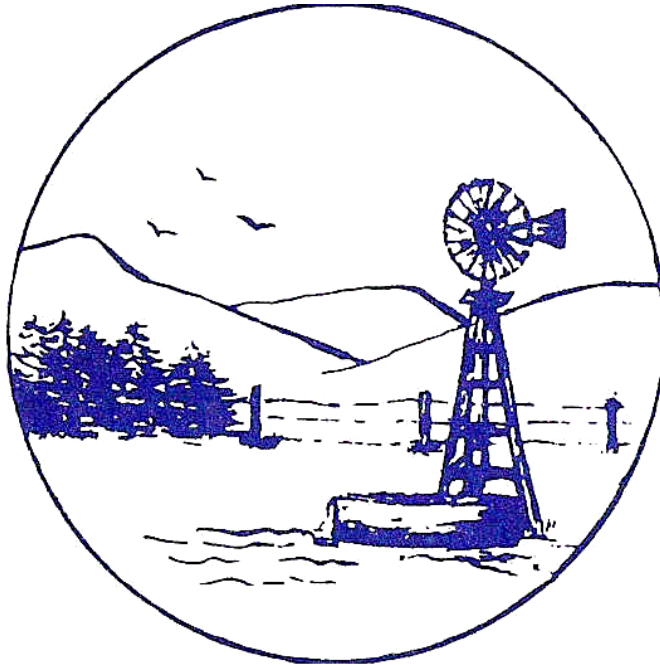


Upper Loup Natural Resources District
Master Plan
2022



Upper Loup Natural Resources District
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INTRODUCTION

Purposes

Nebraska's Natural Resources Districts are required to file a Comprehensive Resources Plan, or Master Plan, at least every ten years in accordance with Nebraska Revised Statutes 2-3276. In addition, Neb. Rev. Stat 2-3280 states that "No state funds shall be allocated or disbursed to a district unless that district has submitted its master plan in accordance with sections 2-3229 and 2-3276 to 2-3280.

This update process offers an opportunity to look back over the last ten years and reflect upon how well the District addressed the goals and objectives of the previous Master Plan. It also offers an opportunity to take stock of where the District currently is, consider if it is addressing the needs of a changing District, and to project and provide a blueprint of where the District should be in the next ten years.

