

Fort Niobrara National Wildlife Refuge

Comprehensive Conservation Plan

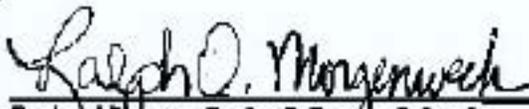
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Fort Niobrara National Wildlife Refuge
Comprehensive Conservation Plan Approval
U.S. Fish and Wildlife Service, Region 6

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Summary

Fort Niobrara National Wildlife Refuge (NWR) is 19,131 acres in size and located along the Niobrara River in north-central Nebraska. The Refuge is a unique and ecologically important component of the National Wildlife Refuge System (System) which includes over 500 refuges totaling approximately 93 million acres across the United States. Fort Niobrara NWR was established by Executive Order in January, 1912 as a “preserve and breeding ground for native birds.” Its purpose was expanded later that same year to include the preservation of bison and elk herds representative of those that once roamed the Great Plains. Furthermore, the unusual, and unique assemblage of plant communities currently present at the Refuge (Sandhills Prairie, Mixed Prairie, Rocky Mountain Coniferous Forest, Eastern Deciduous Forest, and Northern Boreal Forest) support a rich diversity of wildlife generally unchanged from historic times. Under the Wilderness Act of 1964, a 4,635-acre portion of Fort Niobrara was designated a Wilderness Area in 1976; a portion of the Niobrara River through the Refuge was designated a National Canoe Trail by Congress in 1982; and, in 1991, a 76 mile stretch of the Niobrara River including the River through this Refuge was designated Scenic under the National Wild and Scenic Rivers Act.

This Comprehensive Conservation Plan (Plan) for the Fort Niobrara National Wildlife Refuge (Refuge) in Cherry County in north-central Nebraska is an updated and revised version of the Draft Comprehensive Conservation Plan and Environmental Assessment completed earlier this year. It has been written to provide continuity of management of Refuge lands for the benefit of wildlife and people.

All efforts leading to the preparation of this Plan were undertaken to provide the Refuge with a vision for the future, guidelines for wildlife and habitat management over the next 15 years to ensure progress is made toward attaining the mission and goals of Fort Niobrara and the Refuge System, and to comply with Congressional mandates stated in the National Wildlife Refuge System Improvement Act of 1997. The planning effort provided opportunities for interested people, Federal and State agencies, State and local governments, and private organizations to give input on future management of the Refuge. This Plan provides clear goals and objectives for management of Refuge habitats, wildlife, threatened and endangered species, cultural and paleontological resources, compatible public uses, and partnerships, along with implementation strategies, and recommended staffing and funding. This Plan meets the planning requirements of the National Wildlife Refuge Improvement Act enacted by Congress in 1997.

The draft Environmental Assessment considered four alternatives for management of Fort Niobrara NWR. Each of the alternatives was evaluated for environmental consequences in accordance with the National Environmental Policy Act (NEPA). This Plan, in its present form, contains the goals, objectives, and strategies found by the Service to best support purpose of the Refuge and the mission of the Refuge System.

For a summary of the alternatives considered during the planning process, see Appendix H. Further information on alternatives considered can be found in the Fort Niobrara National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Assessment (U.S. Fish and Wildlife Service, 1999).

Clockwise from upper left: Bison have been managed on Fort Niobrara National Wildlife Refuge since 1913 to preserve a population representative of the large herds that once roamed the Great Plains; Fort Niobrara National Wildlife Refuge and the surrounding area is the only place in North America where Rocky Mountain coniferous forest, northern boreal forest, eastern deciduous forest, mixed-prairie and sandhill prairie vegetation communities meet and intermingle; Longhorn cattle will no longer be managed by this Refuge; river floating is a popular recreational activity on Fort Niobrara; the Fort Falls Nature Trail allows visitors to experience the habitats and wildlife along the Falls and the Niobrara River; elk, especially bulls with growing antlers, can be found near or in Refuge ponds and streams during the hot days of summer; the loud rolling "pulip pulip" call of upland sandpipers signal that spring has come to the prairie; in April, prairie chicken males display on traditional breeding grounds on the Refuge; habitat created by prairie dogs attract a variety of wildlife including burrowing owls which use the underground burrows for nesting.





Introduction / Background

Refuge Overview: History of Establishment, Acquisition & Management

Fort Niobrara National Wildlife Refuge History

Fort Niobrara NWR was established by Executive Order 1461 on January 11, 1912, which reserved 13,279 acres from the public domain as a “preserve and breeding ground for native birds.” The reserve was established at a time when tremendous concern existed over the exploitation of birds and near extinction of bison.

Two environmental groups, National Association of Audubon Societies and American Bison Society, were very influential in the establishment and determination of purpose of several Federal parks and refuges including Fort Niobrara during the first two decades of the 20th century. The National Association of Audubon Societies was formed in 1905 and its first president, William Dutcher, was a friend of U.S. President Theodore Roosevelt. Numerous correspondence was exchanged between them regarding over-harvest of birds, funding for the Bureau of Biological Survey, and protection of bird sites (refuges), and included a letter dated January 1, 1908, which discussed protection of birds and game on the Fort Niobrara Military Reservation. The American Bison Society, headed by Dr. William Hornaday, was directly responsible for establishing Wichita Mountains NWR in Oklahoma, National Bison Range in Montana, and Wind Cave National Park in South Dakota for the preservation of bison in the early 1900's and was also instrumental in bringing bison to Fort Niobrara. Dr. Palmer, a member of the American Bison Society and 2nd Vice President of the Audubon Society, states in the 1912 Annual Report of the American Bison Society that “on January 12, 1912, the Niobrara Bird Reservation was created by Executive Order. This reservation comprises some 10,000 or 12,000 acres of land along the Niobrara River, near Valentine, including some grazing land, and only needs a fence to make it an ideal reservation for buffalo and other big game of the Great Plains.”

A 1913 report from the Chief of the Bureau of Biological Survey to the Secretary of Agriculture summarizes the events leading up to the addition of the big game purpose to Fort Niobrara. The following is an excerpt from that report: “In the early part of the year 1912, Mr. J.W. Gilbert, owner of a small big-game park at Friend, Nebraska, generously offered his herd of buffalo, elk, and deer to the Government for preservation on national territory within the State of Nebraska. The lack of suitable quarters caused some delay in accepting the offer, but on November 14, 1912, an Executive Order was issued setting aside as a game preserve a tract of land additional to the Niobrara bird reservation near Valentine, Nebraska. The herd was then officially accepted by the Secretary of Agriculture and preparations began for establishing it on this very favorable location. Through the cooperation of the National Association of Audubon Societies and the citizens of Valentine, an enclosure was provided at an expense of \$1,700. Some of the buildings remaining on the old Fort Niobrara Military Reservation were utilized as headquarters, and a warden was appointed on December 16, 1912.”

The Refuge was expanded again by Executive Orders in 1920 and 1936, the Resettlement Administration, subsequent purchases from private individuals, and a donation from the Nebraska Public Power District bringing the Refuge's total acreage to 19,131. Refuge reports state that the 1920 expansion was for protecting/providing winter roost sites for sharp-tailed grouse and prairie chickens, and tracts of land acquired in 1936 were for various purposes including planting of grain crops for migratory birds, pronghorn antelope management, and administrative efficiency (in holdings, straighten boundaries).

In 1960, a 200 acre stand of Ponderosa pine in the northern portion of the Refuge was designated as a Research Natural Area; in 1976, approximately 4,635 acres in the northern portion of the Refuge, including the Niobrara River corridor, was designated as Nebraska's first Wilderness Area.

In 1982, five miles of the Niobrara River on the Refuge was designated as a National Canoe Trail, and in 1991, a total of 76 miles of the Niobrara River including the entire stretch of River through the Refuge was designated by Congress as a Scenic River.

Habitat Management History

Management efforts from the Refuge's establishment through the early 1940's considered the needs of both birds and big game. Initial work involved a general reconnaissance of the area and its bird life, and a survey of the boundary and big game enclosure. Construction of boundary fences of Refuge lands north of the Niobrara River for use by expanding bison and elk herds was planned in 1915 with the project completed in the early 1920's. Earthen dams were built across various tributary streams beginning in 1922 to improve conditions for waterfowl. In the 1930's, the Civilian Conservation Corps and Work Projects Administration staff rebuilt several original earthen dams, constructed new dams, planted various wetland plants, constructed predator fencing around ponds to improve nesting conditions, and planted shelterbelts for birds. Corrals, additional fence, and watering facilities south of the Niobrara River were also constructed during this time. Approximately 150 acres of Refuge lands were planted to various grain crops for grouse and waterfowl in the late 1930's.

Refuge reports and other correspondence suggest a shift in management from a dual purpose (birds, big game) to more of a single purpose (big game) beginning in the early 1940's, although emphasis varied depending upon the viewpoint of management. Numbers of bison, elk, and longhorns maintained on the Refuge fluctuated according to forage availability and genetic management needs. For example, during the 1940's and 1950's, up to 10,000 acres of Refuge grasslands were annually hayed or grazed by permittees and not available for use by big game herds. Approved winter herd levels during this time period were 175 bison and 150 longhorns. Following a review of management programs in the mid-1950's, permittee haying and grazing was terminated and more fence and water facilities were constructed to allow areas to be rested, encourage recovery of grasses, better distribute grazing by the bison and longhorns, and enable management to consider the needs of prairie grouse. Herd levels following the review in 1956 and until the mid-1980's varied with approximately 225 bison, 40 elk, and 200-300 longhorns maintained under a deferred grazing rotation. Bison and longhorn herds were allowed to increase in the late-1980's to implement high intensity, short duration grazing, and meet suggested genetic management recommendations. Longhorn numbers peaked in 1991 at 370, and the bison herd reached its Refuge high of 400 animals in 1992-1996. Maintenance of bison and longhorns at high herd levels limited habitat management options and raised concern that native bird populations, especially prairie grouse, were not receiving adequate management consideration. A review of the habitat and fenced animal management programs was initiated and included consultation with the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) on grassland condition assessment and grazing program recommendations, consultation with geneticists and review of literature regarding bison and longhorn management, and review of scientific literature as it relates to native bird management.

Water Rights/Management History

Fort Niobrara NWR holds no water rights permits with the State of Nebraska; however, lands reserved from the public domain for creation of the Fort Niobrara NWR carry with them a Federal Reserved Water Right that the United States has not asserted at this time.

The Refuge has 25 windmill driven stock water wells and six domestic wells which do not require groundwater permits. Also, the 12 low level spring-fed impoundments are exempt from special dam construction or water storage permits because of their size and because diversion or withdrawal of water from the reservoirs is nonexistent.

A portion of the Niobrara River was designated as Wild and Scenic in 1991. The National Park Service has asserted, as yet unquantified, a Federal Reserve Water Right to maintain instream flow.

In 1986, the Nebraska Public Power District quitclaimed land to the United States that included the Cornell Dam and Power House.

Wildlife Management History

Bison

An estimated 30 million bison once roamed the Great Plains; however, by the late 1880's, fewer than 1,000 animals were alive due to loss of habitat and hunting. Free-ranging bison are believed to have been extirpated from Nebraska in 1878 (Jones *et al.* 1983). Bison were reintroduced to Fort Niobrara in January 1913 as part of the national effort to preserve this native herbivore with the donation of six bison (sex unknown) from J.W. Gilbert of Friend, Nebraska and the transfer of two bulls from Yellowstone National Park. Additional introductions were made in 1935 (4 males, Custer State Park), 1937 (4 males, Custer State Park), and 1952 (5 males, National Bison Range) to minimize inbreeding and maintain the species as closely genetically as possible to those surviving the bottleneck of near extinction.

Policy/philosophy implemented over the years has been to preserve and maintain a representative herd under reasonably natural conditions in numbers sufficient to ensure their continued existence. Management actions have included culling, controlled herd movements, branding, brucellosis vaccination, disease testing, and limited genetic monitoring.

Elk

Elk were once abundant in the northern Great Plains, including the area of Fort Niobrara. Aughey (1880:118) described the elk herds along the Niobrara River in the late 1860's as magnificent; however, by the early 1880's, elk were extirpated from Nebraska due to hunting and loss of habitat (Jones 1964). Elk were reintroduced to Fort Niobrara in January 1913 with the donation of 17 elk by J.W. Gilbert of Friend, Nebraska. Management policy/philosophy implemented over the years has been to maintain a representative herd under reasonably natural conditions in numbers sufficient to ensure their continued existence. Periodic introductions of elk to the Refuge herd have occurred over the years in an effort to minimize the negative effects of inbreeding. Elk numbers have varied with winter population levels exceeding 100 in the early 1930's and recent population levels averaging 50 to 60.

Pronghorn Antelope

Pronghorn antelope were historically common on the open prairies of the Sandhills through the late 1800's; however, by 1908, they were on the decline and observed only in the western and northern portions of Nebraska. Efforts to reintroduce pronghorn antelope to Fort Niobrara NWR began in 1924 with the transfer of 10 animals from Nevada. The herd gradually increased to 17 animals in 1932, but then steadily decreased in numbers. Attempts to establish a second herd of antelope with the transfer of 34 animals in 1936 also failed. Coyote predation is the primary factor influencing the survival of pronghorn on Fort Niobrara. Pronghorn have not been actively managed for in recent years.

Bighorn Sheep

Bighorn sheep formerly occurred in Nebraska on the Pine Ridge and adjacent badlands in the northwest part of the State in breaks along the Niobrara River east to near Long Pine, Wildcat and Bighorn Ridges, and among the rough buttes and canyons along the North Platte River (Jones 1964). The species was extirpated on the northern Great Plains in the 1920's (Jones *et al.* 1983).

A feasibility study of reintroducing bighorn sheep to the Refuge was completed in 1979; however, no action was taken.

Native Birds and Other Wildlife

Management of native birds and other wildlife has varied in intensity over the years with the greatest impact indirectly or directly due to habitat management practices. Prairie grouse, a term used to describe sharp-tailed grouse and prairie chicken, were once plentiful on the Great Plains, but by the late 1800's, demand for birds in eastern markets, development of efficient railway shipping, and willingness of individuals to exploit a seemingly unlimited resource, combined to dramatically reduce prairie grouse populations. Extirpated in many parts of their ranges, remnant populations of sharp-tailed grouse and prairie chicken populations survived in the Sandhills of Nebraska due to lack of intensive agriculture altered habitat (Mitchell and Wolfe 1984). Prairie grouse were identified in one of the first quarterly reports of the Refuge as native birds for management consideration and emphasis. Over the years, management decisions and actions have addressed prairie grouse needs to varying degrees and included enlargement of the Refuge, feeding stations, farming/food plot program, revision of grassland haying and grazing programs in 1956, and population monitoring. Prairie grouse surveys were initiated in 1956 as part of a multiple Refuge research project that studied prairie grouse populations in relation to land use. This study conducted from 1956 to 1965 in grasslands south and east of the Niobrara River suggested that the combination of rapidly increasing amounts of idle grassland (one phase of revised Refuge haying and grazing program) and favorable conditions for reproduction resulted in a rapid increase in grouse numbers on Fort Niobrara between 1956 and 1959. The substitution of bison grazing for rest in approximately 4,200 acres beginning in 1963 did not depress the grouse population; however, researchers questioned what levels grouse populations would have reached if this grassland block had been left idle. They believed that habitat conditions (structure, species composition) which is correlated to use (grazing, haying) determined the average population size, but other factors (i.e., weather) operated equally in good and poor habitat to cause similar rates of annual population change. Annual counts of displaying sharp-tailed grouse and prairie chicken males conducted since the completion of this research project support that relationship or effect. Prairie grouse numbers have cycled with higher average population levels occurring on the Refuge when forage utilization [represented by Animal Use Months (AUM)] by bison, longhorns, and elk was lower.

Other wildlife management activities completed over the years include reintroduction of Canada geese (1914), turkey (1925), and bobwhite quail (1956) and predator control (coyote, raccoon, skunk, mink, bobcat, badger) in the early years to enhance bird production. Also, periodic control of prairie dogs was conducted. Descriptions in Refuge reports suggest prairie dogs were found in the headquarters area (current location), "east" habitat unit, the tableland north of the Niobrara River, and south of the Refuge. Presence/absence and statements of relative abundance have been made for various groups of wildlife species beginning with birds in 1913 and species lists have been compiled and updated as needed.

Texas Longhorn Cattle History

Longhorns have been managed at Fort Niobrara since 1936 to assure perpetuation of a historically significant animal. The following information, taken from Dobie (1994) and Halloran (1964), provides insight as to the historical significance of the longhorn and how the government became involved in the preservation effort.

Longhorn cattle originate from Spanish cattle that were brought to the New World in about 1521 by Gregorio Villalobos. Early explorers, including Coronado, brought these cattle from Mexico into what is now Arizona, New Mexico, and Texas. The herds eventually spread from Louisiana to California. Although utilized by Native Americans and settlers, the Spanish cattle roamed more or less uncontrolled for over 300 years gradually evolving into the "longhorn." Longhorns were the first major beef supply in the United States and were the cattle that made famous the Chisolm, Dodge, and Boseman Trails. Beginning in the mid-1860's and ending by 1895, an estimated five million head of longhorns were trailed from Texas to Kansas, Nebraska, the Dakotas, Wyoming, Montana, and Colorado, some walking approximately 2,000 miles. The attributes which helped the longhorn to survive heat, drought, flies, predators, limited forage, and travel great distances were a liability in the late 1800's, and by the early 1920's, the longhorn was threatened with extinction. Through a special Congressional appropriation, funds were made available to locate and manage representative, true-to-type longhorns at Wichita Mountains National Wildlife Refuge. Over 30,000 head of cattle were inspected, and in 1927, a herd of 20 cows, 3 bulls, 3 steers, and 4 calves were shipped to Wichita Mountains. A second gene pool of this founding herd was established at Fort Niobrara with the transfer of 4 cows, 1 bull, and 1 steer in May of 1936.

The decision to establish a second gene pool of this founding herd at Fort Niobrara is considered departmental or internal as no record of an Executive Order, Congressional legislation, or Congressional intent exists. Longhorn management over the years has attempted to allow natural factors to influence and maintain historic herd traits such as foraging ability, milk production, calving ease, hardiness and protection of young from predators. In addition, animals selected/perpetuated by management have exhibited representative conformation, horn structure, color variability, and genetic diversity.

Public Use History

Since the Refuge's establishment, recreational opportunities on the Refuge have centered around wildlife/wildlands observation and education. Early management emphasized development of a foot trail and motorized tour route to allow Refuge visitors the opportunity to observe bison, elk, and Texas longhorns in a wild setting. A museum constructed in the 1930's was a popular attraction for school groups and Refuge visitors over the years. It contained information and interesting photographs about the old military Fort Niobrara, a collection and explanation of paleontological finds, a collection of mounted birds and museum skins of mammals, and a native grass display. The current visitor center was constructed in the mid-1970's and contains various photographs, text, items, and computer/interactive program interpreting Refuge history, wildlife, wildlands, management and the military fort. The Fort Niobrara Natural History Association has various books, postcards, posters, and miscellaneous wildlife related items for sale in the center.

