

# Nebraska Platte-Republican Resources Area CREP

Prepared by the State of Nebraska

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The 23 Nebraska Counties Included in the Proposed CREP Area are:

Buffalo	Chase	Dawson
Dundy	Franklin	Frontier
Furnas	Garden	Gosper
Harlan	Hayes	Hitchcock
Kearney	Keith	Lincoln
Morrill	Nuckolls	Perkins
Phelps	Red Willow	Scotts Bluff
Sioux	Webster	

## SECTION 1 – ABSTRACT

The proposed area includes portions of 23 counties and 7 Natural Resources Districts (NRD), associated with the Republican River, North Platte River and Platte River. Prior to settlement, the vegetative community consisted primarily of lowland tallgrass prairie along the rivers and streams and mixed loess prairie and shortgrass prairie in the remaining area. The soil under these prairie grasses was found to be fertile and quite productive given adequate moisture. Consequently, landowners capitalized on the agricultural potential by converting over 90% of the land in the proposed project priority area to agricultural production. The result has been the fragmentation and substantial reduction of native vegetative communities and wetland complexes. Many wildlife species have responded negatively to these habitat changes and currently 13 different species in the project priority area receive some form of federal or state designation of concern.

The project priority area has been suffering from extreme drought conditions the past 5 years. The drought has stressed the availability of water supplies and accentuated the fact that a number of interests important to the state are competing for the same finite resources. This situation has been exacerbated further by the fact that farmers have been forced to apply additional water to existing irrigated cropland to offset precipitation shortfall. The Farm Service Agency (FSA) estimates our priority area to contain 1,576,219 acres of cropland of which 72% is irrigated. Corn is the major crop of this area (766,070 acres) and soybeans (178,712 acres), wheat (181,809 acres) and alfalfa (172,273 acres) would be considered secondary crops.

The current drought has already cost this region millions of dollars in agricultural and recreational revenues. Without concentrated efforts, the environment, communities and industries of the proposed project area could be devastated over the next few years. Nebraska proposes to initiate a Conservation Reserve Enhancement Program (CREP) project to reduce irrigation demand on available surface and groundwater supplies. Secondary benefits are also anticipated, such as providing more water for aquatic communities and increased terrestrial habitat by converting cropland to approved conservation practices (CP2, CP4D, CP21, CP22, CP23 and CP25). These benefits would be accomplished by retiring 100,000 acres of cropland in the proposed project priority area for a period of 10-15 years. The program acres would be divided between the Platte and Republican River basins. Landowners participating in this CREP would receive the average irrigated rental rates for their county for any qualified acreage they enrolled. The 10-year cost of the project to place 100,000 acres under contract is estimated at \$158,215,000 to be divided 80% by Federal and 20% by State sources. An additional \$10,000,000 would be needed for seeding program acres that would be split 50% by federal and 50% by State and local sources.

## SECTION 2 – GEOGRAPHIC AND EXISTING CONDITIONS

The proposed conservation priority area for Nebraska under this CREP includes 23 counties and 7 NRD's in south-central and western portions of the state (Figure 1). The area is called the Nebraska Platte-Republican Resources Area due to the inclusion of significant portions of the Platte River and Republican River basins. The designated project area has been experiencing persistent above normal temperatures and below normal precipitation since 1999. This on-going climate pattern has resulted in much of the proposed CREP area being designated in an extreme or exceptional drought by the U. S. Drought Monitor the last few years. The duration and severity of the current climate rivals the conditions reported during the "Dust Bowl" of the 1930's.