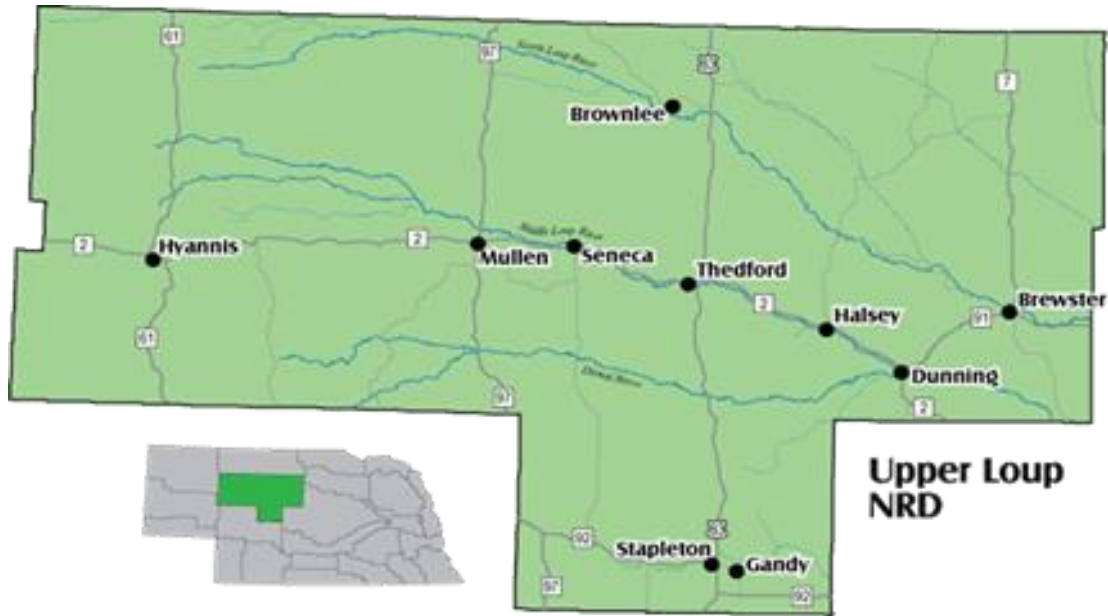
Authorities

In July of 1972, over 150 special purpose districts, each dealing with a variety of different and in some cases overlapping responsibilities, were merged together to form 24 Natural Resources Districts. On January 5, 1989, a union of the Papio Natural Resources and the Middle Missouri Tribes Natural Resources District reduced the number to 23.

Under Nebraska State Law, the Natural Resources Districts have been given specific authority and powers as described in Chapter 2-3229 of the Statutes. The NRDs were given statutory responsibilities to develop and execute plans, facilities, works, and programs relating to:

1. Erosion prevention and control
2. Prevention of damages from flood water and sediment
3. Flood prevention and control
4. Soil conservation
5. Water supply for any beneficial uses
6. Development, management, utilization, and conservation of groundwater and Surface water
7. Pollution Control
8. Solid waste disposal and sanitary drainage
9. Drainage improvement and channel rectification
10. Development and management of fish and wildlife habitat
11. Development and management of recreational and park facilities
12. Forest and range management.

About Us



The Upper Loup Natural Resources District, part of the Loup River Basin, is located in the north central part of the state and all except the southeast corner lies in the Nebraska Sandhills. It is comprised of 6,690 square miles, which includes all of Blaine, Grant, Hooker, Logan and Thomas Counties, and parts of Brown, Cherry and McPherson Counties. The distance from east to west is 120 miles, and from north to south is 78 miles and contains 4,275,000 acres.

The five main streams flowing through the District are the North Loup, Middle Loup, South Loup, Calamus and Dismal Rivers, along with these important tributaries: Goose Creek, Calf Creek, Big Creek, Wild Horse Creek and Rifle Creek.

According to the 2020 census the population of the entire Upper Loup is approximately 4,114 (down 2021 from last census) of which 66% is rural and 34% is urban. The District has 8 Villages each with populations under 500: Gandy, Stapleton, Thedford, Brewster Halsey, Hyannis, Mullen, and Dunning. There are 6 unincorporated towns in the District which include Ashby, Brownlee, Elsmere, Purdum, Seneca, and Whitman.