Canoeing the Niobrara River was referred to as "increasing in popularity" in 1972. However, the estimated 2,960 activity hours reported in 1972 in the Fort Niobrara Wilderness Study was not considered excessive to prevent inclusion of the River corridor in the area to be designated as wilderness pursuant to criteria under the Wilderness Act. Since then, the number of people canoeing and tubing down the Niobrara River within Fort Niobrara NWR has steadily increased. Beginning in 1993, outfitters and the Service recorded the number of people canoeing and tubing the River through the Refuge. This information showing the increase in floating use is found in Figure 1. Increased River use has raised concerns about disturbance to wildlife, impacts on vegetation, the quality of experience for Refuge visitors, and compatibility with the Wilderness Act and the Wild and Scenic River Act. Management began to address River recreation concerns through the Environmental Assessment process in 1994 and efforts are ongoing.

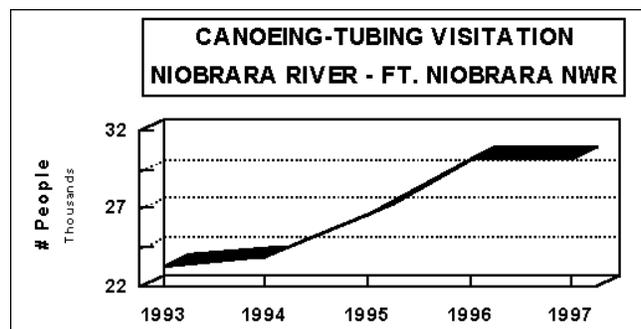


Figure 1. Canoeing - Tubing Visitation 1993-1997

Current Refuge Resources Management

Grassland/Fenced Animal Management

Approximately 350 bison, 70 elk, and 250 Texas longhorns are managed under reasonably natural conditions to assure a genetically sound breeding population, provide appropriate viewing opportunities for public enjoyment, and support scientific studies that are feasible within the management of representative herds. Bison and elk herd structures (sex and age ratios) approximate free ranging herds. In accordance with Service policy, bison, elk, and longhorn numbers above sustainable winter population levels are sold or donated annually. Refuge receipts from 1997 excess bison and longhorn auctions totaled \$179,510. Introductions to the elk and Texas longhorn herds are accomplished periodically to maintain or improve genetic diversity.

Maintaining long-term population genetic variability of the bison, elk, and longhorn herds, which affects population fitness or health, is addressed through population size, sex and age ratio, and addition of animals from other populations. Elk and longhorn herds are maintained below minimum population levels, therefore, periodic introductions of animals from other populations are accomplished to minimize inbreeding. The bison herd at its current level and sex ratio provides the effective population size required for maintaining levels of genetic variability, without induced immigration, that commensurate with accepted standards of conservation biology (Berger 1996, Berger and Cunningham 1994).

Biological monitoring of the grasslands and herds is the minimum required to document current habitat condition and guide management. Range condition surveys and suggested initial stocking rates of the Refuge are completed by the USDA Natural Resources Conservation Service every 5 to 10 years. Visual obstruction reading transects are accomplished periodically to document vegetation structure. Fenced animal monitoring includes monthly population surveys, annual disease testing of excess animals, and infrequent (7 to 10 years) genetic testing. Detailed breeding records of longhorns are also maintained for genetic management purposes.

Grassland habitat management strategies are implemented that maintain or improve grassland health and provide forage for bison, elk, and Texas longhorns. Approximately 50 miles of interior fence and 50 miles of boundary fence (perimeter, River corridor, road right-of-way) are used to control timing of grazing and access/movement of the fenced animals. Grazing strategies (time of year, intensity, length) implemented in the estimated 40 habitat units vary according to species management needs and behavior, natural use patterns/seasonal movements of animals in pre-settlement times, staffing, water, climatic conditions, available Animal Use Months (AUM), range site and condition. Large ungulate herds consume and/or remove by trampling an estimated 8,400 AUMs of forage a year which is approximately 40 percent of the total plant production, leaving approximately 60 percent of the vegetation for plant vigor and use by other wildlife (Waller *et al.* 1986, USDA Natural Resources Conservation Service 1996). Texas longhorns, exhibition herds, and government horses are supplemented during the winter as conditions warrant with approximately 600 tons of prairie hay harvested from Valentine NWR. Other annual management actions include one or more years of rest on approximately 4 percent of the acreage, no planned grazing or burning on approximately 30 percent of the acreage during the native bird breeding season, prescribed burning of approximately 100 acres to invigorate native plants or control cedar invasion, and suppression of all wildfires.

Riparian and Woodland Management

Management of the Niobrara River, numerous streams, and their associated riparian habitat is minimal and emphasizes maintenance of current conditions. Nearly all of the Niobrara River and its associated riparian habitats are fenced to control access of bison, elk, and Texas longhorns except the tributary streams in the wilderness area.

The Cornell Dam is maintained to provide shallow-braided river and sandbar habitat upstream.

Twelve ponds formed by damming tributary streams are held at full capacity throughout most of the year for use by waterfowl and other birds, fenced animals, and fish rearing under cooperative agreement with the Nebraska Game and Parks Commission. Periodic drawdowns of these impoundments are accomplished for aquatic vegetation control and structure repair. Breached impoundments in the wilderness area are being allowed to return to a natural state. Several natural impoundments have been created by beavers.

Research of historic water rights is ongoing.

Limited monitoring of stream flow and contaminants is accomplished periodically.

Woodland management is minimal and includes control of cedars, exclusion of fenced animals, and removal of dead or downed timber presenting a safety or fire hazard or threatening facilities. Less than 3 percent of the Refuge is managed through prescribed burning each year to control cedars. Other invading and exotic plant species are controlled with beneficial insects, grazing, and herbicides.

Threatened and Endangered Species

Use by bald eagles, whooping cranes, and other federally listed species on the Refuge is documented through periodic surveys. Required habitat conditions are maintained. Protective actions are implemented as needed.

Native Birds and Other Wildlife

Current management strives to maintain the existing diversity and abundance of various native birds and other wildlife by providing a mosaic of habitat conditions. Biological monitoring of native birds and other wildlife is carried out to the greatest extent possible with current staffing and management priorities. Native bird management actions are accomplished to the extent possible given the primary consideration currently afforded to large ungulates in the Refuge. Limited flexibility exists in habitat management programs with approximately 96 percent of the Refuge being grazed annually.

A 20-acre black-tailed prairie dog colony is maintained and not allowed to expand in the exhibition habitat unit.

A maternity colony of big brown bats (estimated 200 individuals) inhabits the historic north barn during the late spring and summer with no management efforts made to alter their occupancy.

Prairie grouse lek counts are conducted each spring with data available for comparison dating back to 1956. A breeding bird survey route established in 1992 is conducted by staff or volunteers. Refuge staff cooperate with the Nebraska Game and Parks Commission by completing the annual Spring Coordinated Sandhill Crane Survey, Mid-December Goose Survey, Mid-winter Waterfowl Survey, Winter Turkey Survey, and Summer Turkey Brood Survey. A general wildlife observation log is maintained to document presence/absence and relative numbers of various species.

Exotic and Invading Species

Exotic and invading vegetation species are controlled through an integrated pest management approach. Various biological control agents are being used in the ongoing effort to reduce the occurrence of purple loosestrife along the Niobrara River. Four small patches (less than one-eighth acre each) of leafy spurge and two larger patches (one acre each) are controlled through mechanical and limited chemical applications. Small areas of exotic cool season grasses exist at disturbed sites (i.e., road ditch, old farm ground, cattle feed areas) and are being controlled with grazing and prescribed burning. Limited mechanical control and prescribed burning of eastern red cedar is being implemented. Reed canary grass is common along the River; however, no control measures are in place at this time.

Public Use

Visitation: Based on general observations and data collected in the visitor center and on the River, an estimated 100,000 people visit the Refuge annually for wildlife/wildland observation, photography, interpretation/education, picnicking, hiking, fishing, and floating on the Niobrara River. Recreational use of the Niobrara River for canoe and tube floating has steadily increased as more visitors travel to the Refuge to enjoy the riparian-dependent wildlife as well as the wilderness area of the Refuge.

Facilities: The visitor center, with a variety of over 20-year-old displays interpreting the history of the military fort, area wildlife and habitat, and Refuge management, is open Monday through Friday year-round and weekends Memorial Day to Labor Day with actual annual use recorded at approximately 6,000 visits.

Other interpretive facilities under some phase of development include a kiosk at the canoe launch with education panels entitled "Niobrara Valley," "Welcome to Fort Niobrara," "Canoeing the Niobrara River"; the observation deck above Fort Falls includes education panels titled "Prairie Oasis," "Fort Falls," "Sand, Rock & Water"; and an interpretive panel to be located in the exhibition habitat unit providing information on elk and prairie dogs.

The Bur Oak Picnic area is located along the Niobrara River at the Refuge entrance. Tables and rest rooms are used mainly by people visiting the Refuge for River floating or wildlife observation.

Trails & Tour Routes: The Fort Falls nature trail is approximately one mile long and educates the hiker through a brochure describing the different vegetation communities and associated wildlife found in this unique, biologically diverse area.

The 15-stop self-guiding auto tour route is located in the exhibition habitat unit and provides information on the prairie dog town, bison, elk, Texas longhorns, and other prairie inhabitants.

Environmental Education: Interpretation and environmental education services are provided when staff are available and include talks or guided tours for school groups (elementary through college level), scouts, 4-H and special projects (i.e., Old West Days Trail Ride). The public is invited to observe fall roundups and auctions of bison and longhorns, participate in Migratory Bird day activities, and other Refuge programs.

River Use: Floating the Niobrara River with canoes or tubes is a popular recreational activity on the Refuge. Over 18,000 vessels carrying more than 30,000 people were put in the Niobrara River from the Refuge launch facility in 1997. Most of the canoeing and tubing takes place during June (18 percent), July (37 percent), and August (40 percent), with Saturday morning being the most congested period. During an average Saturday in July 1997, approximately 1,200 people launched 684 vessels into the River from 8-11 a.m. which is one vessel launch every 16 seconds. Due to the alarming increase of River use documented in outfitter reports from 1993-1997, crowding and compatibility with wilderness designation and wildlife needs, Refuge management has in place a moratorium on new outfitters. Also, the existing 11 outfitters have been informed that any expansion of their business on the Refuge is at their own risk, and River use on the Refuge should be redistributed to week days.

The Refuge has been selected by the Service as a User Fee Demonstration Area due to the volume of River use, increasing cost of maintaining the launch area and public rest rooms, and the need for additional law enforcement. After receiving input from canoe and tube outfitters, National Park Service, Nebraska Game and Parks Commission, Natural Resources District, and other interested parties, the Refuge staff set up a fee and collection system which is thought to be fair and simple. The first year of the user fee program was 1998. Review of monitoring protocol for public use levels on the Niobrara River, effects of use on Refuge wildlife/wildlands and wilderness, and determination of acceptable use/levels began in 1998. A social carrying capacity study was conducted the summer of 1998.

Hunting, Fishing and Trapping: The Refuge is currently closed to hunting.

The Niobrara River is open to fishing with a Fishing Plan expected to be completed in the near future. Angler opportunities are limited with most fishing occurring immediately below Cornell Dam. Kid's Fishing Day is held annually in September and includes trout, catfish, and bluegill fishing in the corral pond, fish identification and casting contests, cleaning, and cooking. The event is a cooperative effort between the Nebraska Game and Parks Commission (NG&PC), Niobrara Natural History Association, volunteers, and the Refuge staff.

The Refuge is closed to recreational trapping. Trapping for depredation or damage control purposes is accomplished as necessary through force account or a special use permit in accordance with State and Service regulations.

Cultural and Paleontological Resources

Limited cultural resource studies have been conducted by the U.S. Fish and Wildlife Service (Service), National Park Service, and various research institutions to locate and describe and evaluate cultural and paleontological resources (Burgett and Nickel 1999). Less than 1 percent of the Refuge has been inventoried for these resources. The remains of old Fort Niobrara, including the north barn, have been determined eligible for Nomination to the National Register of Historic Places. Twelve of the 21 Refuge buildings are over 50 years old and need to be evaluated for historic significance. Minimal interpretation and protection of the various cultural resources is available. The remainder of the main military complex surrounds the present Refuge headquarters. Virtually all the buildings were sold and removed between 1906 - 1912; however, foundations, roads and minor surface features remain.

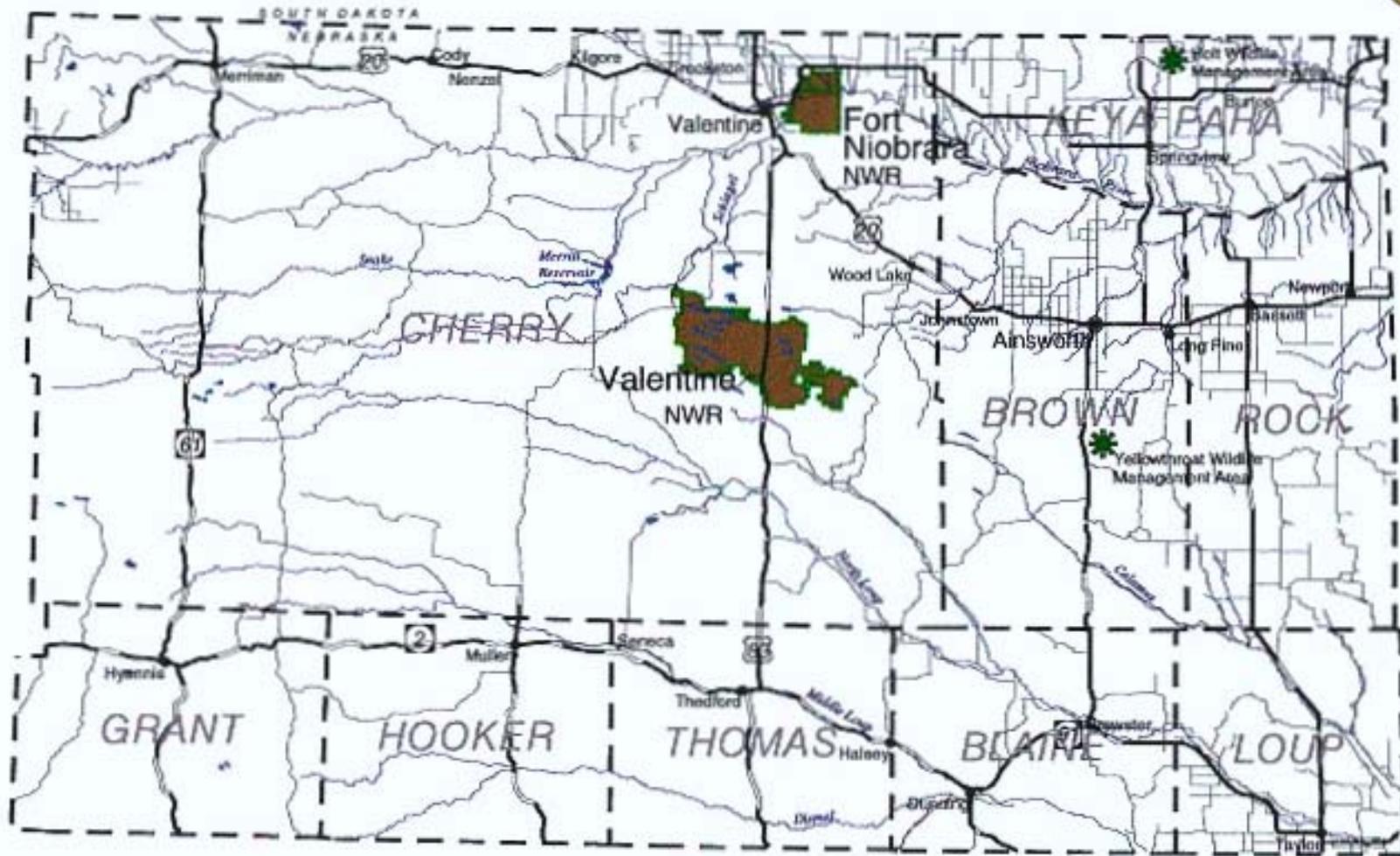
Purpose of and Need for Comprehensive Conservation Plan

The Service has recognized the need for strategic planning for all the components of its System. The System now has more than 513 refuges totaling approximately 93 million acres. Fort Niobrara NWR, located in north-central Nebraska (see Figure 2), is a unique and ecologically important component of the System. In September 1996, Executive Order 12996 was enacted which gave the System guidance on issues of compatibility and public uses of its land. Congress passed the National Wildlife Refuge System Improvement Act in October 1997. This "organic act," for the first time in the System's history, required that comprehensive conservation plans be prepared for all refuges within 15 years.

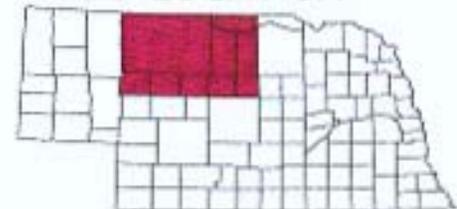
The Service was an active participant in this historic legislation and supported the planning requirement. The planning effort helped this Refuge (and thus the entire System) to aid in meeting the changing needs of wildlife species and the public. The planning effort provided the opportunity to meet with Refuge neighbors, and customers, and other agencies to ensure that this Plan was relevant and truly addressed natural resource issues and public interests. It is our goal to have the System be an active and vital part of the United States' conservation efforts. This Plan explains the planning process, the Refuge's characteristics, and the direction management will take in the next 15 years. It is provided to give the reader a clear understanding of the purposes of the Refuge and how the Service will manage it over the next 15 years to attain the stated purpose of the Refuge.



Vicinity Map of North Central Nebraska



MAP LOCATION



State of Nebraska

Figure 2: Vicinity Map

National Wildlife Refuge System Mission, Goals and Guiding Principles

The National Wildlife Refuge System is the world's largest collection of lands set aside specifically for the protection of fish, wildlife and plant populations and their habitats. The first unit of the System was created in 1903, when President Theodore Roosevelt designated 3-acre Pelican Island, a pelican and heron rookery in Florida, as a bird sanctuary. Today, more than 500 national wildlife refuges located in the 50 States and a number of U.S. Territories exist. Today, the System encompasses more than 93 million acres.

This System provides important habitat for many native mammals, birds, reptiles, amphibians, fish, invertebrates, and plants. The System plays a vital role in preserving endangered and threatened species, and offers a wide variety of wildlife-dependent public uses; annually, national wildlife refuges receive 34 million visitors.

However, the System's importance goes far beyond these services. It contributes directly and indirectly to human welfare through a number of ecosystem services and functions. The section on "Management Direction" contains a detailed discussion of ecosystem services. For the entire biosphere, the estimated annual economic value of all the world's ecosystem services and functions is about \$33 trillion (Constanza, *et al.* 1997).