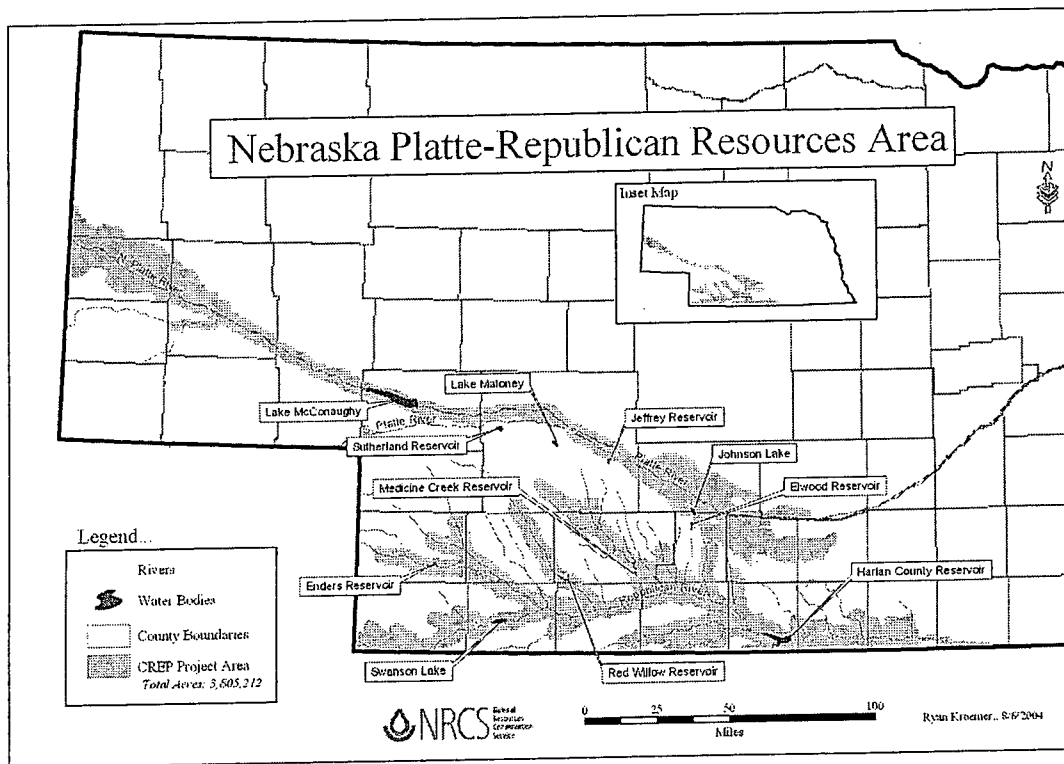


Figure 1 – Project priority area for the proposed Nebraska Platte-Republican Resources Area CREP

The Platte River receives water from snow and rain run-off resulting in periodic high flows associated with precipitous weather. The remaining flow seeps as base flow from hydrologically connected groundwater. The Republican River historically receives extreme high flows from heavy rain events and remaining flows come from hydrologically connected groundwater. Significant portions of the Republican River, Platte River and North Platte River have become dry or reduced in water quantity the past few years, exacerbated by the current drought. Lack of water in these basins has resulted

in numerous negative effects, including fish kills and reduced habitat available for wildlife. With these effects in mind, and the urgency and severity of this drought upon us, the State of Nebraska has decided to pursue a CREP designed to improve water quantity in these basins.

To fully understand the scope of this CREP proposal, a more complete description is needed of the North Platte reservoir system including Lake McConaughy and the reservoirs within the Republican River basin.

The project that would become The Central Nebraska Public Power and Irrigation District began in 1913 with a proposal to divert water from the Platte River during the spring and fall to soak the soil of farms in the area. Final approval for the project was granted in 1935 resulting in a reliable source of surface water, to assist crop production, and hydroelectric power. Construction began in 1936 on Kingsley Dam (which forms Lake McConaughy), the Diversion Dam by North Platte, the Supply Canal with more than 20 small lakes along its 75-mile route, three hydroelectric plants, and other necessary infrastructure. Upon completion of Kingsley Dam in 1941, Lake McConaughy began filling a designated 21 miles in length and up to 4 miles in width. At full pool (3,265 msl elevation), this reservoir covers more than 30,500 surface acres and offers some 105 miles of public shoreline. Figure 2 depicts the intricate water delivery system stemming from stored water in Lake McConaughy, including several of the notable public access lakes within this system.