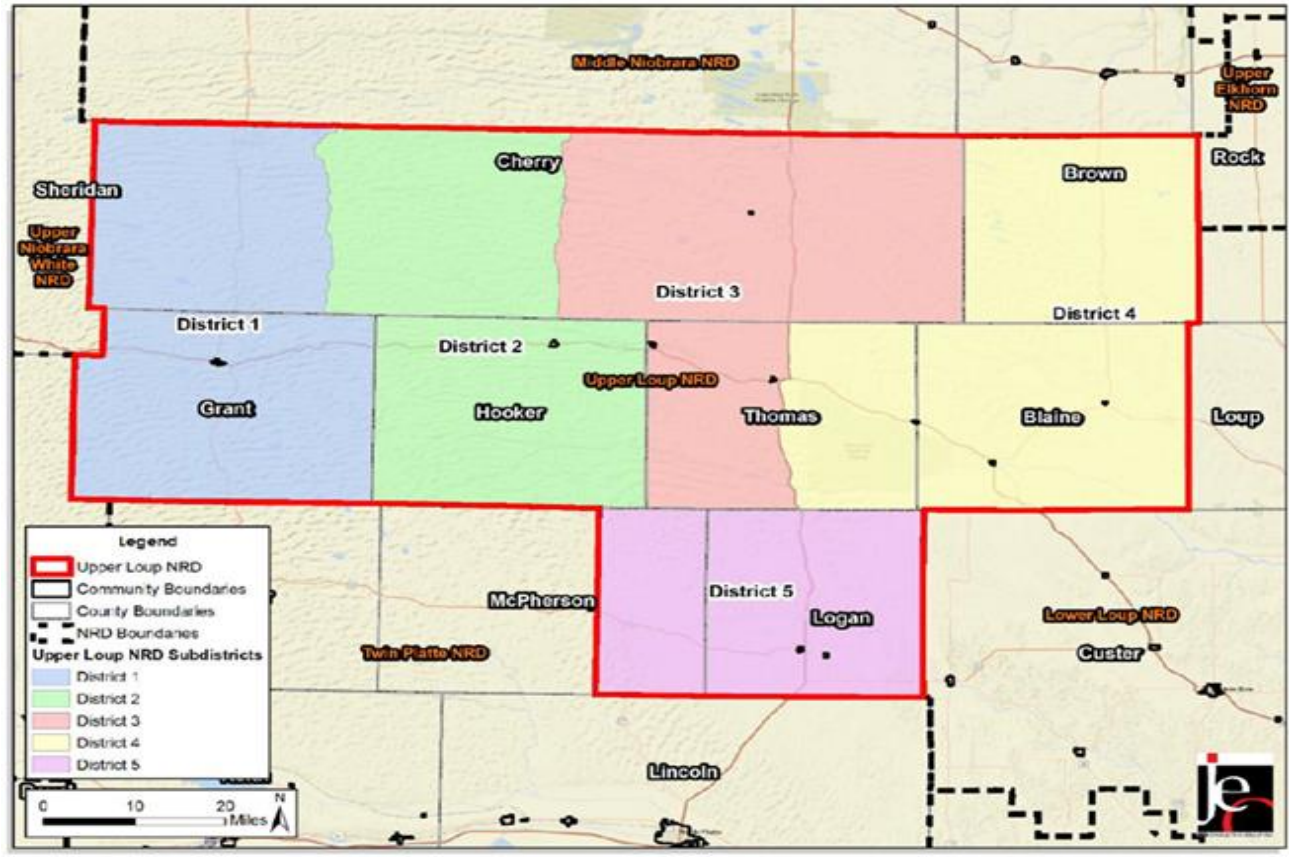
The NRD's economy is based almost entirely on agriculture with most of that largely dependent on ranching. Very little farming and industry uses do not currently exist. Approximately 91% of the land area is native range or pasture, 5% open water and wetlands, 1% irrigated cropland, less than 1% dryland, 2% other agland and barren, 1% forested, and less than 1% urban and roads.

The average per capita income of persons in some of the counties in the NRD is among the lowest in the state. This, along with the Upper Loup NRD's assessed valuation being one of the lowest of the 23 NRDs; causes the District to plan carefully the amount of finances needed each year.

The ULNRD is governed by a board of 11 directors, elected by voters at general elections, each serving a four-year term, with half of the members up for election every two years. The District is currently divided into five sub-districts, three of which changed lines due to the 2020 census, with two members representing each sub district, plus one board member is elected at large every four years.

At Large
 Sub-district 1
 Sub-district 2
 Sub-district 3
 Sub-district 4
 Sub-district 5

Patrick Wright
 Eric Storer and Rebecca Connealy
 Judy Ridenour and John Kraye
 Miles Maseberg and Chris Higgins
 Tony Ruhter and Vacant
 Tom Johnson and Richard Burnside



The District operates on a daily basis with both full and part-time employees. The staff is maintained to implement the District's various programs and projects.

General Manager	Anna Baum	Full Time
Administrative Secretary	Jamie Green	Full Time
Resources Technician	Justin Sprague	Full Time
Resources Technician	Lexi Spurlin	Full Time
Resources Technician / Information & Education	Shaylee Scranton	Part Time
NRCS Field Office Secretary	Pam Peterson	Full Time
Recycling Coordinator	Spud Rowley	Part Time

INVENTORY OF RESOURCES

Geology

Considerable information on the soils, geology, hydrology, and biology has been developed through test drilling, research, field investigations and data collection. What has emerged is an understanding that the land is geologically young, and the sandy soils show almost no evidence of soil profile development. The land surface, although dune mantled and sloping, is relatively flat. Very little runoff from precipitation occurs due to the high infiltration rates of the sandy soils. Consequently, the network of surface drains is poorly developed and much of the land is subjected only to internal drainage.