The Mission of this System is "to administer a network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57). The goals of the System are aimed at fulfilling this mission and are the following:

- Goal 1: To preserve, restore, and enhance in their natural ecosystems all species of animals and plants that are endangered or threatened with becoming endangered;*
- Goal 2: To perpetuate the migratory bird resource;*
- Goal 3: To preserve a natural diversity and abundance of fauna and flora on refuge lands; and*
- Goal 4: To provide an understanding and appreciation of fish and wildlife ecology and man's role in his environment and provide visitors with high quality, safe, wholesome, and enjoyable recreation experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.*

National wildlife refuges are acquired under a variety of legislative acts and administrative orders and authorities. These orders and authorities usually have one or more purposes for which land can be transferred or acquired. Most refuges within the System provide breeding, migration, or wintering habitat for Federal Trust Species. Nearly all refuges also supply habitats for big game species and resident or nonmigratory wildlife as well.

Individual refuges provide specific requirements for the preservation of trust resources. For example, waterfowl breeding refuges in South and North Dakota provide important wetland and grassland habitat to support populations of waterfowl as required by the Migratory Bird Treaty Act and the North American Waterfowl Management Plan. Valentine NWR supports breeding populations of migratory birds as well as provides migration habitat during spring and fall migration periods for these birds. Sabine NWR and other refuges in Louisiana and Texas provide wintering habitat for these populations. The network of lands is critical to these birds survival. Any deficiency in one location will affect the species and the entire networks ability to maintain adequate populations.

Other refuges may provide habitat for threatened and endangered plants or animals that exist in unique habitats which occur in only very few locations. Refuges in these situations ensure that populations are protected and habitat is suitable for their use. Refuges, by providing a broad network of lands throughout the United States, help to prevent species from being listed by providing secure habitat for their use and provide recovery habitats in portions or all of a species range.

The National Wildlife Refuge System Improvement Act of 1997 amends the Refuge Administration Act's Section 4(A) with the following additions:

- P *"each refuge shall be managed to fulfill the mission of the System, as well as the specific purposes for which that refuge was established;*
- P *compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System, directly related to the mission of the System and the purposes of many refuges, and which generally fosters refuge management and through which the American public can develop an appreciation for fish and wildlife;*
- P *compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive priority consideration in refuge planning and management; and*
- P *when the Secretary determines that a proposed wildlife-dependent recreational use is a compatible use within a refuge, that activity should be facilitated, subject to such restrictions or regulations as may be necessary, reasonable, and appropriate.*

- (4) *In administering the System, the Secretary shall—*
- P *provide for the conservation of fish, wildlife, and plants, and their habitats within the System;*
 - P *ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans;*
 - P *plan and direct the continued growth of the System in a manner that is best designed to accomplish the mission of the System, to contribute to the conservation of the ecosystems of the United States, to complement efforts of States and other Federal agencies to conserve fish and wildlife and their habitats, and to increase support for the System and participation from conservation partners and the public;*
 - P *ensure that the mission of the System described in paragraph (2) and the purposes of each refuge are carried out, except that if a conflict exists between the purposes of a refuge and the mission of the System, the conflict shall be resolved in a manner that first protects the purposes of the refuge, and, to the extent practicable, that also achieves the mission of the System;*
 - P *ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the System are located;*
 - P *assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the System and the purposes of each refuge;*
 - P *acquire, under State law, water rights that are needed for refuge purposes;*
 - P *recognize compatible wildlife-dependent recreational uses as the priority general public uses of the System through which the American public can develop an appreciation for fish and wildlife;*
 - P *ensure that opportunities are provided within the System for compatible wildlife-dependent recreational uses;*
 - P *ensure that priority general public uses of the System receive enhanced consideration over other general public uses in planning and management within the System;*
 - P *provide increased opportunities for families to experience compatible wildlife-dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities, such as fishing and hunting;*
 - P *continue, consistent with existing laws and interagency agreements, authorized or permitted uses of units of the System by other Federal agencies, including those necessary to facilitate military preparedness;"*

The National Wildlife Refuge System Improvement Act of 1997 further defines the wildlife-dependent recreational uses as: wildlife observation and photography, environmental education and interpretation, and fishing and hunting.

U.S. Fish and Wildlife Service Mission

The mission of the Service is to work with others to conserve, protect, and enhance fish, wildlife, and plants, and their habitats for the continuing benefit of the American people. To fulfill this mission, Congress has charged the Service with conserving and managing migratory birds, endangered species, anadromous and inter-jurisdictional fish, and certain marine mammals. The Service carries out these responsibilities through several functional entities. The National Wildlife Refuge System is one of those entities.

Fort Niobrara National Wildlife Refuge Purpose(s)

The Fort Niobrara NWR was created by Executive Order 1461, January 11, 1912, (with a designated acreage of 13,279 acres) "...reserved and set apart for the use of the Department of Agriculture as a preserve and breeding ground for native birds." Shortly after the Refuge's establishment, J.W. Gilbert, owner of a private game park at Friend, Nebraska, "offered his buffalo, elk, and deer to the Federal Government for preservation on a national reservation, with the understanding that they would remain in Nebraska. The acceptance of this offer was delayed through lack of a suitable range in the State. On November 14, 1912, however, an Executive Order was issued enlarging the Fort Niobrara Game Preserve (then known as the Niobrara Reservation) by adding thereto the area formerly used as the parade grounds and headquarters for the old military post. This made the total area of the preserve about 14,200 acres. Mr. Gilbert's offer was then formally accepted by the Secretary of Agriculture, and arrangements were made to transfer the animals to Fort Niobrara." (Ruth 1938) As a result, the Refuge is to be managed (1) as a preserve and breeding ground for native birds, and (2) for the preservation of bison and elk herds representative of those that once roamed the Great Plains.

Furthermore, the Wilderness Act of 1964 calls for designated wilderness areas within a National Wildlife Refuge to receive equal consideration in management decisions and become a supplemental purpose of the Refuge. Section 4. (a) of this Act reads: "*The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and national wildlife refuge systems are established and administered.*" Thus, the purpose of the designated wilderness area within this Refuge is to be supplemental and not subservient to the other purposes of the Refuge.

Fort Niobrara National Wildlife Refuge

Vision Statement

Fort Niobrara NWR will strive to preserve, restore, and enhance the exceptional diversity of native flora and fauna and significant historic resources of the Niobrara River Valley and Sandhills of Nebraska for the benefit of present and future generations of Americans.

Fort Niobrara NWR habitat management goals will seek to maintain a healthy Refuge environment that will provide opportunities for visitors to enjoy wildlife-dependent uses of the Refuge in a natural setting. Interpreting a unique assemblage of habitats, wildlife and the Refuge's historical heritage, as well as improving facilities will enhance the visitor's experience while protecting the cultural integrity of the area. To meet these challenges, the Service will seek partnerships with other agencies, interest groups, landowners, and local communities. These efforts will result in greater protection of wildlife, fish, and plant resources throughout north-central Nebraska.

Legal and Policy Guidance

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (System), the designated purpose of the Refuge unit as described in the establishing legislation and/or executive orders, Service laws and policy, and international treaties (for a complete list see Appendix G).

Key concepts included in laws, regulations, and policies that guide management of the System include primary versus multiple-use public lands, compatibility, and priority wildlife-dependent recreational activities. Examples of relevant guidance include the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, the Refuge Recreation Act of 1962 (50 CFR), Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), and selected portions of the Code of Federal Regulations, the Refuge Manual, and the Fish and Wildlife Service Manual.

The National Wildlife Refuge System Administration Act of 1966, as amended, provided guidelines and directives for administration and management of all areas in the System, including wildlife refuges, areas for the protection and conservation of fish and wildlife threatened with extinction, wildlife ranges, game ranges, wildlife management areas, or waterfowl production areas. Use of any area within the System was permitted, provided that such uses were compatible with the major purposes for which such areas were established.

The National Wildlife Refuge System Improvement Act of 1997 amends the Refuge System Administration Act by including a unifying mission for the System, a new formal process for determining compatible uses on refuges, and a requirement that each refuge will be managed under a Comprehensive Conservation Plan (CCP or Plan). This Act states that wildlife conservation is the priority of the System lands and that the Secretary of the Interior (Secretary) shall ensure that the biological integrity, diversity, and environmental health of refuge lands are maintained. Each refuge must be managed to fulfill the mission of the System and the specific purposes for which it was established. Additionally, this Act identifies and establishes the legitimacy and appropriateness of the six wildlife-dependent recreational uses. These are hunting, fishing, wildlife observation and photography, and environmental education and interpretation. As priority public uses of the System, these uses will receive enhanced consideration over other uses in planning and management. Furthermore, this Act requires that a CCP be in place for each refuge by the year 2012 and that the public have an opportunity for active involvement in Plan development and revision. It is Service policy that CCPs are developed in an open public process and that the agency is committed to securing public input throughout the process. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

Lands within the System are different from other, multiple-use public lands in that they are closed to all public uses unless specifically and legally opened. Unlike other Federal lands that are managed under a multiple-use mandate (i.e., national forests administered by the U.S. Forest Service and public lands administered by the U.S. Bureau of Land Management), the System is managed specifically for the benefit of fish, wildlife, and plant resources and their habitats. Compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System.

Compatible wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation are priority public uses of the System. These uses must receive enhanced consideration over other public uses in refuge planning and management.

Before any uses, including wildlife-dependent recreational activities, are allowed on national wildlife refuges, Federal law requires that they be formally determined to be “compatible.”

A compatible use is defined as a use that, in the sound professional judgement of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the Refuge. Sound professional judgement is further defined as a finding, determination, or decision that is consistent with the principles of sound fish and wildlife management and administration, available science and resources (funding, personnel, facilities, and other infrastructure), and adherence with applicable laws. If financial resources are not available to design, operate, and maintain an activity, the refuge manager will take reasonable steps to obtain outside assistance from the State and other conservation interests. No refuge use may be allowed unless it is determined to be compatible.

The Service has completed compatibility determinations for Fort Niobrara NWR (see Appendix E). All six priority wildlife-dependent recreational activities—wildlife observation, wildlife photography, environmental interpretation, environmental education, hunting and fishing—were determined to be compatible. Hunting currently is not permitted, but the Refuge may allow future occasional hunts for the purpose of managing elk and, if reintroduced, bighorn sheep populations to achieve habitat management goals.

The Refuge Recreation Act, as amended, authorized the Secretary to administer refuges, hatcheries, and other conservation areas for recreational use when such uses did not interfere with the area’s primary purpose.

Executive Order 12996 (March 23, 1996) identified a new mission statement for the System; established six priority public uses (hunting, fishing, wildlife observation and photography, environmental education and interpretation); emphasized conservation and enhancement of the quality and diversity of fish and wildlife habitat; stressed the importance of partnerships with Federal and State agencies, Tribes, organizations, industry, and the general public; mandated public involvement in decisions on the acquisition and management of refuges; and required identification, prior to acquisition of new refuge lands, of existing compatible wildlife-dependent uses that would be permitted to continue on an interim basis pending completion of comprehensive planning.

Existing Partnerships

The Refuge works with a variety of organizations and individuals on natural resource projects including private landowners (Partners For Wildlife program); Natural Resources Conservation Service (Refuge grazing program, Wetland Reserve Program); Farm Service Agency (easement program); Nebraska Game and Parks Commission (wildlife surveys, fish rearing in Refuge ponds); Cherry County Extension Service (youth programs, research); local law enforcement agencies (enforcement, youth rehabilitation); Inter Tribal Bison Cooperative (bison donations and management); zoos, conservation districts and other non-profit qualifying entities (bison, elk, and longhorn donations); veterinarians for the State of Nebraska, other lower 48 states, and U.S. Department of Agriculture (disease and health issues, tests, research); Rocky Mountain Elk Foundation (interpretative panels, animal transfers); Fort Niobrara Natural History Association (Refuge projects, sale of books, postcards, posters, etc.); Valentine Chamber of Commerce (community projects); Niobrara Council (River management); Texas Longhorn Breeders Association of America and International Texas Longhorn Association (longhorn pedigree, registration); The Nature Conservancy (fire management, research); Rural Fire Protection Districts (wildfire suppression on-and off-Refuge); and various universities (research).

Planning Process

Description of Planning Process

The development of this CCP was guided, in the beginning, by the Refuge Planning Chapter of the Fish and Wildlife Service Manual (Part 602 FW2.1, November 1996) and later also by the Service's Draft Comprehensive Conservation Planning Policy. Key steps included: (1) preplanning; (2) identifying issues and developing a vision; (3) gathering information; (4) analyzing resource relationships; (5) developing alternatives and assessing environmental effects; (6) identifying a preferred alternative; (7) publishing the Draft Plan and soliciting public comments on the Draft Plan (the comment period for input from the public spanned a total of 105 days); (8) review of comments and effecting necessary and appropriate changes to the draft CCP; and, (9) preparation of the final Plan for approval by the Region 6 Regional Director, and finally (10) implementation of the Plan.

Comprehensive conservation planning efforts for Fort Niobrara NWR began in January 1997 with a meeting of regional management and planning staff and field station employees at Fort Niobrara NWR. At that meeting a core planning team was designated with the major responsibilities of gathering information and writing the plan. A review team was set up to provide guidance and direction to the core planning team. A working group was also organized to provide interchange of information between Service personnel, outside agencies, and interested stakeholders of the Refuge.

On March 20, 1997, an open house scoping session was held in the Cherry County Hall meeting room, Valentine, Nebraska. The open house provided participants an opportunity to learn about the Refuge's purposes, mission and goals, and issues currently facing management. People attending were provided the chance to speak with Service representatives and to share their comments.

A two-day Refuge tour was held with the working group and Service management and planning staffs in April 1997. The tour gave participants a chance to view fenced animal management and prominent wildlife species of the Refuge, discuss management aspects of the Refuge, and give planning staff ideas for consideration in the planning process.

On October 28, 1997, a meeting was held with Refuge permittees that are actively involved with canoeing and tubing on the Niobrara River through the Fort Niobrara NWR. The CCP addresses this issue, and the meeting provided an opportunity for Refuge staff and permittees to share information concerning this use. This and other meetings were scheduled to let people know what the Service was doing to manage the wildlife and habitats of the Fort Niobrara NWR and to elicit their input on topics of interest to them.

During the planning process, the review and working groups had access to information on objectives and alternatives being considered. Written comments were exchanged and verbal conversations were held. The Draft CCP/EA was the first opportunity that these groups and the public had to review the entire planning effort and the Draft Plan. The Draft Plan was released on the last week of April 1999 and distributed in the first week of May 1999. A 60-day comment period was provided in which the Service requested information, comments, concerns, suggestions, and complaints from the public regarding the Draft CCP/EA. Because of the tremendous amount of public interest in this Plan, the Service extended the comment period for an additional 45 days, for a total of 105 days of public comment. With this extension, the public comment period did not close until August 19, 1999.

The voluminous amount of comment letters and electronic mail communications were reviewed and summarized by category and subject. After reading and compiling all the comments received, the review team had a briefing meeting with the Regional Director and Assistant Regional Director of the Service's Region 6, the Programmatic and Southern Ecosystems Assistant Regional Directors, the Refuge Supervisor for Fort Niobrara NWR, the Chief of the Branch of Land Acquisition and Refuge Planning, and the Regional Wildlife Biologist. The summary of the comments received was reviewed at this meeting and appropriate modifications were made to the Draft CCP/EA in accordance with scientifically based new information provided during the comment period and the goals and objectives of the Refuge. The present Plan contains the changes made by the Service in accordance to the recommendations of the directorate and Service biologists and managers. All the actions undertaken in the preparation of this Plan satisfy the requirements under the National Environmental Policy Act of 1969.

This Plan will guide the management on the Refuge for the next 15 years. Plans are ultimately signed by the Regional Director, Region 6, thus providing regional direction to the station project leader. A copy of this Plan will be provided to all those interested. The project leader of the station will review the Plan every five years to decide if it needs revision.

Planning Issues

Issues, concerns, and opportunities were identified through discussions with planning team members, key contacts, and through the public scoping process, which began with an Open House in March 1997. Comments were received orally at the meetings, via e-mail messages and in writing, both before and during the scoping and the public comment period phases of the comprehensive conservation planning process. The following issues, concerns, and comments are a compilation and summary of those expressed by the public, other Federal and State agencies, local and county governments, private organizations and individuals, environmental groups and persons concerned for the natural resources of the Fort Niobrara NWR. This section also contains information developed by the Service throughout the planning process on the same issues.

Texas Longhorn Cattle

Many people were concerned, for various reasons, about the Service's proposal to remove this historic herd from the Refuge. Some other commentators met this proposal with approval.

Loss of Revenue to the County: It was speculated that Cherry County would experience a drastic reduction in revenue from the loss of monies provided by the receipts of the sales of Texas longhorn cattle from Fort Niobrara NWR should this herd be removed from the Refuge.

The Service believes that Cherry County should not see any drastic reduction of revenue from the relocation of this herd outside of the Refuge for the following reason: The annual average of the Refuge Revenue Sharing receipts, collected, deposited and credited towards the reserve acres for Fort Niobrara NWR for the past three years was \$43,090 for longhorn cattle and \$170,567 for bison. The average of the percent of these receipts credited to longhorn cattle for the same years was 20.26 percent. Therefore, if the longhorn cattle sales were no longer held at Fort Niobrara NWR and no receipts were collected, Cherry County would lose approximately 20.2 percent in revenue each year from the Refuge Revenue Share Program (RRSP).

This loss of revenue from the RRSP would generally be compensated by the Payment-in-Lieu-of-Taxes payment (PILT Law, Act of October 20, 1973, PL-94-5a65; 90 Stat 2662; 31 USC-1601) made by the Bureau of Land Management (BLM) each year. In the last three years, Cherry County has received a PILT payment from BLM for the same reserved acres based on the PILT formula minus the amounts paid by the U.S. Fish and Wildlife Service.

Therefore, if the Service were to make a payment under the RRSP which was less than the average in the last years because of the lack of revenue from the sale of longhorn cattle, then the BLM payment would make up the difference.

Loss of Historically Important Herd: The Service understands the historical significance and the importance to local tourism that this herd has for Cherry County and the City of Valentine. Nevertheless, the Service believes that given the need to achieve the habitat management goals of the Refuge to comply with the stated purpose of Fort Niobrara NWR, the herd must be removed from the Refuge. However, the Service has stated, to the City of Valentine, Cherry County officials, and other groups and individuals concerned about the removal of this herd from the Refuge, its willingness to participate in the creation of a non-profit organization that would receive this herd and manage it, in accordance with the same practices and standards used by the Service, within Cherry County, and if at all possible, within the limits of the City of Valentine. Thus, this herd could continue to exist within Cherry County and possibly in the vicinity of the City of Valentine where tourists could have access to it. Furthermore, the management entity could directly benefit from 100 percent of the proceeds of the excess animals from the herd rather than just 25 percent as it does under present conditions.

Recreational Use and Resources of the Niobrara River

Many people, groups, and agencies were concerned, for various reasons, about the Service's current and proposed policy on access to and management of the Niobrara River resources for recreational use.

