitting your application. You must submit an application fee of $100 (payable to the Bureau of Reclamation) with your use authorization application to cover the estimated minimum administrative costs to Reclamation to review your application. Failure to submit the required application fee and adequate information will cause delays in evaluation of the application.

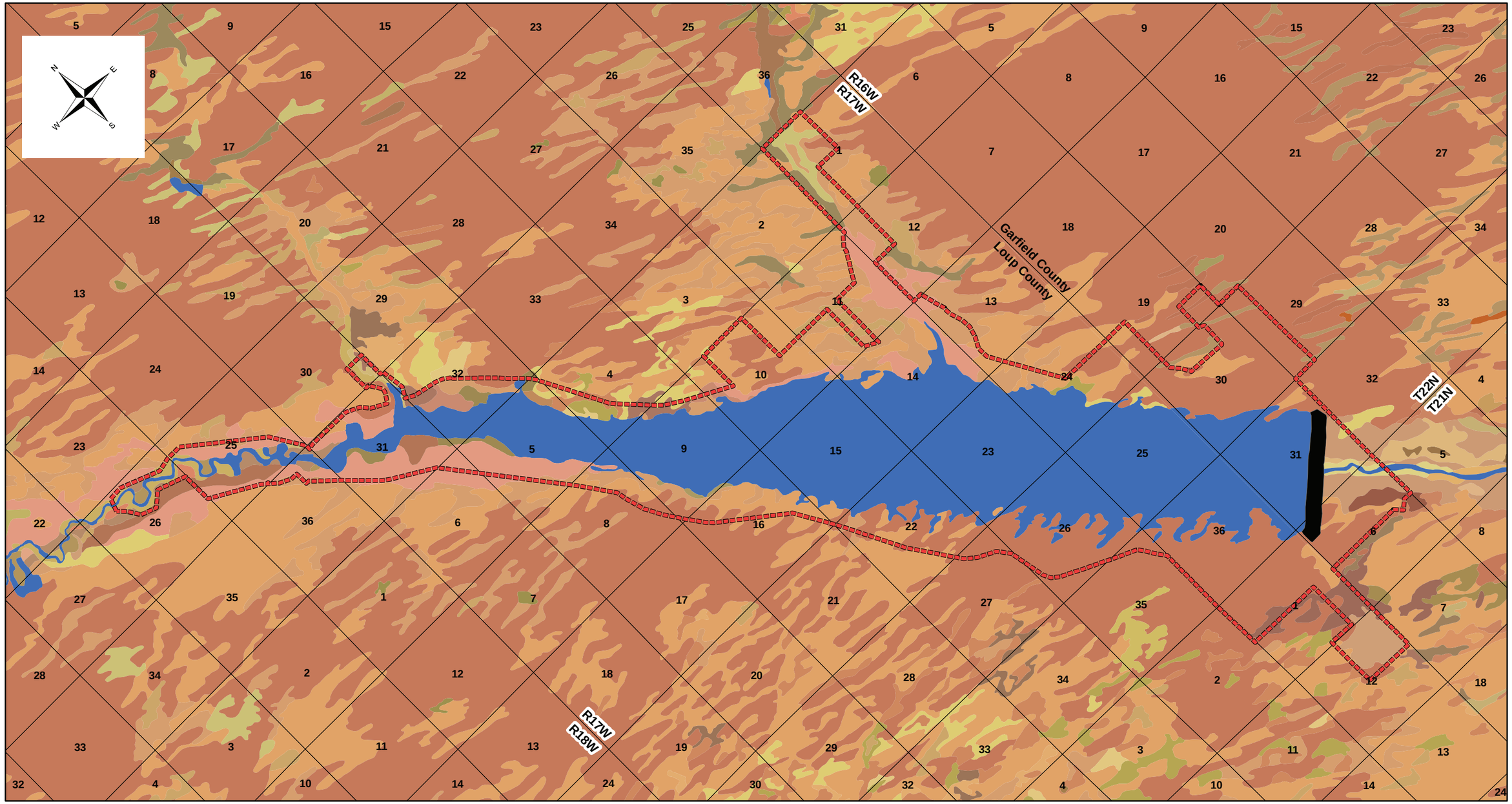
The granting of any use authorization on Reclamation lands, facilities, or waterbodies is discretionary with Reclamation, and there is no guarantee that Reclamation will approve any application to use Reclamation lands, facilities, or waterbodies. If, after a preliminary review of the application, Reclamation determines that the granting of a use authorization is not compatible with the present or future uses of the lands, facilities, or waterbodies, the use authorization will not be granted.