According to *An Atlas of the Sand Hills* (Bleed & Flowerday, 1990), the 19,300 square mile Sandhills region is the largest sand-dune area in the western hemisphere. The Sandhills are composed of a thick sequence of continental deposits and sediments deposited by wind and water overlying Cretaceous shales of marine sea origin. The total thickness of the younger Tertiary sediments (about 2 million to 37 million years in age) is as much as 2,000 feet in the southwest part of Cherry County. The Brule and the Chadron formations of the White River Group are the oldest of the Tertiary units and underlie the entire ULNRD, and generally thin from west to east. Their maximum thickness of around 1,250 feet is in southwestern Cherry County. These sediments are quite fine-textured, and their top generally coincides with the base of the groundwater reservoir.

Topography

The topography of the ULNRD is critical to the compositions of its plant species, which are well known for supporting forage for grazing livestock as well as stabilizing the sand. The landscape is dominated by the undulating dune tops and low-lying swales of the Sandhills. Elevations in the ULNRD have a range of over 1,800 feet, from the high of 4,205 feet above sea level in western Grant County, to the low of 2,399 feet in eastern Blaine County.

The ranges of hills, with alternating pockets or valleys between them, normally run parallel in an irregular northwest-southeast direction. The valleys are continuous for great distances only where they contain stream courses and are not interrupted by dunes. As a rule, the southerly (leeward) sides of the hills are much steeper than the northerly (windward) sides. In some areas, the dunes rise on all sides instead of forming elongated ridges. The result of this type of hill distribution is an abrupt, rolling surface of considerable relief. Sometimes small oval or round depressions alternate with round or conical dunes. The tops of the higher hills are on a level, but from a few hills of uncommon height one can see for miles across the dunes. In places, there are blowouts, or areas where the surface is bare and loose sands are blown about by the wind.

Wet meadows, lakes, ponds and marshes occupy parts of the valleys. Some of these lakes are fed by seeps and springs. The water table is near the surface in many places, so the water levels of the lakes and ponds fluctuate seasonally.

The Calamus, Dismal and Loup Rivers, along with numerous creeks and tributaries, have their origins in the District. Most of the rivers and streams are not swift so their channels deepen slowly. The major streams in the area have a remarkably even flow of water; the volume varies little during the year.

Soils

The area is characterized by the Valentine and Valentine-Dunday soil associations. Valentine soils are by far the most widespread and make up much of the grassland. These sand deposits range from a few inches to many feet in thickness. The mineralogy of the sand is mostly quartzitic. The sandy soils are pale in color with very little organic matter. Soils with a good dense cover of grass generally have a darker and thicker surface soil than those having a sparse cover of grass. The soils are suited mainly for grass which is the principal resource of the area ranches. These droughty soils are susceptible to wind erosion. Water erosion is generally slight, because the infiltration rate of the soils is high and little water is lost to runoff and evaporation. Loup soils have developed in poorly drained areas. They contain more silt and clay than the Valentine soils. Soils in the sub-irrigated meadows tend to have darker top soils because of the large amount of vegetation on the sites. They are well suited for hay, an important crop in this vast cattle-raising country. Hay yields are high, especially in meadows seeded with a mixture of timothy and clover.

Soil profiles in the region are less developed than most other soils in Nebraska, because they generally lack clay-enriched subsoils. The various soil association areas are:

1. The Coly-Uly-Holdrege Association soils are the "hard lands" of southern Logan County. They are well to excessively drained silty soils on uplands. They occur on gentle to steep slopes. Although they occupy only a small portion of the NRD area, these soils are the most intensively irrigated in the district.
2. The Valentine-Elsmere-Tryon Association is the second largest soils association in the district occurring mostly in Grant, western and northern parts of Cherry, and in parts of Brown Counties. The Valentine soils occur on the uplands and the Elsmere and Tryon soils occur in association with the Valentine on nearly level alluvium and eolian sands in valleys. They are poorly to somewhat poorly drained. Irrigation from wells is quite sparse in the areas occupied by these soils.
3. The Hersh-Valentine Association occurs in and around the area of the "hard land" soils in Logan County, a small adjacent area in McPherson County, and in another small area in southeast Blaine County. The Hersh soils in association with the Valentine are deep, well to excessively drained loamy soils on nearly level to steep slopes formed in eolian materials on uplands. A relatively large percent of these soils are irrigated.
4. The Els-Valentine-Ipage Association occurs in parts of four townships northeast of Brewster in Blaine County and a small area in extreme southeast Brown County. The Els and Ipage soils are somewhat poorly to moderately well drained sandy soils formed in eolian sands and alluvium in valleys. They occupy nearly level to very gentle slopes. Some irrigation wells have been developed in parts of the area occupied by this association.
5. The Hobbs-Hord Association occurs on bottomland and terraces of the South Loup River in southeastern Logan County. They are well-drained silty soils formed on alluvium and loess.
6. The Hord-Cozad-Boel Association occurs on terraces and bottomland along the Middle Loup River near the Blaine-Custer County line. They are formed mostly on well drained silty alluvium bottomland and terraces.
7. The Almeria-Bolent-Calamus Association occurs in the valleys of the Calamus, North Loup, Middle Loup and South Loup Rivers. They are sandy soils formed on alluvium and range from very poorly drained to moderately well drained. Clusters of irrigation wells have been concentrated in some areas to irrigate these soils.

Climate

Climate in the District ranges from semiarid in the west where the average annual precipitation is about 17 inches, to subhumid in the east where the precipitation is about 22 inches as shown in Figure 9. Average annual precipitation increases from west to east at a rate of approximately one inch per 25 miles traveled. Ordinarily about 80% of the precipitation falls from April through September. The average growing season (approximately April - October) precipitation in the ULNRD ranges from about 14 inches in the west to nearly 17 inches in the east. About 50% of the precipitation falls during May, June and July. However, precipitation is highly variable and seldom average. Generally, the Sandhills have been less vulnerable to the impacts of drought on vegetation and water supply, particularly streamflow, than have other parts of Nebraska.

Winter precipitation (Oct.-March) is usually snow. Snow is often accompanied by strong northerly winds. Severe blizzards are infrequent, but when they occur, they cause problems for the ranchers. Loss of livestock, drifting roads and difficulty feeding cattle are the results. Prevailing winds blow from the northwest in Oct.-March and from a southerly direction the rest of the year.

The growing season or frost-free days range from 145 days in the east to 120 days in the west. This is due in part to the higher elevation in the west. Temperatures sometimes range from -30 degrees to 110 degrees.

Land Use

The population of the District is sparsely concentrated, land use for industry does not exist, and intensive cultivation and irrigation is minimal. The vast majority of land is used for agricultural ranching, and the land cover is dominated by grassland and pasture. Portions of the grasslands are presumably sustained by subirrigation in wet meadow areas of the Sandhills. A small area of more intensely farmed row crop is present in southern Logan County, which accounts for most of the cropland in the ULNRD.