Limiting Access to the Niobrara River: The Service has grown increasingly concerned over the possible environmental effects that the current burgeoning use of the Niobrara River resources by River floaters may be having on riparian and upland Refuge resources, as well as on wilderness values.

Recreational canoeing and tubing use of the stretch of the Niobrara River designated as scenic by Congress has increased dramatically in the past few years. In response to this, the Service has attempted to alleviate effects on Refuge resources (riparian habitats and the wildlife that depends upon it, wilderness values, etc.) by placing a temporary limit on the number of outfitter Special Use Permits issued by the Refuge and a cap on use while the environmental effects of this use are assessed. Furthermore, this temporary limit in use is expected to contain the overcrowding situation that has developed on this stretch of the Niobrara River and degraded the quality of wilderness experience. This temporary measure has been criticized as unfair, inadequate, and without basis on hard evidence and science. However, the Service believes that this interim management policy is better than complete shutdown of River use on this stretch of the Niobrara River (worst case scenario) as discontinuing all use would be no more justifiable than allowing uncontrolled growth of use. At this time, there is no logic in depriving all visitors of the wilderness experience.

Management Plan: The Service will prepare a Management Plan in the next two years dealing exclusively with the recreational use of the scenic Niobrara River as it flows through the Refuge. This Plan will be prepared by the Service with the participation of all interested parties, such as the National Park Service, the Niobrara Council, all River outfitters interested in participating, and any city and county officials interested in being part of this effort. The Plan will define acceptable use levels for weekdays and weekends that meet legal mandates. Also, actions to be taken when uses exceed threshold levels or negatively impact resources, and wilderness values will be clearly defined.

In the interim, River use will be capped at the 1998 levels and the moratorium on new outfitters will continue. Weekend and weekday use will be monitored along with habitat, wildlife, erosion, and social parameters to determine threshold levels.

It is not the intention of the Service to obstruct the development of a recreational and revenue-producing enterprise such as River use outfitting, but rather to ensure that this use continues to be compatible with Refuge goals and objectives and with the requirements of the Wild and Scenic River Act and the Wilderness Act promulgated by Congress for the benefit of the American people. The Service believes that the wise use of the River for recreational purposes will, in the end, be beneficial, not only to wildlife, but to the community as well. It is our belief that any decrease in use by River floaters is caused more by a degrading "wilderness" and "wild and scenic" experience caused by too many visitors at certain times of the year, rather than by the Service's limits on Special Use Permits. Ensuring visitors a wildlife-oriented as well as a wilderness experience when using the River would also ensure a healthy tourist industry for the City of Valentine and Cherry County.

While not presently documented on Fort Niobrara NWR riparian habitats along the wild and scenic Niobrara River, a large body of research exists (mostly from studies conducted in California, Colorado and in eastern states) on the issue of effects on migratory birds as public use of rivers increases. Heavy recreation use of riparian areas during the summer (bird breeding season) can have devastating effects on the avifauna, during all portions of their natural history cycle. Riparian habitats are one of the most important wildlife habitats occurring in the Service's Region 6. Seventy-five percent of the terrestrial species occurring in this Region are dependent on riparian and adjacent aquatic zones during some portion of their life cycle. The effects of heavy recreation on the riparian habitats and its associated wildlife species is two-fold: disturbance to the individuals, and disturbance to the vegetation used by wildlife. These effects have not been fully assessed for the riparian habitats of Fort Niobrara NWR. The Service, as a precautionary measure, decided to place limits on recreational use of the segment of the wild and scenic Niobrara River that flows through the Refuge until these effects can be qualified and quantified. The Service's mission is the preservation of wildlife and the habitats on which they depend. Recreational use of Refuge lands must come second to wildlife and be carried out in a compatible way with the purposes of the Refuge. Thus, the necessary use limits at this time until a River Management Plan is developed and implemented.

Restricted Access and User Fees: Fort Niobrara NWR, through its land management authority, has restricted access and use of certain roads and bridges and has instituted fees for use of public facilities as the need for these provisions has grown. Changes in the operation of the Refuge canoe launch have been implemented over the years as the number of visitors to the area has increased. Furthermore, Congress directed refuges to implement fees in areas where collection could be made and used to pay for the costs of operating the activities for which a fee is collected. This fee amount was based on fees charged at other Federal areas. Monies collected from the fee program have been used to pump rest rooms, for signs, for costs related to collections, but primarily to pay the salary of a law enforcement officer to patrol the River in an attempt to stop certain inappropriate uses of the River (alcohol consumption, disorderly conduct, littering, no life jackets, etc.). Access to the River from a County road had to be stopped for safety reasons because people were unloading gear and canoes on the road, on the road shoulder, and crossing the road on foot to get to the parking area, thus creating a safety hazard. Cherry County has a right-of-way across the Refuge for a road. The right-of-way is not for public recreation such as launching of canoes or tubes.

Authority to Control River Activities: The Department of Interior Solicitor's Office provided the Service with an opinion regarding the Refuge's authority to control activities on the surface of the wild and scenic section of the Niobrara River flowing through the Refuge. However, some visitors to the Refuge and residents of Cherry County disagree with the Solicitor's opinion, and this continues to be a point of contention. Nevertheless, the nine miles of the Niobrara River that span the Refuge are part of the segment designated by Congress as part of the Wild and Scenic River System in 1991. The Service was thus accorded exclusive management authority on this portion and National Park Service on the remainder of the wild and scenic Niobrara River. The entire segment is considered a component of the National Park Service system, and Congress holds the Service and the National Park Service accountable for the preservation and management of this National resource, not subordinate partners that may or may not exist.

Bridge and Launch Area: Some people launching at the Refuge are not aware that they are within the boundary of a National Wildlife Refuge. The Service must educate the public to the fact that (1) the Niobrara River flowing through the Refuge is a designated scenic River, (2) five miles of the Niobrara River is designated as a Wilderness Area, and (3) the Service must manage these resources in accordance with these Congressional designations and the management that they imply. The Service will require that all future outfitter literature and public contact refer to the launch site as "Fort Niobrara National Wildlife Refuge Canoe Launch Site."

Cornell Dam: Some commented that the Cornell Dam has outlived its usefulness; that a study weighing its environmental and cultural values, as well as safety, should be undertaken directly to determine whether the Dam should survive. A few commentators recommended breaching the dam as restoration of natural stream flow is entirely consistent with Congressional intent of the Wild and Scenic Rivers Act. Furthermore, they added that the current Nation's sentiment is for removal of outmoded, functionless dams, specially if they block otherwise pristine, natural flowing rivers. They pointed to the need for an environmental consequences analysis for retaining this dam.

The Service's decision to leave Cornell Dam untouched at this time stems from the Service's concern and responsibility towards federally listed species that have been known to benefit from the habitats created by this structure. However, the Service is open to further study this situation, and if warranted in the future, to eliminate this structure if it is shown to be no longer necessary to maintain habitats for threatened and endangered species.

Habitat and Wildlife Management

Many people, agencies, and environmental groups were concerned about the loss of bird habitat due to the priority given to large ungulate management. They also felt that protecting and enhancing bird habitats should be a priority over other wildlife issues. Some felt that other wildlife species, including butterflies and other insects, should be considered, and that enhancement of wildlife off the Refuge should be discussed as well. Concern was expressed about the design of the perimeter fence, vegetation management, and any additional structures and how they would affect the movements of wildlife to and from the Refuge, as well as the appearance of the area. A comment was made that current wildlife management practices should be evaluated before any changes are made.

Legislation (National Wildlife Refuge System Administration Act, as amended) mandates wildlife conservation as the overriding mission of the National Wildlife Refuge System and, as such, it is the most important issue at Fort Niobrara NWR. Protection of wildlife habitat, especially for feeding, resting, and nesting birds and their young, would define the types of visitor activities and access allowed at the Refuge. Another responsibility of this and other national wildlife refuges will be to preserve, restore, and enhance threatened and endangered species and migratory birds. To carry out this responsibility, the Refuge's flora and fauna must be protected from human adverse impacts (i.e., pollution, and disruptive or incompatible activities). Public use of the scenic section of the Niobrara River, the Refuge's Wilderness Area, and the rest of the Refuge lands must be managed to be compatible with avian and other wildlife objectives. Nonnative plant species must be controlled and/or eradicated to restore native plant communities in upland and wetland areas, thereby enhancing habitat for migratory birds. How to provide wildlife-dependent recreation and opportunities for environmental education, while at the same time ensuring habitat and wildlife protection, is an issue to be resolved through the CCP process.

Bison: Some commentators expressed opposition to the Service's proposed new strategy to manage bison by elimination of some interior fencing.

The Service is confident bison, as the major grassland management tool at the Refuge, can be managed to attain the proposed habitat goals for avian populations. The Service will only remove that portion of interior fence that is not necessary for habitat management and handling of big game animals. Interior wire will be removed incrementally (over-time) to ensure appropriate resource management. Bison can also be managed, as stated throughout this Plan, through methods other than fencing, such as prescribed fire, water manipulation and salt supplements. Also the winter population herd levels of bison will remain at 350 animals, unless research regarding habitat, native birds, and bison herd genetics objectives reveals a need to reduce the bison herd population levels to a number between 350 and 200 animals.

Bighorn Sheep: Some commentators expressed opposition to the Service's proposal to introduce bighorn sheep to the Refuge (i.e., the species never occurred at the Refuge; would give Refuge a zoo atmosphere; fenced herd would not be capable of migrating and this practice contradicts contemporary wildlife management principles; could lead to an epizootic disease, etc.). While many expressed support for this proposal, some opposed the proposed limited hunt to reduce herd size. The opposition to this proposed hunt presented more than one facet, but with most opposition hinging on the premise that the area of the Refuge where bighorn sheep could be introduced is not large enough to allow for a "sportsman's" opportunity to hunt sheep.

The Service believes that the remains of bighorn sheep in the general vicinity of the Refuge, in areas with similar habitats as those presently found in parts of this Refuge, point to the likely prior existence of bighorn sheep in parts of what is today Fort Niobrara NWR.

After reviewing public comments, and during internal meetings, the Service has decided to postpone the possible introduction of this species into the Refuge.

The Service has been invited and will participate in the preparation of the State of Nebraska's Bighorn Sheep Management Plan. This participation will proceed any introduction attempts of this species at this Refuge. This Management Plan should address habitat needs that will be used by the Service to assess the possibility or lack thereof of any introduction effort. Only after the State's Bighorn Sheep Management Plan has been finalized and the Service has consulted with the State on this issue will the Service make a determination whether to introduce this species onto the Refuge. Additionally, should the proposed introduction take place, no hunting of bighorn sheep would be allowed if the Service determines that a fair chase, sporting-type hunt cannot be obtained.

Elk: Some concern has been expressed that Chronic Wasting Disease (CWD) will become a serious disease in elk within Nebraska and will contaminate the Refuge elk herd. Disease is a constant threat to the wildlife populations within the State and Nation. Elk and elk management has been a goal and objective of the Refuge since 1912. During this time the Service has managed the elk herd without any significant disease related problems. However, the Service will remain vigilant in its effort to combat new diseases like CWD. The Service will participate in the development of an Elk Management Plan for the State of Nebraska which will address disease concerns about the State's population of elk and methods (i.e. modified fencing, etc.) to reduce the possibility of the spread of diseases.

Some opposition to the hunting of elk was received because the Refuge is fenced and only 19,131 acres in size which would not allow for sufficient space to have a sporting opportunity to hunt elk. The Service has decided to delay the hunting of elk until the Nebraska Elk Management Plan has been completed and the Service has consulted the State on this issue. The hunting of elk on the Refuge will only be allowed if the Service has determined that a fair chase, sporting type hunt can be obtained.

Black-tailed Prairie Dogs: Many commentators expressed, with different degrees of intensity, opposition to the Service's proposal to allow for the expansion of black-tailed prairie dogs at the Refuge citing many reasons: inability of the Service to contain them within the Refuge; damage to habitats; possibility of prairie dogs spreading diseases to human beings; too many prairie dogs already exist, etc. Comments were also received in support of this proposal.

Black-tailed prairie dogs are an integral part of many grassland ecosystems in the western states of our Nation. Many other animal species, some listed as endangered, other deemed species of special concern (i.e., black-footed ferrets, bald eagles, burrowing owls, mountain plovers, swift foxes), and migratory birds (raptors) are either inextricably dependent on or make common use of prairie dog colonies to obtain basic food, shelter and/or habitat for nesting and rearing of their young. Fort Niobrara NWR is located well within the historical range of this species and has benefitted from the presence of black-tailed prairie dogs as an integral part of a healthy ecosystem and as a tourist attraction.

In this Plan, the Service is proposing to allow for the expansion of the black-tailed prairie dog colony that presently exists in the Refuge. This proposed expansion is in line with the Service's efforts to protect the ever decreasing numbers in the number and size of black-tailed prairie dog colonies nationwide. The Service has estimated that this species' range has decreased by an alarming 95 percent from the time of the European settlement of the west. The Service has been petitioned to list this species under the Endangered Species Act given the precipitous decline in the species populations and the Service is currently reviewing this listing petition.

The Service will allow black-tailed prairie dogs to expand to a manageable population size and control them within the boundaries of the Refuge.

Funding and Staffing to Manage the Refuge

Managing this Refuge requires adequate funding and staffing to effectively carry out habitat and population management activities, as well as to ensure public uses that are compatible with the System mission. Some people expressed concern that the Service might not be allocated sufficient funding to implement all the goals and objectives stated in this Plan. Some commentators felt that building partnerships with public agencies, private organizations, and volunteers would increase the Refuge's management ability.

The Service is aware that adequate funding to carry out all ongoing and proposed management activities may not be readily available to the Refuge. Nevertheless, this Plan outlines the recommended course of action for the Refuge and this Plan may be the best vehicle to obtain the necessary funding to accomplish the mission for which Congress designated this area a National Wildlife Refuge.

Other Public Uses and Recreation

Some commentators expressed opposition to captive wildlife hunting while requesting the expansion of turkey, deer, prairie grouse and pronghorn hunting opportunities, if not with rifles, maybe with archery, shotguns and muzzle-loading. These commentators argued that the Refuge can accommodate hunting.

The Refuge is currently closed to hunting. The original purpose of Fort Niobrara NWR was "a preserve and breeding ground for native birds." Later, this purpose was enlarged and, as a result, the Refuge is to be managed (1) as a preserve and breeding ground for native birds and (2) for the preservation of bison and elk herds representative of those that once roamed the Great Plains. Hunting for elk and, if reintroduced, bighorn sheep will permit the taking of surplus animals (maybe one or two animals) under a limited, strictly controlled hunting environment. Unrestricted hunting for other species of wildlife on the Refuge would be a disturbance detrimental to bison and elk management.

Public Involvement Methodology

The Service, through this and other planning processes involving NEPA, finds itself involved in the complex and essential task of involving the public in the planning process. The public involvement process is often a difficult enterprise given the specific time-frames and schedules that accompany most Service actions, this Plan not being the exception.

Throughout the process that led to the preparation of this Plan, the Service complied with NEPA requirements to involve the public through meetings of different kinds (i.e., public scoping meetings, open house meetings, meetings with specific groups), personal communications, and the disbursement of the Draft CCP/EA that preceded this final Plan and other kinds of information, and finally, through a period of time in which all interested parties had 105 days in which to provide written comments on the proposed future Refuge goals, objectives, strategies and actions. The Service effected changes to the Draft CCP/EA as a consequence of comments and information received prior and during the public comment period.

The Service, throughout the preparation of the Draft CCP/EA, attempted to consult with and involve all the groups, entities, and individuals that expressed interest in participating. The refuge manager, his staff, and Region 6 Regional Office personnel conducted various meetings to disseminate information, address most, if not all possible issues, and collect all possible relevant data and comments for the preparation of these Draft Plans.

After these Draft Plans had been prepared, all those involved had an opportunity to provide written comments on the Draft CCP/EA. The original public comment period was open for 60 days, but due to the high volume of comments, the Service agreed to reopen the comment period for an additional 45 days. A typical public comment period is open for 30 days. Thus, the Service gave commentators a total of 105 days in which to provide written comments, by letter or electronic mail, to the Service.

An Open House was held on June 10, 1999, in Valentine, Nebraska. It was scheduled to take place from 3 to 8 PM; instead it ran from 2:45 until 9:30 PM due to the interest shown. The purpose of the Open House was to inform the public as to the major aspects of these Plans. The public was encouraged to provide their written comments to the Service. An Open House meeting format affords the event organizers the opportunity to reach out to a greater segment of the public and each individual person from the public to voice their comments and concerns.

Summary of Refuge and Resource Descriptions

Geographic/Ecosystem Setting

Fort Niobrara NWR is 19,131 acres in size and located in north-central Nebraska along the Niobrara River. The Refuge and surrounding area is recognized by ecologists for its biogeographic significance due to the co-occurrence of five distinctly different, major vegetation communities within and adjacent to the Niobrara River corridor. The region is the only place in North America where Rocky Mountain Coniferous Forest (eastern limit), Northern Boreal Forest (southern limit), Eastern Deciduous Forest (western limit), Mixed Prairie and Sandhill Prairie meet and intermingle (Kaul and Rolfsmeier 1993). The unusually diverse plant and animal assemblages found in this area are due to unique surface and subsurface geologic formations, water and soil conditions, current and past climates, and differential sun exposure (Churchill *et al.* 1988). Additional ecological factors that had significant affect on the biological diversity that evolved in this region prior to Euro-American settlement includes wildfire and the use of fire by aboriginal men (Higgins *et al.* 1986, Steuter 1991), and the unrestricted grazing and impacts associated with grazing of bison, elk, pronghorn antelope, and prairie dogs (Knopf 1994, Bragg and Steuter 1996). Though changes in composition and density of native flora and fauna have occurred since settlement, Bogan (1995) reported that Fort Niobrara is one of the few areas where the basic components of the 1850 landscape are still present and viable.

The Service has adopted an ecosystem approach to national natural resource management and has identified 52 ecosystems within the United States (USFWS, 1994). The Service has formed teams to address the most important conservation and restoration issues that each one of these identified ecosystems faces. Each one of these teams has advanced, depending on the complexity of issues within a determined area, at different paces in the identification and categorization of all of the conservation issues (Service's Resource Priorities) and goals for each of these ecosystems. The area where this Refuge lies has been difficult to characterize and include into one single ecosystem given the diversity of habitats and other natural resources found there.

Fort Niobrara NWR is bisected by the Niobrara River (which according to early Service watershed-based ecosystem maps separates two distinct ecosystems) and thus, theoretically, lies within two different ecosystems which are the Main Stem Missouri River Ecosystem (basically the northernmost area of the Refuge constituted mostly by the designated Wilderness Area on the northern banks of the Niobrara River) and the Platte/Kansas Rivers Ecosystem (the largest portion of the Refuge on the southern banks of the Niobrara River).

The Platte/Kansas Rivers Ecosystem team has been given the responsibility to address ecosystem issues on Fort Niobrara NWR. This team has identified the five main areas of concern that need to be addressed for this ecosystem.