If Reclamation finds your proposed use compatible with Reclamation project purposes or operations, we will advise you of any additional estimated administrative costs in excess of the initial $100 application fee, which you will be required to pay before processing of your application continues. Administrative costs include, but are not limited to: appraisal and appraisal review; compliance with National Environmental Policy Act and the National Historic Preservation Act; and Reclamation's review, preparation and issuance of the use authorization.

4. Value of the use authorization (Use Fee). In addition to the administrative costs, applicants will also be required to pay for the value of the use of the lands, facilities, or waterbodies based on the value of the use prior to issuance of the use authorization. 43 CFR 429, Subpart E describes the procedures that will be used to process and recover the value of use authorizations.

5. Submit the application, application fee of $100, and any attachments to your local Reclamation office. *No activity may begin until a fully executed use authorization document is issued by Reclamation*.

Maps



Legend

Soil Classification

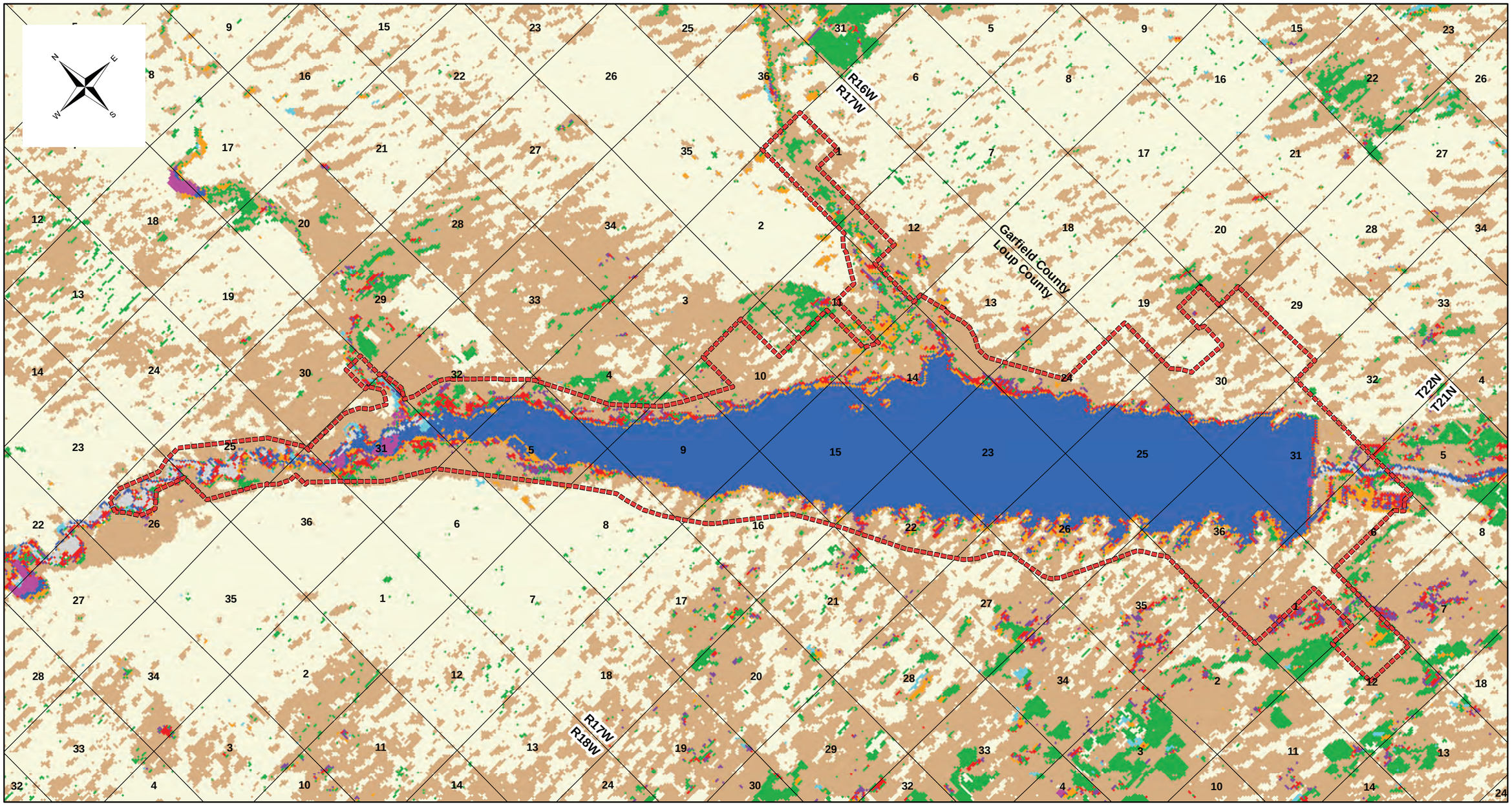
- Arents, earthen dams
- Barney loam, channeled
- Blownout land-Valentine complex
- Coly-Hobbs silt loams
- Cozad silt loam
- Els loamy sand
- Elsmere loamy fine sand
- Gates very fine sandy loam
- Gibbon silt loam
- Hersh fine sandy loam
- Hersh-Gates complex
- Hersh-Valentine complex
- Ipage fine sand
- Lamo silt loam
- Loup fine sandy loam
- Loup fine sandy loam
- Rusco variant silty clay loam
- Tryon loamy fine sand
- Uly silt loam
- Valentine fine sand
- Valentine fine sand, rolling
- Valentine fine sand, rolling and hilly
- Wann loam
- Water