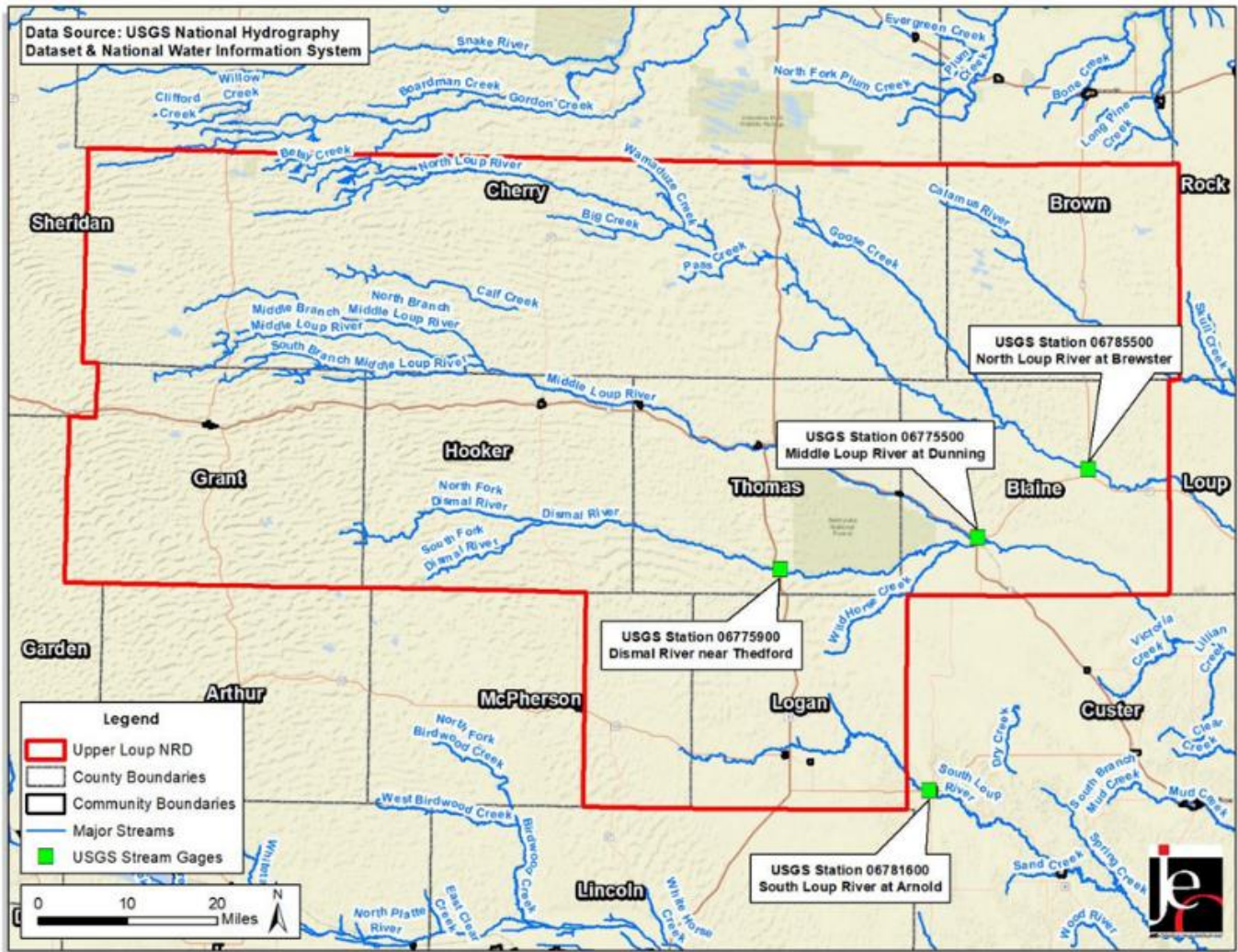
Category	Acres	Percentage
Grassland/Pasture	3,948,960	91.8
Wetlands	214,657	5.0
Cropland	67,509	1.6
Open Water	37,039	0.9
Forest	15,057	0.4
Developed	14,829	0.3
Barren	1,377	0.0
Total	4,299,428	100.0

Cropland Category	Acres	Percentage
Corn	34,353.8	50.9
Alfalfa	14,455.9	21.4
Soybeans	8,424.8	12.5
Sorghum	3,240.0	4.8
Oats	1,886.0	2.8
Millet	1,689.7	2.5
Winter Wheat	1,201.3	1.8
Rye	1,022.9	1.5
Fallow/Idle Cropland	668.1	1.0
Pop or Orn Corn	239.8	0.4
Dry Beans	100.0	0.1
Triticale	34.1	0.1
Spring Wheat	20.8	0.0
Sunflower	11.7	0.0
Double Crop Winter Wheat/Corn	10.0	0.0
Other Crops	150.0	0.2
Total	67,508.8	100.0

Surface Water

The North Loup, Middle Loup, and South Loup rivers and their tributaries, Goose Creek and the Calamus and Dismal Rivers originate within the ULNRD. Recreational use of these streams for floating activities is popular in the region. Use of the streamflow, mostly supplied from groundwater, for irrigation or storage within the NRD is minimal. Most of the streamflow originating in the ULNRD flows out virtually unused on a consumptive basis. However, considerable quantities of water are diverted from the North Loup and Middle Loup Rivers into canals for irrigation projects downstream from the ULNRD.