The Service resource priorities for the Platte/Kansas Rivers Ecosystem are:

- P Prairie Grassland (including the Sandhills region) restoration and preservation
- P Species of Concern (rare species)
- P Water quality
- P Native fishes, small fishes and mussels
- P Water Quantity

The Service believes that the Refuge's goals and objectives delineated in this Plan will help the Service attain the goals and objectives for these resource priorities for the Platte/Kansas Rivers Ecosystem.

Climate

The climate of the region is highly variable and characterized by cold winters and hot summers. Total annual precipitation averages 18 inches with approximately 65 percent occurring during the May-to-September growing season (NOAA National Climatic Data Center 1996). Winter precipitation is usually in the form of snow with the annual accumulation averaging 37 inches. Temperatures range from -39° F to 114° F with July and August being the warmest months (average high temperature 85-87° F) and January and February the coldest months (average low temperature 8-12° F). The average frost free period is approximately 150 days. Winds ranging from 5-15 mph are common throughout the year and are generally out of the north, west, or northwest direction in the winter and out of the south, west, or southwest direction during the summer. Low humidity, high temperatures and moderate to strong winds cause a rapid loss of soil moisture by evapo-transpiration during the summer.

Air Quality

Air quality is good due to the absence of significant air pollution sources. The Fort Niobrara Wilderness is a Class 2 Status Area under the Clean Air Act.

Topography

The Refuge topography is varied and well-defined. The Niobrara River valley extends from east to west across the Refuge and is entrenched 150 to 350 feet below the general upland level. High terraces, or benches, lie at different levels from 175 to 275 feet above the present River channel and from 30 to 250 feet below the general level of the uplands (Layton 1956). Most benches are discontinuous strips 1/4 to 3/4 of a mile wide with level to rolling or hummocky relief. Steep valley sides, or breaks, are on both sides of the River and along lower courses of its major tributaries. Table land north of the River valley is nearly level to gently rolling with several surface areas modified by narrow, steep-sided and shallow drainage ways, by small areas of typical sandhills, numerous hummocks, and low, elongated sandy ridges. Sandhill terrain south of the River is undulating to hilly with dune tops 10 to 100 feet higher than the surrounding area. The range of hills, with alternating pockets or narrow valleys, usually run parallel in an irregular northwest-southeast direction. Generally, the southerly (leeward) sides of the hills are steeper than the northerly (windward) sides. Elevations on the Refuge range from 2,000 feet above sea level to 2,800 feet.

Geology

The geologic framework of the Refuge, as summarized by Osborn 1979, consists of six formations and are as follows (from oldest to youngest): Rosebud Formation "bedrock" makes up the Niobrara River valley walls and lower courses of the major tributaries within the Refuge; Valentine Formation is a sandy, stream-deposited unit unconformably overlying the Rosebud and forming gentle slopes; Ash Hollow Formation is a hard, sandy unit with many ledges and layers of volcanic ash which forms a "caprock" on the north rim of the Refuge; High Terrace Deposits are sand and gravel deposits high above the present Niobrara River that were deposited during the later part of the Pleistocene Ice Age when the River was flowing at a higher elevation and forms the flats upon which the Refuge headquarters is built; Sandhills are stabilized dune sand of the late Pleistocene and Holocene age; Low Terrace and Floodplain Deposits are adjacent to the modern Niobrara River and contain rocks derived from older formations but are not of significant age geologically.

Soils

Soil groups and series found on the Refuge are mapped and described in detail in the 1956 Soil Survey of Cherry County (Layton 1956). Dominant soils south of the Niobrara River in the Sandhills portion of the Refuge are Valentine (fine sand, undulating), Valentine-Rosebud (loamy fine sands, undulating) and Dune Sand (stabilized, rolling). Within the Niobrara River valley, Tripp (fine sandy loam) soils are generally found on terraces above streams, Sarpy (loamy fine sand) soils occur on bottom land along the River and streams, and little soil development exists on rough broken land and steep bluffs. Benchland north of the Niobrara River and small areas near River "breaks" consist of mostly Holt (fine sandy loam, gently undulating) and Rosebud (loamy fine sand, gently undulating) soils.

Refuge Resources, Cultural Values and Uses

Water Resources and Associated Wetlands

The Niobrara River flows from west to east across the Refuge for approximately nine miles with the channel above Cornell Dam braided and shallow with the downstream portion of the River confined to a single, narrow channel. The River is laden with sand and silt and flows swiftly at about 6-8 miles per hour. River flow is fairly stable throughout the year, averaging close to 1,000 cubic feet per second (Bentall 1990). Numerous streams and seeps along the Niobrara River valley flow intermittently or perennially. Several waterfalls exist on the Refuge where spring creeks flow over hard rock layers. River and stream flows derive almost entirely from steady groundwater seepage from the Ogallala or High Plains aquifer. Floods along the Niobrara River mostly result from winter ice jams with spring and summer floods rare. Tributary creeks, especially on the north bank, flash flood occasionally during severe summer thunderstorms.

Small areas of palustrine wooded wetlands are situated alongside the River channel and consist of various tree species including cottonwood, green ash, peachleaf willow with an understory of shrubs (sandbar willow, western snowberry), grasses, grass-like plants and forbs. Palustrine emergent wetlands vegetated with cattail, bulrush, phragmites, sandbar willow, prairie cord grass and various sedges are present on River and tributary floodplains and channels, isolated catchments and slopes, and at 12 man-made impoundments near the mouth of some feeder streams. Total water/wetland acres on the Refuge are approximately 375. Refuge wetlands are shown on Figure 3.

Ground and surface water quality are generally good. The Nebraska Department of Water Quality rated the Niobrara River as Class A for which quality will be maintained and protected. Fecal coliform counts are generally within standards for water contact recreation; however, samples exceeding health standard levels were obtained at the confluence of a River tributary on the Refuge several years ago. A new wastewater treatment plant for the city of Valentine has improved the quality of water discharged into a Niobrara River tributary.

Vegetation

Churchill *et al.* (1988) recorded 581 species of vascular plants in this area which represents 1/3 of the total known for Nebraska. Native species equal 519 while 62 are introduced. Preliminary mapping of principal plant communities of the Refuge is found in Figure 4 with general descriptions (Churchill 1988, Kaul 1990, Kantak 1995) summarized below.

Grasslands

Sandhills prairie is found atop sand dunes south and west of the River and is dominated by a mixture of tall-, mid- and short-grasses with their relative abundance differing according to variation in water holding capacity of the sandy soil as influenced by topography. Common grass species include sand and little bluestems, sand lovegrass, prairie sandreed, switchgrass, blue and hairy grama, sand dropseed, sandhill muhly, needle-and-thread, prairie junegrass and western wheatgrass. Shrubs include leadplant, prairie rose, sand cherry, poison ivy, buckbrush, and yucca. Typical forbs are hoary vetchling, purple and silky prairie clovers, sand milkweed, spiderwort, bush morning glory, prairie coneflower, lemon scurfpea and several penstemon species.

Mixed prairie is located most extensively on the flat tableland above the pine-covered slopes north of the Niobrara River where drier, sandy loam soils support shallow-rooted, drought-tolerant species. This vegetation type also occurs south of the River where appropriate soil moisture characteristics exist. Dominant grass species include little bluestem, blue grama, side oats grama, needle and thread grass, and threadleaf sedge. Silver-leaf scurf pea, prickly-pear cactus, yucca, leadplant, prairie rose, and several other forbs and shrubs are present.

Total grassland acreage on the Refuge is approximately 14,264 acres. Included in this total is an estimated 148 acres of restored native prairie.

Woodlands

Ponderosa pine savanna and forest, the eastern extension of **Rocky Mountain Coniferous Forest**, is located on rocky soils and steep eroding cliffs of the north wall of the River valley and upper slopes of canyons on the south side where there is no shading by deciduous trees. Other native woody species found on these xeric sites include choke cherry, fragrant sumac, prairie rose, sand cherry, and yucca. Herbaceous understory species are typical of adjacent prairie. Total acreage on the Refuge is approximately 3,022 acres.

Eastern Deciduous Forest covers much of the River floodplain, south wall of the River valley, and canyons of larger tributaries where a permanent water supply is accessible via the shallow floodplain water table or from permanent spring seeps. This woodland type is also found in moist slopes and draws. Bur oak are common with ironwood, American elm, green ash, basswood, and hackberry present. The understory is varied and comprised of typical mesic, shade-tolerant species. Paper birch, a characteristic species of the **Northern Boreal Forest** community, is restricted and clustered around cold springs in sheltered spring branch canyons, or near spring-fed seeps along the steep canyon walls of the south side of the River valley. Understory consists of boreal-type (cold water marsh or bog habitats) grasses, sedges and mosses. Eastern red cedar has invaded these woodland communities and is dominant in some areas. Total Refuge acreage is approximately 1,296 acres.

Tree Plantations established in the 1930's by the Civilian Conservation Corps and later by Refuge staff are located mostly in administrative areas and consist of Eastern red cedar, black and honey locusts, American elm, green and white ash, and/or ponderosa pine totaling approximately 59 acres.

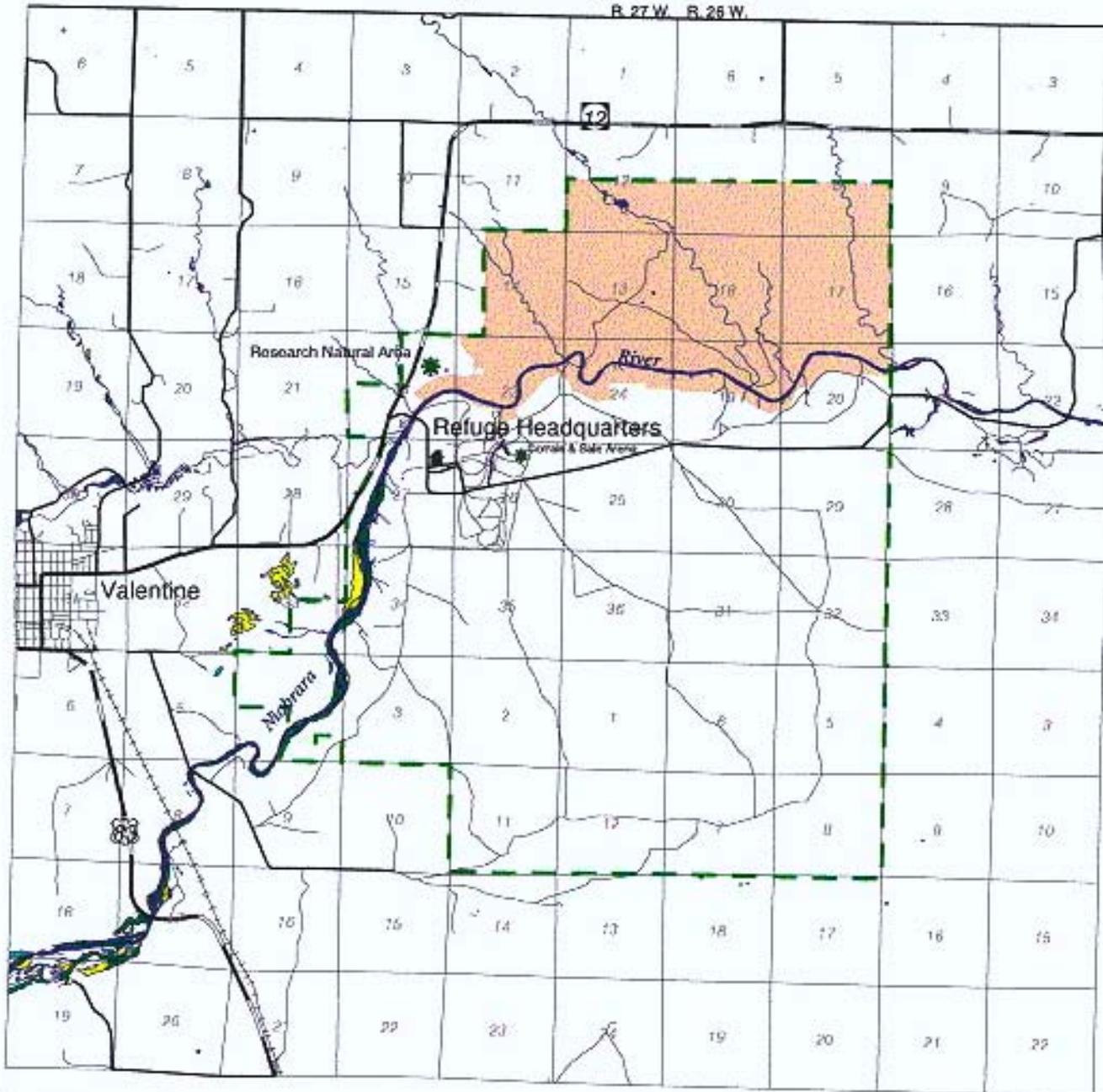
Exotic and Invading vegetation found on or near the Refuge includes leafy spurge, purple loosestrife, Canada thistle, Kentucky bluegrass, smooth brome, downy brome, sweet clover, reed canary grass, phragmites, Eastern red cedar, Russian olive, black and honey locusts.

Fort Niobrara National Wildlife Refuge

Cherry County, Nebraska



R. 27 W. R. 28 W.



T. 34 N.
T. 33 N.

- Refuge Boundary
- Wilderness Area
- Open Water
- Temporarily Flooded Wetland
- Seasonally Flooded Wetland
- Semipermanently Flooded Wetland



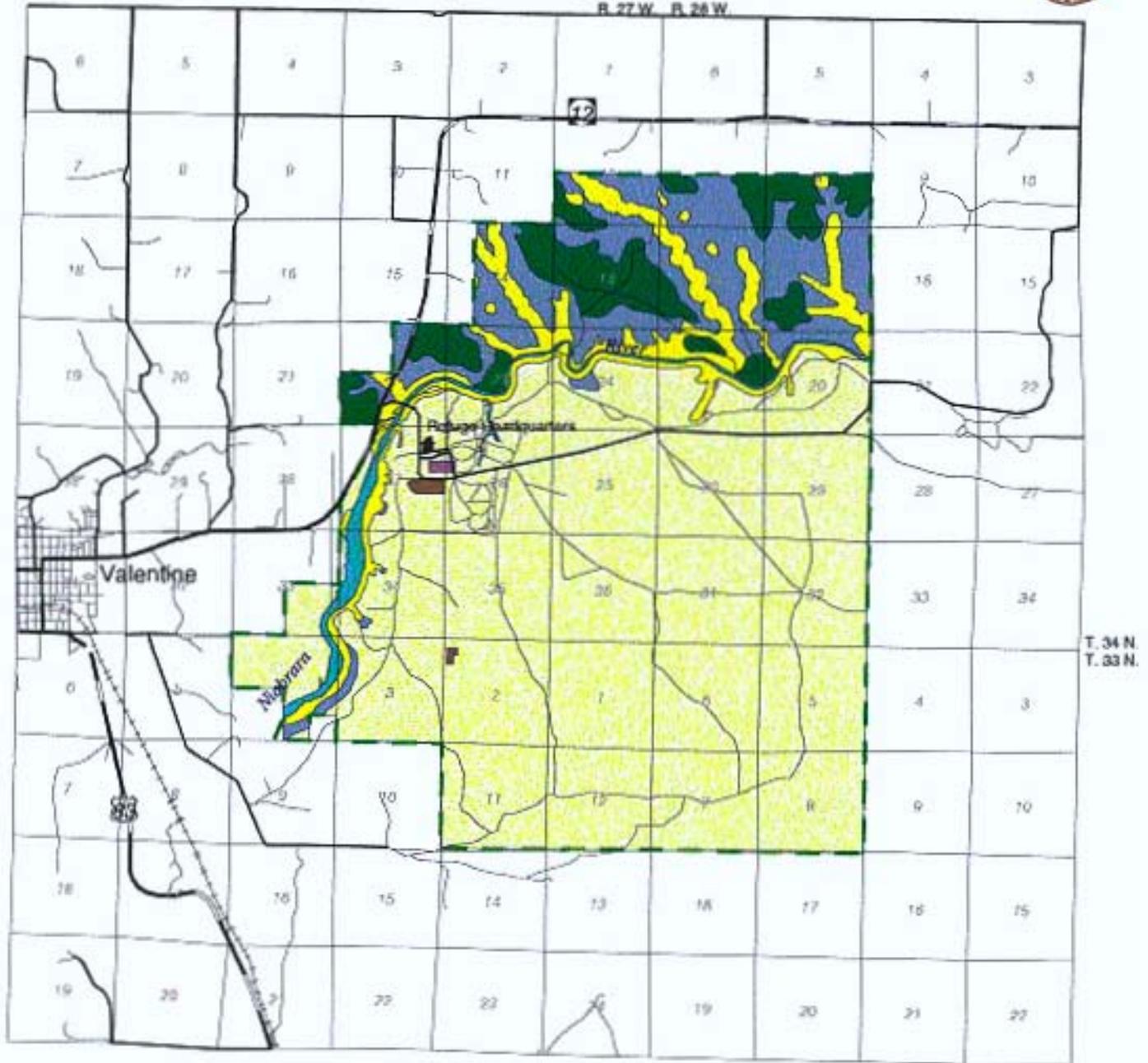
Figure 3: Wetland Map

Fort Niobrara National Wildlife Refuge

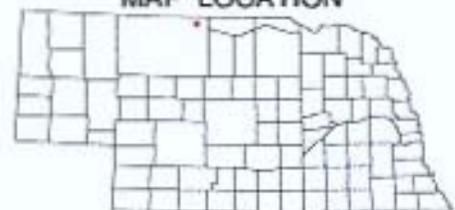
Cherry County, Nebraska



R. 27 W. R. 26 W.



MAP LOCATION



State of Nebraska

- | | |
|---------------------|-------------------------------|
| Wetland Association | Eastern Deciduous Forest |
| Mixed Prairie | Rocky Mountain Conifer Forest |
| Sandhills Prairie | Plantation |
| Prairie Dog Town | |

Figure 4: Vegetation Map

Wildlife

A rich and significant diversity of wildlife species with eastern, western, northern and southern affinities as well as niches specific to the northern Great Plains inhabit the Refuge and surrounding area (Armstrong *et al.* 1986, Labeledz 1990, Freeman 1990, Hrabik 1990). Population numbers vary according to amount of suitable habitat and other factors. Species lists for birds, mammals, amphibians, and reptiles are found in Appendix F.