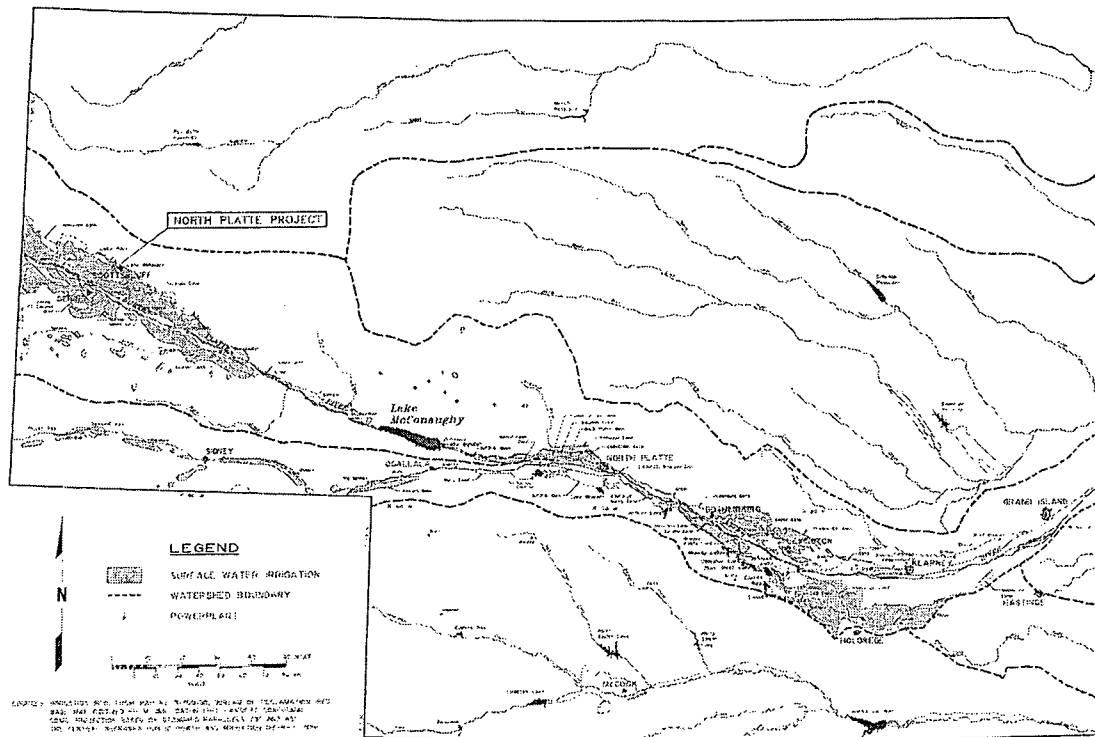


Figure 2 - Delivery system for The Central Nebraska Public Power and Irrigation District

The Republican River has a history of flooding, which hampered settlement and agricultural development of the area. Perhaps most notable was the flood of 1935, reported as a “wall” of water 8 feet high. That flood claimed over 100 lives and prompted the development of a reservoir storage system for the primary benefits of flood control and irrigation. Five separate reservoirs were constructed in the Republican River Basin of Nebraska starting in the early 1940s. Swanson Reservoir and Harlan County Reservoir are main-stem reservoirs and Enders Reservoir, Red Willow Reservoir, Medicine Creek Reservoir were built on major tributaries.

The climate of the area is typical of the Great Plains of North America. Marked seasonal variations in precipitation characterize the region. Mean annual precipitation varies from 15-26 inches on the western to eastern edge of the priority area, respectively. The majority of precipitation (75-80%) falls during the growing season, April through September. Summer precipitation usually arrives in the form of thunderstorms. Mean evaporation rates frequently exceed mean precipitation rates.

Several different soil associations are found in the Republican and Platte River basins. Soils in the eastern priority area are typically very deep, gently sloping to steep, well-drained, silty soils formed in loess and alluvium. The western edge of the priority area has shallower, nearly level to moderately steep, excessively drained; sandy soils formed in eolian sand. Irrigation throughout the area, (Figure 3 & 4) has maximized the fertility and productivity of these soils.

Native or presettlement vegetation in this CREP area was dominated by a variety of grass communities (Figure 5). The Eastern edge of this priority area was composed of mainly mixed grass loess prairie, which shifted to short-grass prairie in Western Nebraska. Lowland tall-grass prairie dominated the rivers and streams throughout much of the CREP area, as well as some riparian woodland. Within the region, all three of these grassland communities have been significantly reduced to the point where only small fragmented remnants remain. The Nebraska Game and Parks Commission (NGPC) estimates that more than 80% of loess mixed-grass and lowland tall-grass communities have been lost within the state. Quantification for loss of short-grass prairie has been hampered by a lack of updated information. However, conservative estimates predict that over half of the native short-grass prairie habitat has been lost to conversion of land to agricultural and municipal development.

Grasslands were not the only natural and unique communities to be impacted by conversion to other uses. Part or all of five wetland complexes lie within the boundaries of the proposed priority area (Figure 6). These wetland complexes are diverse in nature and represent playas, saline/alkaline, and riverine types. Three of these complexes, the Rainwater Basin, Central Platte River, and Lower North Platte River, are of national and international significance because of the habitat they provide for migratory and threatened and endangered species. Appendix A provides detailed information on the profile, loss and threats to functions and values of these three important wetland complexes. The Rainwater Basin and Central Platte River have both lost >70% of