Nebraska Soils Classification
Publication Date: October 2006
Map date: February 2010

0 1 2 4 Miles

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Calamus Reservoir Soil Associations Map # 1



Legend

Calamus Boundary

Land Cover

- Agricultural Fields
- Aquatic Bed Wetland
- Deciduous Forest/Woodlands
- Emergent Wetland
- Juniper Woodlands
- Little Bluestem-Gramma Mixedgrass Prairie
- Lowland Tallgrass Prairie
- Open Water
- Riparian Shrubland
- Riparian Woodland
- Sandhills Upland Prairie
- Western Shortgrass Prairie
- Western Wheatgrass Mixedgrass Prairie

Nebraska Land Cover
Map date: February 2010

0 1 2 4 Miles

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Calamus Reservoir Land Cover Map # 2

Legend

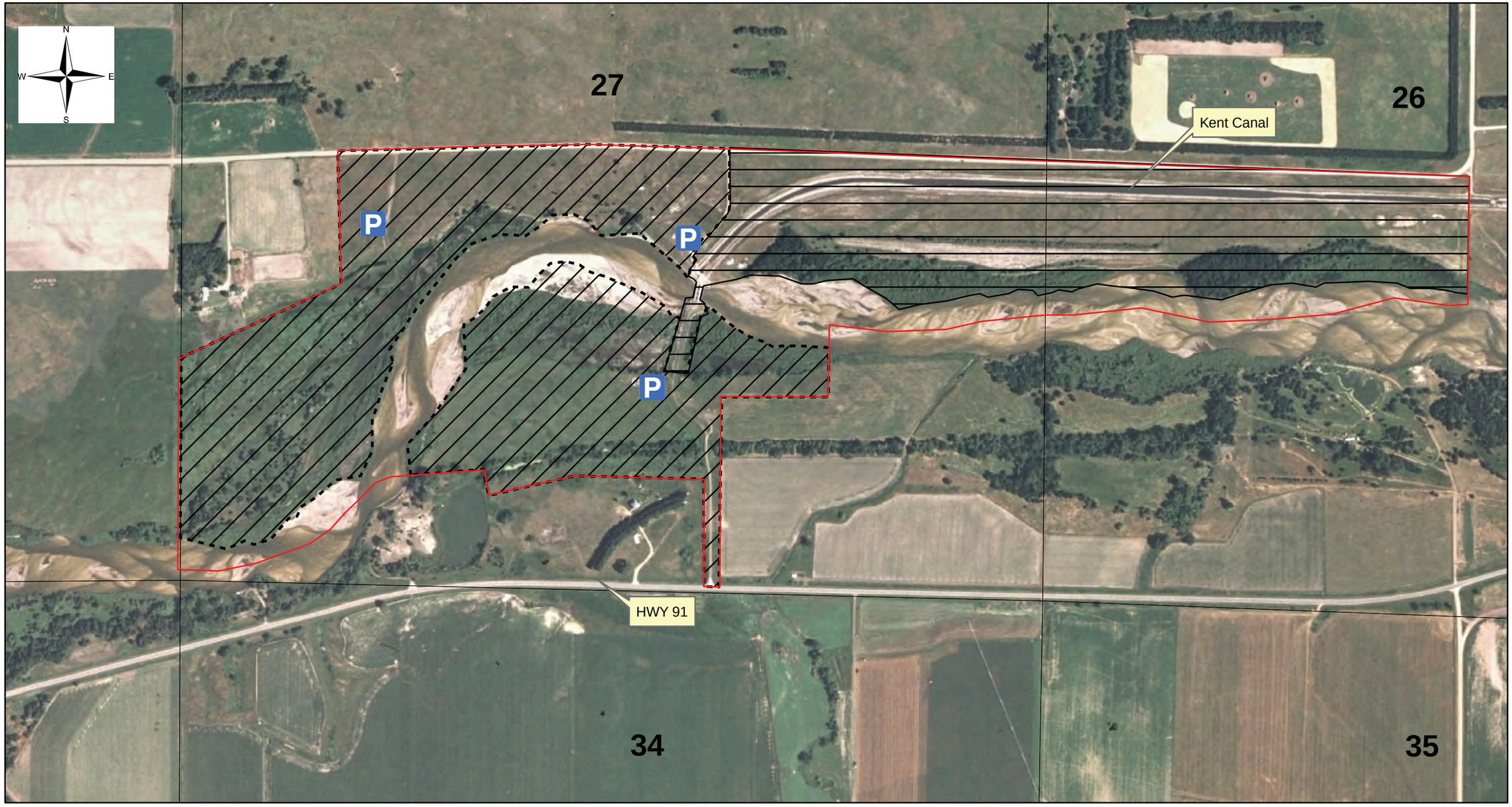
- Calamus Boundary
- Operations Lands
- Recreation Lands
- Wildlife Lands

Photo date: 9/11/2006 FSA
Map date: February 2010
Reservoir Elevation: 2243.58'
Conservation Pool Elevation: 2,244'

0 1 2 4 Miles

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Calamus Reservoir Land and Water Use Map # 3



Legend

- Boundary
- Wildlife Lands
- Operation Lands
- Parking

Photo date: 9/11/2006 FSA
Map date: February 2010

0 0.125 0.25 0.5 Miles

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Kent Diversion Dam
Land Use
Map # 4

KEY

- Park Office
- Restroom
- Water
- Parking
- Picnic Shelter
- Picnic Area
- Tent Camping
- Swimming Beach
- Recreational Vehicle Camping
- Shower
- Dump Station
- Boat Ramp
- Fish Cleaning Station
- Wildlife Viewing Area
- Trees, Standing or Cabled Piles
- Jetties