Birds

A tremendous diversity of native birds inhabit Fort Niobrara NWR seasonally or year-round with a total of 227 species recorded since the Refuge's establishment. Approximately 48 percent of avian species have ecological affinities with the woodlands in and adjacent to the Niobrara River valley due to complex and varied habitat stratification. Dominant breeding species in the woody habitats include ovenbird, great crested flycatcher, black-and-white warbler, American redstart, black-capped chickadee, red-eyed vireo, house wren, eastern kingbird, orchard oriole, common yellowthroat, brown thrasher, and rufous-sided towhee (Sedgwick 1995). Wild turkey are common year-round residents of the woodlands while bobwhite quail are rare. Raptors likely to be seen in suitable woody habitat include Cooper's hawk, red-tailed hawk, merlin, kestrel, and rough-legged hawk. Bird species that evolved with ecological niches in grasslands comprise 11 percent of total Refuge species which is typical of the Great Plains. Species that are relatively abundant on Fort Niobrara NWR include grasshopper sparrow, western meadowlark, sharp-tailed grouse, greater prairie chicken, and upland sandpiper. Swainson's hawk, northern harrier, prairie falcon, and ferruginous hawk have grassland affinities and are present periodically in low numbers. Approximately four pair of burrowing owls inhabit the 20 acre prairie dog town and raise young each year. Thirty-two percent of Refuge bird species inhabit the Niobrara River, streams, ponds, and various wetlands. Canada goose, mallard, and wood duck are common breeders and several additional species of waterfowl, shorebirds, gulls, terns, marsh and waterbirds are present for several days or months but not often seen. Species encountered in multiple habitats and common on the Refuge include turkey vulture, mourning dove, belted kingfisher, and cliff swallow with golden eagle and osprey seen occasionally.

Peregrine falcons migrate through the area in late April and early May and in September and October. Sightings by Refuge staff are rare.

Species of management concern by the Service that have been recorded on the Refuge include burrowing owl, ferruginous hawk, northern harrier, long-billed curlew, upland sandpiper, short-eared owl, sedge wren, eastern meadowlark, dickcissel, grasshopper sparrow, Baird's sparrow, McCown's longspur, chestnut-collared longspur, red-headed woodpecker, olive-sided flycatcher, and loggerhead shrike.

Mammals

The mosaic of habitats found in this area of the northern Great Plains support an abundant diversity of native mammals. Approximately 44 of the original 52 native mammalian fauna currently inhabit the Refuge and surrounding area with seven additional species introduced or their ranges extended (Bogan and Ramotnik 1995). Bison and elk, extirpated in Nebraska in the late 1800's, were reintroduced to the Refuge in 1913. Other large native ungulates that are common include white-tailed deer and mule deer with pronghorn antelope being scarce. Black-tailed prairie dogs are found both on and off the Refuge in areas of "harder" ground but their numbers are limited. Smaller native mammals that are abundant include Ord's kangaroo rat, white-footed mouse, deer mouse, prairie vole, and western harvest mouse (Bogan 1995). Less numerous species include northern short-tailed shrew and masked shrew which are found in mesic sites. A maternity colony of big brown bats, estimated 200 individuals, inhabits the historic hay barn during the summer. Coyote are a common, widespread predator with bobcat less numerous and observed periodically in and adjacent to the River corridor. Beaver are widespread and found on the Niobrara River and numerous streams. River otter were historically common along the River but today are rarely sighted and are listed as endangered by the State of Nebraska. Species that extended their range into this area include raccoon, eastern fox squirrel, and black-tailed jackrabbit. Texas longhorn cattle, a nonnative species, was introduced to the Refuge in 1936 but had historically been trailed to Fort Niobrara Military Reservation during the late 1800's as a source of meat for Native Americans.

Amphibians and Reptiles

At least 24 species of reptiles and amphibians occur on the Refuge and/or surrounding area which is a significant proportion of the herptofauna of the northern Great Plains. Corn *et al.*, (1995) documented 16 of these species during surveys conducted 1991-1992. Species recorded in the Niobrara River, streams, and associated wetland habitat included Blanchard's cricket frog, western chorus frog, bull frog, northern leopard frog, common snapping turtle, and painted turtle. Species found in association with drier habitats include plains spadefoot, ornate box turtle, pale milk snake, bull snake, rattle snake and prairie racerunner. Woodhouse's toad, eastern yellow-bellied racer, and red-sided garter snake are wide spread in distribution and common on the Refuge. A spiny softshell turtle was documented for the first time in Cherry County just off the Refuge in the Minnichaduza Creek in 1992. Yellow mud turtle, identified by the Service as a species of management concern, probably inhabits the Refuge; however, no recent sightings have been made.

Fishes

Fish communities found in the Niobrara River and its tributaries are unique to Nebraska. According to Hrabik (1990), relict populations of more typical northern, southern, eastern, and western species, as well as fishes common to the northern Great Plains, are found on the Refuge and surrounding area due to repeated glaciation and tectonic activity. The presence and distribution of these has not changed much since historic time due to the stable flows, consistent temperatures, reduced sedimentation, low dissolved solids of the Niobrara River drainage (Bentall 1990; Farrar 1983) and lack of degradation from agriculture (Case 1986). Numerous species of cyprinids, ictalurids, and percids are common. Species of concern (Nebraska List) that may inhabit waters on Fort Niobrara NWR include northern redbellied dace, earl dace, finescale dace, and blacknose shiner.

Twelve man-made ponds maintained by the Nebraska Game and Parks Commission periodically contain various species of game fish.

Threatened and Endangered Species

Several plant and animal species listed under provisions of the Endangered Species Act have been documented on the Refuge and/or in the surrounding area.

Bald eagles migrate through the area during the spring and fall and also spend the winter (late October-early April) along the Niobrara River. Winter populations average 5-7 with as many as 15 eagles recorded on the Refuge in some years. Wintering eagles depend on suitable night and severe weather roosts in sheltered timber stands located close to food sources (Peterson 1986). Roost trees on Fort Niobrara NWR are mostly mature cottonwoods with open structure and stable limbs located along the shores of the Niobrara River. No eagles nest on the Refuge; however, nesting has been documented several miles east at the confluence of the Niobrara and Keya Paha Rivers since 1996 (J. Dinan pers. comm.). Eagle mortality due to pesticide poisoning (Famphur), gunshot, and electrocution has been documented in the area with actions taken to reduce its occurrence (law enforcement, education, removal or modification of source) annually.

Whooping cranes migrate through the area in April and October. One adult whooping crane was sighted with approximately 100 sandhill cranes resting in native prairie north of Fort Niobrara on October 21, 1997. The most recent sighting of whooping cranes on the Refuge was made in October, 1993 when two adult cranes spent several days roosting and feeding on shallow, sparsely vegetated segments of the Niobrara River above Cornell Dam.

Piping plovers are occasionally sighted on the Refuge during spring and fall migrations.

Most of the exposed sandbar habitat on the Refuge is located above Cornell Dam with sandbars downstream usually exposed in July and August.

Threatened and endangered plants and animals documented in the area, but not documented on the Refuge, include blowout penstemon, western prairie fringed orchid, American burying beetle, and the interior population of the least tern.

Cultural and Paleontological Resources

Numerous significant cultural and paleontological remains exist on the Refuge. The following summaries were taken from Cultural Resource Inventory And Assessment For Selected Areas Within Fort Niobrara National Wildlife Refuge, Valentine, Nebraska: A Final Report by Osborn 1979.

Paleontologic resources of the Niobrara River valley are unusually rich with 17 distinct fossil sites excavated on the Refuge within the wilderness area. Two fossil beds of the lower Pliocene and upper Miocene epochs provided the non-articulated skeletons and bone fragments of more than 20 extinct mammalian species including three-toed horses, camels, antelopes, rhinoceroses, rodents, and rabbits.

Archaeological remains collected in this area suggest short-term occupation by prehistoric and historic aboriginal groups for hunting and gathering. Artifacts date back through several cultures to the Paleo-Indian period of 7,500-11,500 years ago and include scattered flint chips, projectile points, other stone tools, animal bone fragments, charcoal pieces, and pottery pieces. Aboriginal occupation of this region documented in various expeditions of the middle and late 1800's was by the Dakota Sioux, Ponca, and Pawnee.

Military history of the area began in the late 1870's with the restriction of Sioux Indian tribes to the Great Sioux reservation in Dakota Territory (now western South Dakota) and establishment of Fort Niobrara Military Reservation. The Fort was established in 1879 to monitor Sioux activity and control operations of cattle rustlers and horse thieves. "Long-horned" cattle trailed from Texas were distributed to the Sioux, and the Fort served as a market for locally furnished goods and services. Soldiers were dispatched to several skirmishes although no major battles or events occurred. The Fort was closed in 1906 and retained by the War Department as a remount station until 1911 when a portion was transferred to the Department of Agriculture, Bureau of Biological Survey to be used as a preserve and breeding ground for native birds. A hay shed, constructed in 1897 by the Army, remains on the Refuge and is listed on the National Register of Historic Places.

Euro-American settlement of the Sandhills began in the late 1870's and 1880's and corresponded with the strong cattle market provided by the Military Fort. The railroad (Fremont, Elkhorn, and Missouri Valley) reached Fort Niobrara in 1883 resulting in the development of the town of Valentine. Homesteading was further encouraged by the Fort's ready market for local farm produce and labor. Several saw and flour mills were in operation along the Niobrara River by the mid-1880's. Homesteading and farming grew during the 1880's but were challenged by drought and recession in the 1890's. The 1904 Kinkaid Act encouraged more settlement; however, the Sandhills was nearly the last of the Great Plains to be homesteaded. Population in the area increased and peaked during World War I with elevated commodity prices but steadily declined to current levels (Miller 1990).

Socio-Economic and Political Environment

The Refuge is located in Cherry County approximately three miles east of the city of Valentine, the County seat and biggest city in the County with a population of approximately 2,800 (see Figure 1). Cherry County is the largest County in Nebraska with a total area of approximately 6,013 square miles. Rural population in the County is very sparse due to large ranch sizes. Predominate land-use in the County is native prairie grazing and haying with less than 10 percent of the acreage cropped or irrigated (Miller 1990). Family-owned ranching is the primary source of income in the county, although income generated from tourism is increasing. According to the County and City Data Book (U.S. Bureau of Census, 1994), for the year 1989, the median family income for Cherry County was \$22,902, the median household income was \$18,962 and the per capita income was \$10,758. The percentage of households, for the same year, with annual income levels below \$15,000 was 37.8 percent. The number of families with income below the poverty level was 286 and the number of persons was 1,386. According to the same source, Cherry County minority population (excluding women) accounted for only .4 percent of the total population (218 persons out of 6,336 in the 1992 Cherry County population).

Access to the Refuge is by Nebraska Highway 12 and a County maintained gravel road and bridge. Major highways traversing the County are US Highway 83 (north/south) and US Highway 20 (east/west). The nearest airport with scheduled passenger service is in North Platte located 136 miles south of Valentine.

Neighboring jurisdictions of Fort Niobrara include the National Park Service (Niobrara National Scenic River), Nature Conservancy (Niobrara Valley Preserve), Nebraska Game and Parks Commission (Merritt Reservoir Recreation Area, Smith Falls State Park, Bowring Ranch, Cowboy Trail, Valentine Fish Hatchery, several Wildlife Areas), Middle Niobrara Natural Resource District (Brewer Bridge Recreation Site), U.S. Forest Service (Nebraska National Forest), and Bureau of Land Management (several small tracts).

Public Uses

Public use of the Refuge occurs year-round with the greatest amount of visitation documented from mid-May to mid-October. Activities include wildlife/wildland observation, photography, interpretation/education, picnicking, hiking, floating the Niobrara River, fishing and periodic special events. A more detailed look at current levels of use can be found in the Environmental Assessment on Appendix H. NEPA Documentation, under the Current Management (No Action) Alternative discussion.

Special Management Areas Special Legislated Designations

Wilderness Area

Definition of Wilderness

The Wilderness Act of 1964 (Public Law 88-577 [16 U.S.C. 1131-1136]) defines wilderness as follows: "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

Principles Governing the Management of Wilderness Areas

Manage wilderness as a distinct resource with inseparable parts.

1. Manage the use of other resources and activities within wilderness in a manner compatible with the wilderness resource.
2. Allow natural processes to operate freely within wilderness.
3. Attain the highest level of primeval wilderness character within legal constraints.
4. Preserve wilderness air and water quality.
5. Produce human values and benefits while preserving wilderness.
6. Preserve outstanding opportunities for solitude or a primitive and unconfined recreation experience in each wilderness.
7. Control and reduce the adverse physical and social impacts of human use in wilderness through education or minimum regulation.
8. Favor wilderness-dependent activities when managing wilderness use.
9. Exclude the sight, sound, and other tangible evidence of motorized or mechanical transport wherever possible within wilderness.
10. Remove existing structures and terminate uses and activities not essential to wilderness management or not provided for by law.
11. Accomplish necessary wilderness management work with the "minimum tool."
12. Establish specific management direction with public involvement, in a Management Plan for each wilderness.
13. Harmonize wilderness and adjacent land management activities.
14. Manage wilderness with interdisciplinary scientific skills.
15. Manage special provisions provided for by wilderness legislation with minimum impact on the wilderness resource.

A 4,635 acre portion of the Refuge was designated as wilderness on October 19, 1976. This area includes a portion of the Niobrara River Valley as it straddles the River and the timbered bench land interspersed with native prairie north of the River. Designated wilderness equals 3,810 acres in one single unit. The remaining 825 acres include portions of four other habitat units and approximately five miles of Niobrara River corridor.

Section 4 (b) of the Wilderness Act of 1964 reads as follows: "*Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.*"

The Fort Niobrara Wilderness is managed according to the Wilderness Act of 1964 which requires wilderness areas to be managed in a natural condition with opportunities for solitude or a primitive and unconfined type of recreation.

The major area serves as a winter pasture for the buffalo herd; the Niobrara River corridor is fenced separately and has not been grazed for several years. The remainder of the area included in other habitat management units receives grazing use by elk and Texas longhorns. Due to use by Bison and the status of private land adjoining the Wilderness, it is necessary to maintain the boundary fence, control wild fires, and monitor and move the bison herd. Previously existing fire trails and rustic bridges are utilized for access by horseback and limited service access by motorized equipment necessary for fence maintenance and wildfire suppression.

Public use of the main portion of the Wilderness Area to the north of the River is primarily by hikers or horseback, largely for wildlife observation. Day-use is permitted, with public access by foot, horseback, or cross-country ski. The primary public users of the Niobrara River corridor portion of the Wilderness Area are River floaters, who access the area for day-use by canoe or inflatable inner tubes on the River, or by hikers on the Fort Falls Nature Trail. Virtually all of the Niobrara River used by the public on the Refuge is inside the Wilderness Area, as the Wilderness boundary is only a few hundred yards downstream from the launch point.

Wild and Scenic River

Congressional Declaration of Policy

The Wild and Scenic Rivers Act of 1968 ([Public Law 90-542, as amended], [16 U.S.C. 1271-1287]) states that: "It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes."

Designation of Sections of the Niobrara River as Wild and Scenic

In Section 3(a) of the Wild and Scenic Rivers Act Congress states: "The following rivers and the land adjacent thereto are hereby designated as components of the national wild and scenic rivers system: "and in subsection 117 we read: "NIOBRARA, NEBRASKA. - (A) The 40-mile segment from Borman Bridge southeast of Valentine downstream to its confluence with Chimney Creek and the 30-mile segment from the River's confluence with Rock Creek downstream to the State Highway 137 bridge, both segments to be classified as scenic and administered by the Secretary of the Interior. That portion of the 40-mile segment designated by this subparagraph located within the Fort Niobrara National Wildlife Refuge shall continue to be managed by the Secretary through the Director of the United States Fish and Wildlife Service."

Review Requirements for Early Designations and Management Plans

Regarding management plans for designated wild and scenic rivers, the Wild and Scenic Rivers Act further states: "(1) For rivers designated on or after January 1, 1986, the Federal agency charged with the administration of each component of the National Wild and Scenic Rivers System shall prepare a comprehensive management plan for such River segment to provide for the protection of the River values. The plan shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this Act. The plan shall be coordinated with and may be incorporated into resource management planning for affected adjacent Federal lands. The plan shall be prepared, after consultation with State and local governments and the interested public within three full fiscal years after the date of designation. Notice of the completion and availability of such plans shall be published in the Federal Register; (2) For rivers designated before January 1, 1986, all boundaries, classifications, and plans shall be reviewed for conformity within the requirements of this subsection within 10 years through regular agency planning processes."

Seventy-six miles of the Niobrara River which includes the nine-mile portion on the Refuge was included in the Wild and Scenic River System in 1991.

Research Natural Area

A relatively dense stand of ponderosa pine (approximately 200 acres in size) located within the Wilderness Area, was established as a Research Natural Area in 1960.

National Recreational Trail System

Five miles of the Niobrara River on the Refuge has been included in the National Recreational Trail System since 1982.

National Historic Building

The "hay barn" built in 1897 and the only building remaining of the historic military Fort Niobrara is registered as a National Historic Building.

National Register of Historic Places

Fort Niobrara was nominated to the National Register of Historic Places.

Management Direction

Refuge Management Direction: Goals, Objectives, and Strategies/Projects Refuge Goals and Objectives

The mission and purposes of the National Wildlife Refuge System, the purpose(s) for which a refuge was established, and the existence of a wild and scenic River corridor and a designated wilderness area within the Refuge boundaries are the primary references for setting Refuge goals and objectives. The ecosystem priorities provide a secondary reference for setting Refuge goals and objectives.

Refuge goals are qualitative statements that define what outputs and outcomes a refuge must achieve to satisfy the System's mission and purposes as well as the refuge's purpose(s). Refuge objectives are benchmarks indicating progress toward achieving the mission, purposes and goals.

Fort Niobrara NWR goals and objectives are listed below. These goals and objectives were developed during the developmental stages of this Plan and refined, updated, and merged with each revision during the planning process of the Draft Comprehensive Conservation Plan and Environmental Assessment.

The goals and objectives were the benchmarks used for the development of the Preferred Alternative from among the management actions discussed in the Alternatives presented in the Draft Comprehensive Conservation Plan and Environmental Assessment (see Appendix H for more information on the alternatives considered during the draft stages of this Plan).

The Refuge planning team spent considerable time defining habitat and other objectives to further describe management actions needed to meet Refuge goals. They are presented in this Plan to provide a logical step-down from the broad purpose and mission statements to concrete management decisions.

Interrelationships of Goals and Objectives

The Refuge goals and objectives are presented separately for ease of understanding and reference. They are not, however, independent of each other. The goals and objectives and the resources and activities discussed are completely interrelated in spatial, ecological, and management considerations.

The habitat goals and objectives are the primary criteria which refuge managers will use to guide their efforts and evaluate successes. Goals and objectives for habitat, wildlife, threatened and endangered species, interpretation and recreation, and ecosystem provides additional information for managers to refine specific actions and to help in evaluating success of habitat management and use of the Refuge by the public. In order for refuge managers to achieve the mission of the Refuge fully, these objectives need to be understood holistically and applied in combination, each being a critical part of the Refuge vision.

P Habitat Management

Goal: - Preserve, restore, and enhance the unique diversity of upland and riparian plant communities and associated water resources representative of the physiographic regions described as Sandhills Prairie, Mixed Prairie, Rocky Mountain Coniferous Forest, Eastern Deciduous Forest, and Northern Boreal Forest within the Northern Great Plains to ensure their rarity, richness, and representativeness is sustainable into the future.