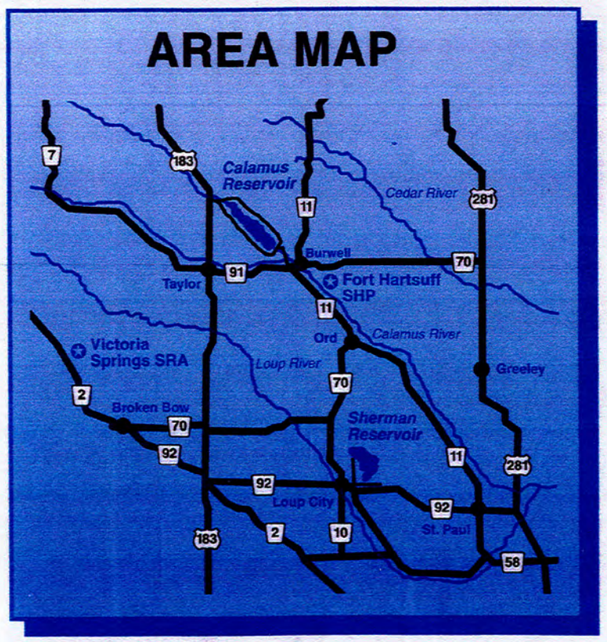
For More Information

For more information on this or any other Nebraska state park area, call or write: Parks Division, Nebraska Game and Parks Commission, PO Box 30370, Lincoln, NE 68503-0370, phone 402-471-5498 or call toll-free to 1-800-826-PARK (7275) and leave your name, complete address and information request. You will receive a 52-page color booklet and any other information you need.

CALAMUS RESERVOIR SRA
HC 79 Box 20L
Burwell, NE 68823-9803
Phone: 308-346-5666

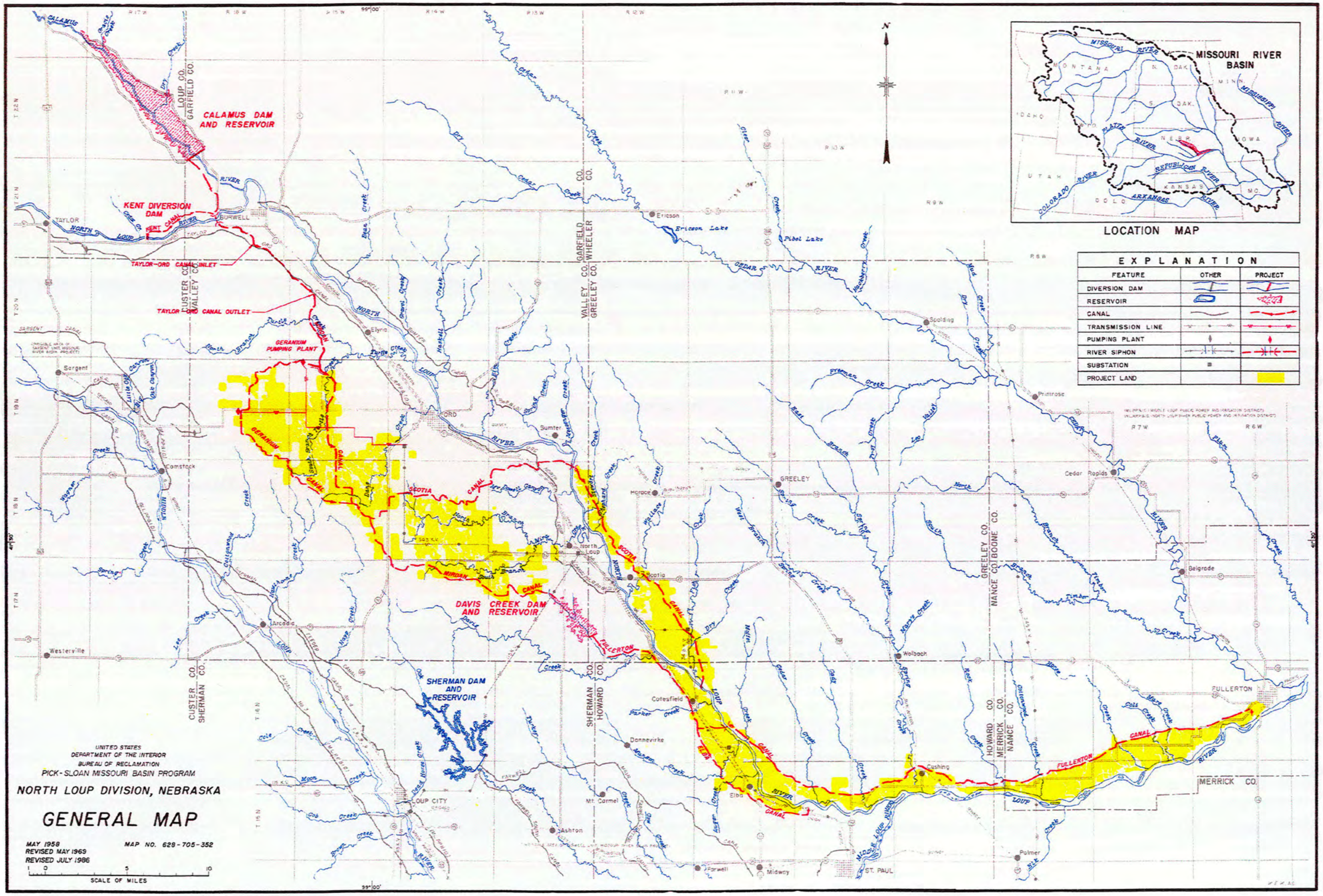
CALAMUS FISH HATCHERY
HC 79 Box 20J
Burwell, NE 68823-9803
Phone: 308-346-4226
Fax: 308-346-5303