The Niobrara River, numerous tributary streams, and associated riparian habitat will be maintained. Cornell Dam will be maintained to provide shallow-braided River and sandbar habitat upstream. Twelve ponds formed by damming tributary streams will continue to be held at full capacity throughout most of the year for use by waterfowl and other birds, bison and elk, and fish rearing under cooperative agreement with the Nebraska Game and Parks Commission. Breached impoundments in the wilderness area will be returned to their natural state. Nearly all of the River and associated habitat will continue to be fenced to control access by bison, elk, and, if reintroduced, bighorn sheep.

The Service will remove Texas longhorn cattle from the Refuge within one to two years of completion of this Plan. The Service will disburse the animals that compose this herd between the Wichita Mountains NWR and a non-profit organization willing to continue maintaining the genetic integrity of the herd through a management system similar to the one currently in use at the Refuge. Wichita Mountains NWR, whose purpose is to preserve the genetic integrity of another herd of these animals, will receive those animals from the Refuge herd that they request based on genetic makeup of the animals. The Service will then support or facilitate the creation of a non-profit organization to manage the remaining herd, preferably in the City of Valentine, Cherry County or State of Nebraska. The last option for disbursing the herd will be through public auction.

Efforts to improve the woodland community will focus on reduction of cedars and regeneration of native woodland species through the use of prescribed fire and other forest management practices. Management will ensure that an adequate number of mature trees are maintained for winter roosting use by bald eagles.

The Service will continue its integrated pest management program. A combination of biological, mechanical, and/or chemical control methods will continue to be used to reduce the presence of purple loosestrife and leafy spurge. Cedar control efforts will increase through the use of prescribed fire and mechanical methods. Management efforts will be implemented to reduce the presence of invasive cool season grasses, sweet clover, Russian olive, and other exotic/invasive species.

Grassland Objective: Maintain the approximate 14,264 acres of Sandhill Prairie and Mixed Prairie vegetation communities in early through late successional stages to meet nesting, brooding, feeding, and/or protective cover requirements of various grassland dependent birds, fenced animals and other wildlife. Species composition on a minimum of 90 percent of the grasslands will be middle-to-late successional stage and consist of 75-85 percent grasses, 5-10 percent grass-like plants, 5-10 percent forbs, and 5 percent shrubs (dominant species as described by Kaul and Rolfsmeier 1993, Schneider *et al.* 1996, USDA Soil Conservation Service 1983). Vegetation structure will exist in a range of heights and densities with complete visual obstruction to an average height of six inches in the fall on a minimum of 50 percent of the grassland acreage (Prose 1985; Prose 1987). A minimum of 50 percent of the grasslands will not have planned burning or grazing during the native bird breeding season (April 15 - July 15).

Reduce vehicle trails on the Refuge. Identify main access trails to be maintained and discontinue use of other trails. Complete minimum trail maintenance required for Refuge vehicle access (i.e., mulch with native prairie hay).

Stabilize and encourage revegetation of blowouts located on or adjacent to boundary fence, main access trails, etc. Allow other blowouts to exist in a natural state if they provide suitable habitat for blowout penstemon.

Ponderosa Pine Savanna/Woodland Objective: Manage the approximate 3,022 acres of Rocky Mountain Coniferous Forest community to provide nesting, brooding, feeding and/or protective cover requirements of various native birds, fenced animals, and other wildlife. Approximately 85 percent of the acreage will be maintained as savanna and consist of 70 percent grasses, 10 percent grass-like plants, 5 percent forbs, 5 percent shrubs, and 10 percent trees with the remaining acreage managed as a woodland/forest. Species composition to manage for will be based on descriptions by Kaul and Rolfsmeier 1993, Schneider *et al.* 1996, USDA Soil Conservation Service 1983. A minimum of 50 percent of this community type will not have planned grazing or burning during the native bird breeding season (April 15 - July 15).

Riparian Eastern Deciduous/Northern Boreal Forest Objective: Maintain and preserve the approximate 1,296 acres of Eastern Deciduous Forest/Northern Boreal Forest riparian community to provide nesting, brooding, feeding and/or protective cover requirements of various native birds and other wildlife. Species composition to manage for will be based on descriptions by Kaul and Rolfsmeier 1993, and Schneider *et al.* 1996. Habitat diversity will be enhanced by managing for a mix of trees (size and age classes with a minimum of 10 percent mature trees), and well-developed shrub and herbaceous layers. Strips of woodlands (150 acres) in habitat units utilized by fenced animals will be protected to the extent necessary to ensure regeneration. A minimum of 50 percent of this community type will not have planned grazing or burning during the native bird breeding season (April 15 - July 15).

Niobrara River and Associated Wetlands Objectives:

Restore and maintain the approximate 375 acres of the Niobrara River and associated wetlands with emphasis on maintaining streambed quality, stream bank stability, water flow, water temperature, and quality. Use existing data on the Niobrara River water flow, quality (sediment, nitrate, pollutants) and water temperature as minimum baseline levels and repeat at five year intervals. Ensure vegetation adjacent to the River and streams are adequate to minimize erosion, dissipate water energy and trap sediments.

Exotic and Invading Species Objective: Prevent additional exotic plant species from becoming established and reduce the occurrence, frequency and stand density of existing invading and exotic vegetation. Target level of combined total of invading and exotic plant species is less than 5 percent of species composition. Invading and exotic plant species to manage include leafy spurge, purple loosestrife, Canada thistle, Kentucky bluegrass, smooth brome, downy brome, sweet clover, reed canary grass, eastern red cedar, Russian olive, and phragmites.

Reduce the presence of nonnative tree species in Refuge plantations by allowing natural degeneration to occur. Future replantings/plantings will include only native tree and shrub species.

P Wildlife

Goals: Preserve, restore, and enhance the ecological diversity and abundance of migratory and resident wildlife with emphasis on native birds. Maintain representative breeding herds of nationally significant animals under reasonably natural conditions.

Between 200-350 bison (depending on herd genetic viability needs) and 70-100 elk will be managed on the Refuge under reasonably natural conditions. Bighorn sheep might be reintroduced to the Refuge and allowed to grow to a herd of 50 if this introduction is deemed feasible and in accordance with the future Bighorn Sheep Management Plan currently being prepared by the Nebraska Game and Parks Commission. Texas longhorns will no longer be managed at Fort Niobrara. In accordance with Service policy, animal numbers above winter population levels will be transferred to Native American Tribes, other refuges, sold, or donated annually. Limited Refuge hunts may be used as a tool periodically to reduce the elk and, if reintroduced, bighorn sheep populations. Sex and age ratios of the herds will approximate historic free-ranging herds. Bison, elk, and bighorn sheep populations will be managed as "open" herds with introductions or exchanges made periodically to maintain the genetic integrity of the herds and minimize the negative effects of inbreeding. Sufficient monitoring of the herds will be accomplished to ensure genetics and health of the animals are maintained and herd levels are at or below desired numbers.

Bison, elk, and, if reintroduced, bighorn sheep herds will have access to nearly all of the grasslands and ponderosa pine savanna habitats with the addition of 8-11 miles of big game fence. Some interior fence will be removed so that herds have a more natural and open movement pattern. Prescribed fire, water, and salt will be used to influence habitat use. The prescribed fire program will increase with up to 1,000 acres treated annually to invigorate native prairie, influence big game use, control cedars, and encourage regeneration of unique forest types. Other annual management actions will include one or more years of rest on approximately 10 percent of the acreage and suppression of all wildfires. A Habitat Management Plan will be developed and an adaptive management approach will be used to measure achievement toward the grassland habitat objectives.

A large ungulate herd will consume and/or remove by trampling an estimated 3,400 - 5,900 AUMs of forage a year which is approximately 16 to 28 percent of total plant production, leaving approximately 72 to 84 percent of the vegetation for plant vigor and use by other wildlife (Waller *et al.* 1986, USDA Natural Resources Conservation Service 1996). Exhibition herds and government horses will be supplemented during the winter as conditions warrant with approximately 40 tons of prairie hay harvested from Valentine NWR.

Maintaining long-term population genetic variability of the bison, elk, and bighorn sheep herds, which affects population fitness or health, will be addressed through population size, sex, and age ratio and addition of animals from other populations. Elk and bighorn sheep will be maintained below minimum population levels; therefore, periodic introductions of animals from other populations will be accomplished to minimize inbreeding. Maintaining the bison herd at 350 animals along with sex and age ratio of historic herd will provide the effective population size required for maintaining levels of genetic variability that commensurate with accepted standards of conservation biology (Berger 1996, Berger and Cunningham 1994). Should the bison herd level exist below 350, periodic introduction will be needed to minimize inbreeding.

In addition to implementing habitat management actions that improve and maintain the diverse native plant communities, the Service will consider and implement management regimes that meet various native bird requirements. Biological monitoring of native birds and other wildlife will increase to better document population trends and effects of management.

Refuge acreage inhabited by prairie dogs will be allowed to expand to a manageable size. Population and disease monitoring actions will be implemented. Prairie dogs will be excluded from areas where their presence creates a safety hazard or conflicts with management objectives.

Alternative summer roosting habitat will be provided for the maternity colony of big brown bats currently using the historic barn. The barn will then be appropriately sealed to prevent further degradation.

Prairie Grouse Objective: Maintain a five-year average density of one prairie grouse lek/1.4 sq. mile with an annual target of 100 sharp-tailed grouse and 65 prairie chicken breeding males in the grasslands (approximately 12,271 acres) south and east of the Niobrara River (USFWS, unpublished Refuge data).

Native Birds Objective: Maintain or increase breeding and migration use on Fort Niobrara by Species of Management Concern, U.S. Fish and Wildlife Service, Region 6, including northern harrier, ferruginous hawk, upland sandpiper, long-billed curlew, burrowing owl, short-eared owl, red-headed woodpecker, loggerhead shrike, dickcissel, lark bunting, grasshopper sparrow, chestnut-collared longspur, eastern meadowlark, and other habitat sensitive migratory birds such as western meadowlark, bobolink, clay-colored sparrow, belted kingfisher, willow flycatcher, and yellow-breasted chat. Monitor and document migration use by peregrine falcons as it occurs. Use existing data as minimum baseline levels and implement monitoring procedures that provide an index to overall species richness/diversity and document population trends of selected species over a five year period.

Bison and Elk Objective: Preserve and maintain breeding populations of bison and elk with age and sex composition approximating historic herds. Implement management actions that maintain or increase levels of genetic variability to assure viable, sustainable populations according to accepted standards of conservation biology (Berger 1996, Berger and Cunningham 1994). This objective is intended not as an end in itself but as a means to attain the Refuge's goals and objectives for native avian species while conserving essential populations of these important prairie ungulates.

Incrementally remove some interior fence where feasible and construct 8-11 miles of big game boundary fence.

Rocky Mountain Bighorn Sheep Objective: Reintroduce, if feasible and in accordance with the State's future Bighorn Sheep Management Plan, Rocky Mountain bighorn sheep to the Refuge to restore an indigenous species into its historic range and aid in habitat management goals.

Prairie Dog Objective: Allow the expansion of the existing black-tailed prairie dog town in the Refuge to a manageable size to enhance Refuge biological diversity and attain stated goals and objectives for native and migratory avian species.

Other Indigenous Wildlife Objective: Ensure the diversity and abundance of other indigenous mammals, reptiles, amphibians, fish, and invertebrates continues. Use existing data as minimum baseline levels and monitor periodically to document population trends. (Bogan, 1995)

P Threatened and Endangered Species

Goal: Contribute to the preservation and restoration of threatened and endangered flora and fauna that occur or have historically occurred in the area of Fort Niobrara NWR.

In addition to continuing to provide for wintering bald eagle use, the Service will conduct an American burying beetle survey, introduce blowout penstemon into suitable habitat for this species, and continue to provide migration habitat for whooping cranes, plovers, and terns in the braided River channel habitat upstream of Cornell Dam.

Blowout Penstemon Objective: Evaluate the Refuge for blowout penstemon habitat. If suitable habitat exists, establish plants in at least two sites

Bald Eagle Objective: Maintain a minimum of 10 percent of the woodlands within the Niobrara River corridor in mature or old-growth timber with an open and discontinuous canopy to provide undisturbed roosting habitat for wintering populations of bald eagles. Monitor and document eagle use on the Refuge and mortality in the area.

Whooping Crane, Piping Plover, and Least Tern Objective: Maintain the shallow braided River habitat above Cornell Dam for use by whooping cranes, piping plovers, and least terns during migration. Keep use areas free from human disturbance. Monitor and document migration use by whooping cranes, piping plover, and least terns as it occurs.

American Burying Beetle Objective: Determine if American burying beetles inhabit the Refuge. Implement appropriate management strategies if a population exists.

P Interpretation and Recreation

Goal: Provide the public with quality opportunities to learn about and enjoy the ecological diversity, wildlands, wildlife, and history of the Refuge in a largely natural setting and in a manner compatible with the purposes for which the Refuge was established.

River Use

The Service will address overcrowding on the portion of the Niobrara River that flows along the designated Wilderness Area of the Refuge on summer weekends as a result of people floating the River by developing, with participation from other interested parties, a detailed River Management Plan within two years. This overcrowding could be affecting not only Federal Trust Resources but the recreational experience of Refuge visitors that seek a wild and scenic river and wilderness experience. In the interim, no new outfitters will be issued permits to launch canoes or tubes on the Refuge. River use on weekends in the summer will be capped at 1998 levels.

Data collection during a social carrying capacity study of the River conducted in 1998 along with future monitoring of River use, habitat, wildlife, erosion, and other factors will be used to set upper limits of use for summer weekends during the summer, and the remainder of the year. Actions to be taken when peak use levels have been reached will be defined in detail.

A user fee of \$2.00 per vessel per day or \$25.00 per year that was implemented in 1998 will be continued. Monies collected from the fee program have been used to pump rest rooms, for signs, for costs related to collection, law enforcement and other related costs. The Service will make adjustments to the user fee as necessary to ensure that a safe and quality experience is provided to the public.

Bans on possession of alcohol, high volume radios (normally known as boom boxes), or any device capable of shooting or directing a projectile or liquid at another person to include, but not limited to, water balloons, high pressure water guns (normally known as water cannons), paint ball guns, potato guns, and sling shots will be implemented. No more than five tubes will be allowed to be tied together; and River floating will only be allowed downstream of Cornell Dam. River floaters will be encouraged to follow a code of ethics developed by the Niobrara Scenic River Council.

The Service's Regional Dam Safety Officer will continue to inspect Cornell Dam periodically to ensure compliance with applicable laws, policies, directives, and technical recommendations governing Federal safety of dams. Furthermore, this Officer will provide technical assistance should determination be made that the Dam is no longer safe and needs to be removed.

Hunting and Fishing

Limited Refuge hunts may be used as a tool periodically to reduce elk and, if reintroduced, bighorn sheep populations.

The Service will allow fishing on the Niobrara River and Minnichaduza Creek. Special events, such as youth fishing day, will continue.

Other Public Uses

The Service will seek funds to construct and staff a new environmental education/visitor center to improve environmental education and interpretation of wildlife, cultural, and historic resources on the Refuge. A Site Plan, being developed, will include a concept design for an environmental education/visitor center. The Site Plan will also contain suggestions for improving the existing visitor center until such time as a new center is constructed.

Wildlife/wildland observation opportunities will be expanded and include an access point for hiking and horseback riding in the Wilderness Area and construction of a trail to a scenic overlook of the Niobrara River Canyon.

Viewing of bison and elk will continue to be available year round in an exhibition habitat unit. Current facilities and wildlife observation and photography uses will remain open. Access to the main herds will be allowed through a concessionaire during peak public use periods, mainly the summer months.

Cultural and Paleontological Resources

The Service will develop a Cultural Resource/Paleontological Management Plan. The Plan will include Refuge-wide cultural resource inventory and paleontological resource inventory strategies. It will also include increased interpretation, protection, and education about the cultural and paleontological resources on the Refuge. The historic hay shed will be protected from further degradation by sealing the building and relocating the bat colony.

Interpretation, Wildlife Observation and Photography, and Environmental Education Objectives: Provide visitors with quality interpretation, environmental education, wildlife observation and photography opportunities.

Ensure a safe, quality river-floating experience on the Wild and Scenic Niobrara River that follows the standards of the National Wild and Scenic Rivers Act, National Wildlife Refuge System and maintains the integrity of the Fort Niobrara Wilderness Area.

Protect and interpret Refuge cultural and paleontological sites.

Fishing Objective: Provide opportunities for warm water fishing in the Niobrara River and Minnichaduza Creek.

Hunting Objective: Offer ethically sound, limited and strictly controlled hunting opportunities for elk and, if reintroduced, for bighorn sheep to facilitate removal of herd excess.

P Ecosystem (Partners)

Goal: Promote partnerships to preserve, restore, and enhance a diverse, healthy, and productive ecosystem of which the Fort Niobrara and Valentine NWR's are part.

Ecosystem Objectives/Strategies for the Fort Niobrara/Valentine NWR Complex: Support the National Scenic River, the National Park Service and other management entities to meet desired future conditions of the Niobrara Scenic River.

Support the Sandhills Management Plan through Partners for Wildlife Program to enhance wildlife habitat on private lands.

Support use of Refuges as research areas for relevant natural resource studies. Conduct applied research on management of threatened and endangered plant and animal populations.

Develop an effective outreach program that results in two wildlife habitat/public use projects completed annually with nongovernmental organizations.

Develop greater cooperation with state and local governments that result in completion of at least two projects annually. Projects are to benefit area wildlife resources or enhance public use opportunities such as fish rearing in Refuge ponds.

Use this Plan to help in marketing Refuge needs through grant writing and networking with other entities.

Support the National Scenic River; coordinate and cooperate as appropriate with River management partners including the National Park Service, Natural Resource Districts, etc., to meet desired future conditions of the Niobrara Scenic River and related resources.

Implementation and Monitoring

Funding and Personnel

Staffing Needed to Implement This Plan

The following Staff Chart shows current staff and proposed additional staffing needed to fully implement this Plan. If all positions were filled, the Refuge Complex would be able to carry out all aspects of this Plan to a high standard. If some positions are not filled, all aspects of this Plan may not be able to be completed or those completed may be done over a longer period of time.