AREA MAP

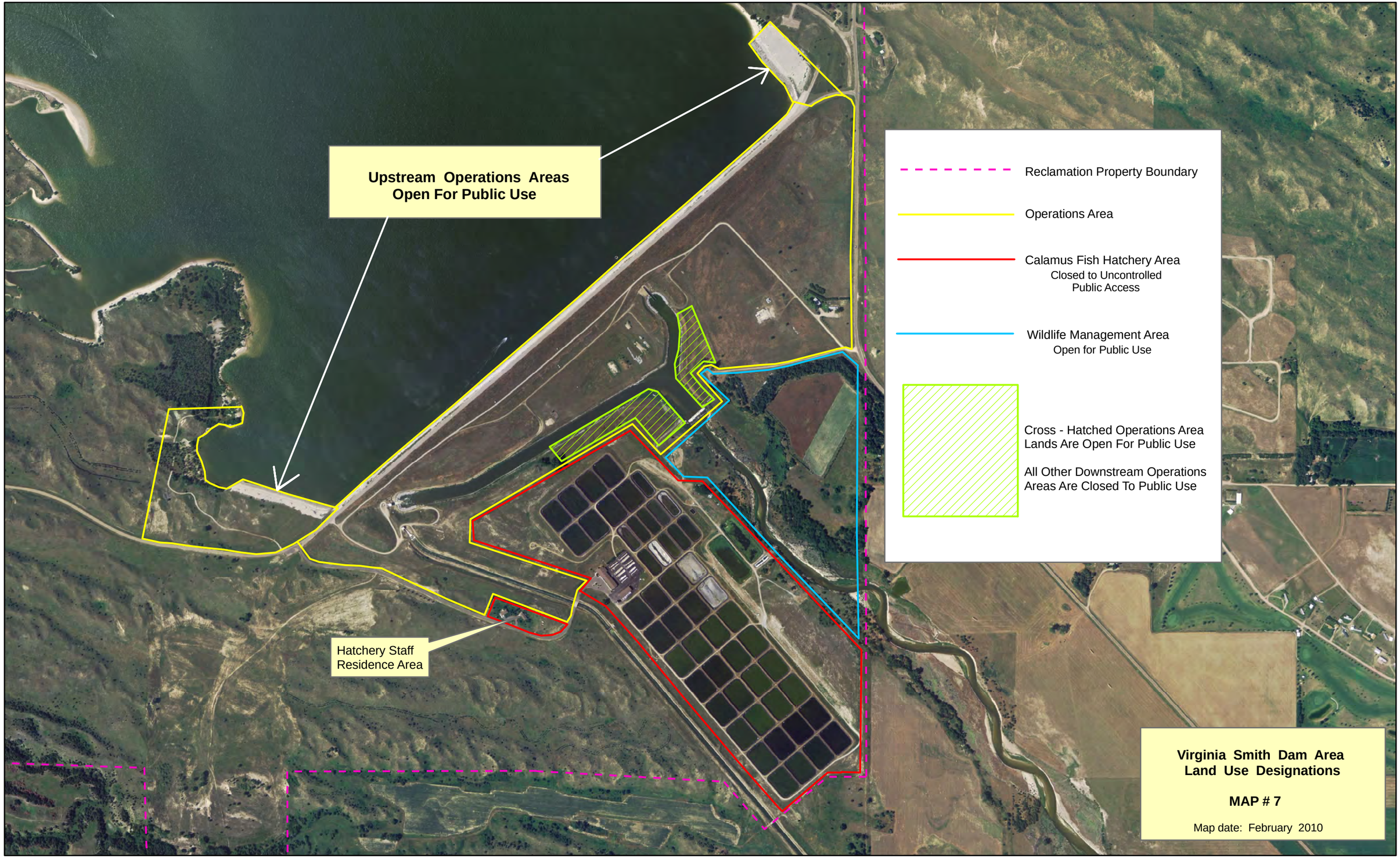


Inlet Outlook
Gracie Creek
Handicap Fishing Dock (Trout Fishing)
Hannaman Bayou
Ash Grove
Valleyview flat
Windmill Hill
Dry Valley
Dry Creek
Homestead Knolls
5 MPH NO WAKE
Homestead Knolls
Little York Point
Nunda Shoal
Buckshot Bay
Nunda Shoal
Calamus Fish Hatchery

MAP # 5


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA
GENERAL MAP
MAY 1958
REVISED MAY 1969
REVISED JULY 1986
MAP NO. 629-705-352
SCALE OF MILES
CALAMUS DAM AND RESERVOIR
KENT DIVERSION DAM
TAYLOR-ORD CANAL INLET
TAYLOR-ORD CANAL OUTLET
GERANIUM PUMPING PLANT
DAVIS CREEK DAM AND RESERVOIR
SHERMAN DAM AND RESERVOIR
MISSOURI RIVER BASIN
LOCATION MAP
EXPLANATION
FEATURE
OTHER
PROJECT
DIVERSION DAM
RESERVOIR
CANAL
TRANSMISSION LINE
PUMPING PLANT
RIVER SIPHON
SUBSTATION
PROJECT LAND

MAP # 6


Upstream Operations Areas
Open For Public Use
Hatchery Staff
Residence Area
Reclamation Property Boundary
Operations Area
Calamus Fish Hatchery Area
Closed to Uncontrolled
Public Access
Wildlife Management Area
Open for Public Use
Cross - Hatched Operations Area
Lands Are Open For Public Use
All Other Downstream Operations
Areas Are Closed To Public Use
Virginia Smith Dam Area
Land Use Designations
MAP # 7
Map date: February 2010


Spillway Outlet Works
Watercraft and Flotation Devices are Prohibited on Water Control Channel Area - Bordered in Red
Drop Structure
Watercraft and Flotation Devices Allowed on Calamus River Downstream of Drop Structure
River Outlet Works
Virginia Smith Dam
Water Control Channel
Use Restriction Area
MAP # 8
Map date: February 2010