Staffing and funding are expected to come over the 15-year life of this Plan. Positions marked with an * are shared with Valentine NWR. The new refuge operations specialist position would be responsible for the Partners For Wildlife Program, Holt Creek WMA, and Tower WMA. (✓ = filled; ✗ = vacant)

Position	Current	Proposed
Refuge Manager*	✓	✓
Refuge Operations Specialist	✓	✓
Refuge Operations Specialist*	✗	✓
Outdoor Recreation Planner*	✗	✓
Law Enforcement Officer*	✓	✓
Administrative Officer*	✓	✓
Office Automation Clerk*	✓	✓
Wildlife Biologist	✓	✓
Bio. Technicians/Seasonal (2)	✗	✓
Heavy Equipment Operator*	✓	✓
Maintenance Worker (2)	✓	✓
Maintenance Laborer/Seasonal(2)	✗	✓
Asst. Fire Management Officer*	✓	✓
Range Technician (Fire)	✓	✓
Firefighters/Seasonal (3)	✓	✓

Funding Needed to Implement This Plan

Currently, a large backlog of maintenance needs exists on the Refuge. The needs are recorded in a national Maintenance Management System (MMS). In 1997, under current management plans, the backlog for Fort Niobrara NWR was \$3,830,000. Most of these needs would also need to be met under this Plan. A synopsis of these needs is listed below:

Vehicles and Equipment	\$ 708,000
Fences, Corrals, and Wells	\$ 943,000
Water Control Structures and Dikes	\$ 197,000
Roads and Bridges	\$ 292,000
Public Use Facilities	\$ 709,000
Buildings and Maintenance Facilities	\$ 821,000
Residences	\$ 160,000
TOTAL	\$3,830,000

The System uses another database, the Refuge Operating Needs System (RONS), to document proposed new projects that will implement a Plan, implement ecosystem or federally listed species goals or meet legal mandates. The total cost to implement this Plan is \$3,908,000. A synopsis of these needs is listed below:

Biological Monitoring and Studies	\$ 110,000
Habitat Management	\$ 443,000
Possible Reintroduction of Bighorn Sheep	\$ 20,000
Resource Protection	\$ 393,000
Public Education and Recreation	\$ 742,000
Environmental Education Center	\$2,200,000
TOTAL	\$3,908,000

CCP Implementation and Step-down Management Plans

This section is intended to provide additions to the Refuge Management Direction section above. Where possible, time frames are delineated, specific strategies and actions are stated, and a list of projects is presented.

The Service has traditionally used a Refuge Manual to guide field station management actions. The policy direction provided through the Manual has been used to prepare annual work schedules, budget, land management plans (i.e., prescribed fire, grazing, haying), sale of surplus animals, biological monitoring, public use, safety, and other aspects of public land management in the Refuge.

This CCP is intended as a broad umbrella plan that provides general concepts, specific wildlife and habitat objectives, federally listed species, public use, and partnership objectives. Depending on the Refuge needs, these may be very detailed or quite broad. The purpose of step-down management plans is to provide greater detail to managers to implement specific actions authorized by the CCP. Step-down management planning is the formulation of detailed plans that describe management activities necessary to implement strategies identified in this CCP. Step-down plans describe the specific management actions to be followed, "stepping down" from general goals, objectives, and strategies

Step-down plans provide a detailed assessment and strategy that is based upon and complement the Fort Niobrara NWR CCP. While many potential topics for step-down plans exist, the most critical ones include Habitat Management, Wilderness Management Plan, Wildlife Inventory, River Use, and Public Use Plans. The objectives and implementation strategies in each step-down plan will dovetail with each other and the CCP

The Refuge, within a reasonable amount of time, will prepare all the necessary Step-down Management Plans to attain the goals and objectives described in this CCP: for example, a Niobrara River Use Management Plan (in approximately two years), a Public Use Plan, and a Fishing Management Plan.

Habitat Management and Monitoring

A step-down Habitat Management Plan for the Refuge will include an assessment of the current status and distribution of plant communities and wildlife habitat, and a prescription and strategy for habitat management that will achieve long-term habitat, wildlife population, and ecosystem goals for the Refuge and surrounding landscape. The habitat prescription, or objectives (how much of what kind located where), will be based on: (1) Refuge resource priorities identified locally, regionally, and nationally; (2) potential contribution of a site to resource priorities (rare species/communities, other priority species, ecosystem function); and (3) historical, current, and potential plant community types for particular site in the Refuge area.

The habitat objectives will be combined with an implementation strategy to produce a Habitat Management Plan. Habitat strategies will include site-specific manipulations to achieve site objectives and evaluations of the manipulations. Manipulations include standard practices of wetland, grassland, or forest restoration and management, prescribed burning, moist soil and water management, and allowing natural ecosystem processes to dictate the ecological community type. The cycle time for some of the habitat management strategies is very long-term. However, many habitat management actions may be initiated immediately, if staff and dollars are available.

An overall Habitat Management Plan will be developed to guide all aspects of habitat management including but not limited to: annual grazing by large animal herds, the use of prescribed fire, prairie dog colony growth and management, other wildlife (i.e., bison, elk, bighorn sheep), and rest required by habitat for native birds.

The Refuge staff will develop and implement an updated Wilderness Management Plan, taking into consideration wilderness values (in compliance with the Wilderness Act), Service policy, adjoining land uses, and comments and concerns addressed in the CCP, and providing a basis for other related plans.

Develop and implement a monitoring program that assesses landscape and individual habitat variables such as vegetation species composition, grassland structure (density, height) and ground cover, woodland structure (percent tree, shrub, herbaceous, bare ground, canopy cover; basal area, diameter and height, age, snags), and utilization by large ungulates. Procedures will be completed annually or at three- to five-year intervals depending upon available staff and technique requirements.

Fire-funded personnel will develop and implement a fire effects monitoring program that integrates with other Refuge biological monitoring activities.

Wildlife Management and Monitoring

Continue to conduct sharp-tailed grouse and greater prairie chicken lek counts. Obtain prairie grouse lek data from the Nebraska Game and Parks Commission and harvest data from Valentine NWR for general comparison to Fort Niobrara NWR population trends.

Implement nongame bird monitoring techniques in the grasslands and woodlands to document population trends and species richness/diversity.

Conduct a graduate research project that documents native bird response pre- and post-change in management from current habitat management emphasizing fenced animals to a more natural, less-controlled management regime emphasizing native birds. Conduct a graduate research project that compares native bird use within the River corridor during high and low public use periods.

Continue to maintain a general observation log of bird sightings to document presence/absence, relative abundance, and use areas.

Maintain the bison herd at its current winter population level of 350 animals. The population level may vary between 200-350 animals depending on habitat, native bird, and bison herd genetic viability needs and objectives. Surplus bison will be disbursed to Native American Tribes (in accordance with Service policies and agreements), donations to tax supported entities, other Service herds, with the remaining going to public auction.

Continue to implement fenced animal management practices that ensure long-term health and survival of the herds. Actions to be taken include periodic animal introductions to minimize inbreeding, disease testing and vaccination, and mineral supplementation. Geneticists and health care professionals will be consulted on a regular basis regarding recommended practices and/or requirements.

Consult with population ecologists and/or bison geneticists regarding genetic management recommendations/options for the Fort Niobrara NWR bison gene pool. Collect and analyze bison genetic material to establish baseline for future comparison.

Conduct seasonal population surveys of bison, elk, and, if reintroduced, bighorn sheep to document numbers by age and sex, mortality, natality, and general health/condition. Annually test excess animals for various diseases and ensure that animals introduced to the Refuge meet all health test requirements. Complete genetic testing of the herds at intervals recommended by geneticists to assess if fenced animals are being managed appropriately.

Allow the black-tailed prairie dog colony to increase to a manageable size. Manage predator populations and vegetation to hold prairie dogs to designated acreage with other control measures implemented as necessary.

Relocate big brown bat colony by sealing historic hay barn and maintain/enhance natural artificial bat roost sites.

Complete surveys of small mammals, reptiles, amphibians, and fish at five year intervals.

Threatened and Endangered Species Management and Monitoring

Identify habitat suitable for blowout penstemon and, if it exists, introduce plants at a minimum of two sites with assistance from University of Nebraska-Lincoln. Implement management actions that result in a sustainable population of blowout penstemon.

Conduct an American burying beetle survey.

Continue to conduct biweekly eagle surveys October-April. Monitor bald eagle mortality and submit carcasses to the National Health Lab for analysis. Implement appropriate protection measures. Conduct an aerial survey of the Niobrara River every two years to document proximity of or possible nesting activity on the Refuge.

Conduct periodic surveys of the Niobrara River to document use or non-use by whooping cranes, least terns, and piping plovers. Document habitat selection, usage, and distribution. Implement appropriate protection measures.

Interpretation and Recreation Resources Management and Monitoring

Niobrara River Use Management and Monitoring

The Service will prepare a Fishing Plan to provide a basis for special regulations concerning this use on the Niobrara River and Minnichaduza Creek. Sport fishing regulations will follow those of the Nebraska Game and Parks Commission except that taking of frogs, turtles, and minnows will be prohibited. No motorized boats will be permitted.

The Service will develop and implement a Niobrara River Management Plan, within two years of the issuance of this Plan, and will invite the participation of other Federal and State agencies, local and county government representatives, River outfitter groups, environmental groups, and other groups or individuals.

This Management Plan will ensure that this use is compatible with the six wildlife-dependent uses of the System, it protects the natural resources of this riparian corridor, and it preserves the characteristics for which it was designated a Wild and Scenic River area. Furthermore, this Management Plan will also ensure that the wilderness area that this stretch of the River crosses is not adversely impacted by recreational uses. This Management Plan will be subordinate to the statutes and requirements of the Wild and Scenic River Act and the Wilderness Act that have jurisdiction over the Niobrara River as it flows through the Fort Niobrara NWR.

Bans on possession of alcohol, high volume radios (normally known as boom boxes), or any device capable of shooting or directing a projectile or liquid at another person to include, but not limited to, water balloons, high pressure water guns (normally known as water cannons), paint ball guns, potato guns, and sling shots will be implemented. No more than five tubes will be allowed to be tied together, and River floating will only be allowed downstream of Cornell Dam. River floaters will be encouraged to follow a code of ethics developed by the Niobrara Scenic River Council.

During the period of development of this River Management Plan, the Service will not increase the number of Special Use Permits issued until the environmental effects of this use are assessed, and the Management Plan can be implemented and incorporated into the Refuge goals and strategies. The Service will continue to study and monitor the environmental effects of the current uses of the Niobrara River by River floaters and other to riparian and upland Refuge resources. With the River Management Plan, the refuge manager will have specific information and data on which to base sound scientific decisions for the future management of this important resource.

Permits will be required for Scout, church, educational and other such groups floating the River that want to tie more than five tubes together.

Public Use Management and Monitoring

The Service will seek funds to construct and staff a new environmental education/visitor center to improve environmental education and interpretation of wildlife, cultural, and paleontological resources on the Refuge. A Site Plan, being developed, will include a concept design for the new center and suggestions for improving the existing visitor center until such time as a new center is constructed. Interim projects to complete include updating exhibits and broaden themes to include wildlife and their habitats; unusual ecological diversity; cultural and paleontological resources; and management. Investigate the possibility of a shared environmental education/visitor center with the Nebraska Game and Parks Commission, National Park Service, Forest Service, The Nature Conservancy, Valentine Chamber of Commerce, and others.

Fort Falls Nature Trail will be maintained for public enjoyment. The self-guiding interpretative brochure will be updated.

Provide a wilderness access point for hiking and horseback riding. Use will be limited to three groups at one time with a maximum group size of 5 horses or 10 people. An outfitter, selected by lottery, will be allowed to guide a maximum of one group per day and will pay a fee and/or a certain percent of gross receipts to the Refuge.

Construct a trail to a scenic overlook of the Niobrara Canyon and provide appropriate interpretation.

Establish a concessionaire contract to view and interpret the bison and elk herds during the summer tourist season.

Continue to improve the main auto tour route by resurfacing with gravel and closing/revegetating numerous side trails. Expand the display habitat unit and provide more natural and aesthetic setting by removing and/or relocating fence.

Staff and expand the hours of operation of the visitor/environmental education center.

Maintain the visitor center, information kiosks/leaflet dispensers, education panels, other signs, picnic tables, and rest rooms in clean, orderly, well cared for condition.

Update Refuge brochures to new Service standards.

Develop a Refuge specific environmental education curricula for teachers to use independently.

Continue to prepare periodic news releases and send to newspapers, radio, and television to inform the public about Refuge events and issues.

Ecosystem (Partners) Management and Monitoring

Maintain a contaminant database on the Niobrara River. Cooperate with various entities (i.e., USFWS Ecological Services; State of Nebraska) to collect data on flow, temperature, sediment, nitrates, and other pollutants.

Work with Boy Scouts, Girl Scouts, 4-H, National Audubon Society, Niobrara Outfitters Association, Fort Niobrara Natural History Association, Cherry County Schools, and others to complete at least two wildlife/public use projects a year.

Contact and seek cooperation/partnership with universities regarding a paleontological inventory of the Refuge. Consider acquisition of nondevelopment easements from willing adjacent landowners to protect Refuge integrity.

Contact and seek cooperation/partnership with International Safari Club, Rocky Mountain Elk Foundation, and others regarding large ungulate projects. Participate on NPS working group to develop general management plan for Niobrara National Scenic River to include biological monitoring at an ecosystem level.

Work with USDA Natural Resources Conservation Service (NRCS), Nebraska Game and Parks Commission, U.S. Forest Service, National Park Service, Middle Niobrara Natural Resource District, and others to complete at least two wildlife habitat and/or public use projects a year.

Continue to cooperate with NRCS on soil mapping and data digitizing of Service lands, review and comment on revised National Range and Pasture Handbook, participation in range judging contests, range condition surveys, and provide technical assistance on wildlife/wildland concerns.

Continue to cooperate with the Nebraska Game and Parks Commission on wildlife surveys and fish rearing in Refuge ponds.

Write a minimum of three grant proposals a year to seek outside funding.

Work with State of Nebraska Veterinarian, Nebraska Game and Parks Commission, National Park Service, and others on management of fenced and free-ranging elk.

Work with veterinarians for the State of Nebraska, neighboring states, USDA-APHIS, and private sector on disease/health issues, regulations, etc.

Cultural and Paleontological Resources Management and Monitoring

A Cultural Resource and Paleontological Resources Management Plan to provide a basis for research and enactment of special regulations concerning protection of these resources on the Refuge will be prepared by the Service.

Complete a Refuge-wide cultural resource survey and develop a management plan based on results. The Plan will include management strategies for the historic hay shed based on future objectives and possible uses (i.e., storage, environmental education) for the designated historic site.

Relocate the big brown bat colony away from the historic barn and complete appropriate bat proofing and renovations according to future management plans.

Conduct a Refuge-wide paleontological inventory.

Display and interpret cultural and paleontological specimens.

Partnership Opportunities

Only with public support will the Service succeed in its mission. That support comes through outreach: fostering education, understanding, and communicating the importance of the Service commitment to protecting habitat upon which wildlife depends. Outreach includes a broad array of activities and services focused on building relationships and communication. The Service is committed to getting its message to both traditional and nontraditional groups.

The Service continues to seek opportunities to work with various conservation groups, State and local agencies, and private corporations and organizations to advance the Fort Niobrara NWR mission. Generally, the Fort Niobrara NWR and Valentine NWR Complex will strive to combine resources with appropriate entities to expedite and carry out planning projects.

The Service will continue to cooperate with Nebraska Game and Parks Commission for rearing of brood fish in tributary impoundments. Agreements in place for wildlands wildfire suppression efforts, excess bison for the Inter Tribal Bison Council, participation in the Niobrara Council, and other common coordination efforts with other agencies and landowners will continue. The Service will continue to uphold and develop partnerships with the National Park Service on many issues, including use and protection of the wild and scenic portion of the Niobrara River, and will seek to increase partnerships with others as well.

The Service will seek to develop outside funding sources and support for implementing some aspects of this Plan. Examples would be construction of the environmental education center, big game fence, and possible acquisition of nondevelopment easements on the Refuge's north and west borders.

Partnerships require extensive time to coordinate, develop, and nurture. This must be accounted for in the development of budgets and annual work plans.

Monitoring and Evaluation

Adaptive management is a flexible approach to long-term management of biotic resources that is directed over time by the results of ongoing monitoring activities and other information. Biological management techniques and specific objectives will be regularly evaluated in light of monitoring results and other new information. These periodic evaluations will be used over time to adapt both the management objectives and techniques to better achieve management goals.

Monitoring is an essential component of this Plan, and specific monitoring strategies have been integrated into the goals and objectives outlined above. All habitat management activities will be monitored to assess whether the desired effect on wildlife and habitat components has been achieved. Monitoring the number of breeding pairs and the reproductive parameters of native and neotropical bird species will follow established Federal and statewide protocols, at a minimum. Baseline surveys will be established for other species of wildlife for which existing or historical numbers are not well known. It also will be important to begin studies to monitor the response of wildlife to increased public use in the form of observation and environmental education.

This Plan is designed to be effective for a 15-year period. Periodic review of the Plan will be required to ensure that established goals and objectives are being met and that the Plan is being implemented as scheduled. To assist this review process, an ongoing monitoring and evaluation program will be implemented, focusing on issues involving public use activities, wildlife-dependent recreational activities, and habitat and population management.

Monitoring of public use programs will involve the collection and compilation of visitation figures and activity levels. In addition, research and monitoring programs will be established to assess the impacts of public use activities on wildlife and wildlife habitat. The Refuge will strive to establish the collection of baseline data on all wildlife populations. This data will be used to update existing records of wildlife species using the Refuges, their habitat requirements, and seasonal use patterns. This data will also be used to evaluate the effects of public use and habitat management programs on wildlife populations.

Refuge habitat management programs will be continually monitored for positive and negative impacts on wildlife and wildlife habitat, and to determine if these management tools are helping to meet Refuge goals and objectives. Monitoring will focus on habitat changes and the associated changes in the wildlife community.

The establishment of a monitoring and evaluation program is important to support the direction of the Plan. The information gathered through this program will provide necessary data to ensure that goals and objectives established in the Plan are being met.

The Service will conduct, at the very minimum, the following monitoring actions:

- ! wildlife herd monitoring sufficient to maintain age and sex ratios, health, genetic diversity, and annual excess removal
- ! native bird species monitoring to supply trend information on prairie grouse, species of management concern, grassland neotropical migrants, biodiversity trend indexes
- ! monitor habitat parameters (i.e., vegetation composition and structure, tree canopy, etc.) sufficient to ensure that habitat objectives are being measured and determined successful according to a Habitat Management Plan and the adaptive management process
- ! water quality parameters on the Niobrara River
- ! federally listed species monitoring, American burying beetle survey
- ! monitoring/research on River use through the Wilderness Area and it's wildlife and social impacts
- ! monitoring fire effects as part of the prescribed burning program.

Plan Amendment and Revision

This Refuge CCP is a dynamic Plan. While it will serve as a guide for overall Refuge direction, it will be adjusted to consider new and better information, ensuring that Refuge activities best serve the intended purpose for which this Refuge was established and the mission of the National Wildlife Refuge System. The CCP will be reviewed every five years, and monitored continuously to ensure the management actions developed support the goals and objectives of the Fort Niobrara NWR.

This Plan will be informally reviewed by Refuge staff while preparing annual work plans and updating the Refuge Management Information System (RMIS) database. It may also be reviewed during routine inspections or programmatic evaluations. Results of the reviews may indicate a need to modify the Plan. The monitoring of objectives is an integral part of the Plan, and management activities may be modified if desired results are not achieved. If minor changes are required, the level of public involvement and associated NEPA documentation will be determined by the project leader. This CCP will be formally revised at least every 15 years.