Groundwater and surface water are perhaps more closely interrelated in the ULNRD than in any other NRD. Most of the surface water (lakes, marshes, and streams) originates as groundwater. Land surface profiles constructed west to east in the area compared to profiles of the water table show that many of the lakes and marshes occur where the land surface intersects the water table.



County	Stream Length (mi)	Lakes (#)	Lake Area (Acres)
Blaine	120.4	2	127.8
Brown	87.6	39	4,378.8
Cherry	581.7	130	11,784.9
Grant	37.4	55	4,044.6
Hooker	122.1	3	240.9
Logan	80.4	13	603.6
McPherson	2.0	N/A	N/A
Thomas	91.7	N/A	N/A
Total	1,123.5	242	21,180.7

Streamflow information is collected by the USGS at three gaging sites within the ULNRD, and two additional sites downstream of the ULNRD. Note that the sites at Taylor and Arnold are outside of the ULNRD, but still inform us of streamflow conditions occurring upstream.

Streamgage Site	Min. Flow (CFS)	Min. Date Recorded	Max. Flow (CFS)	Max. Date Recorded	Average Flow (CFS)	Average Time Period
Middle Loup River at Dunning	170	1/23/1969	2,480	3/25/1996	491	1996-2020
North Loup River at Brewster	100	1/26/1948	4,870	6/11/2010	540	2010-2021
North Loup River at Taylor	45	7/26/1941	16,300	6/12/2010	595	1996-2020
South Loup River at Arnold	8	8/30/2012	1,430	3/13/2019	37	2010-2021
Dismal River near Thedford	125	2/3/1989	1,160	8/23/1983	227	1996-2020

The water has very little taste or odor, is low in total dissolved solids and alkalinity and thus is of high quality for many uses. Water is easily obtainable from wells and is usually reached at depths of 40-150 feet. Depth of irrigation wells is generally 200-400 feet. Water quality is generally good, with the average nitrate level in domestic wells across the district remaining around 1.97 ppm and 1.92 ppm in irrigation wells, both well below the federal safety standards of 10 ppm.

Ground Water

Because of limited rainfall and recurring periodic droughts, successful cultivation of crops without supplemental water is difficult in most years in the western part of Nebraska. The practice of irrigation from wells started to develop in the late 1940s and grew at a slow rate through the late 1960s. The oldest currently active well was completed in 1931, and approximately 70% of the registered wells have been drilled since 2000. Livestock wells are commonly used throughout the ULNRD, in addition to private wells used as drinking water sources. The NDNR began mandatory registration of domestic and low-capacity wells in 1993 and required all wells to be registered starting in 2002. Therefore, there are likely a large number of privately-owned unregistered wells still in use across the ULNRD.

From a groundwater and surface water standpoint, ULNRD is a water-rich district. However, the Sandhills are a fragile ecosystem, and as water use in the ULNRD increases and development occurs downstream, more interest will be focused on the abundant water storage, inflow, and outflow. A shift in the ULNRD water balance, due to human disturbances, climate change, or geologic shifts, could have consequential implications on the sand dunes' protective and stabilizing vegetation layer, High Plains Aquifer, and the future water availability in the ULNRD and downstream.

In 2017, the ULNRD worked with JEO Consulting Group and Long Spring Consulting to develop a water budget using the Central Nebraska (CENEB) Model, which covers the entire ULNRD along with other NRDs in the area. The components of the water budget in ULNRD were inventoried, and the water balance was quantified successfully based on the CENEB model and other observations. The water budget study delineated the quantity of water in the ULNRD into three components, and they were annualized over the period of record. The components consist of: Changes in stored water in groundwater and soil; Water that enters the ULNRD from precipitation or groundwater flow (the amount of surface water in streamflow entering the District is very small and therefore assumed to be zero); and Water that leaves the ULNRD due to evapotranspiration, streamflow, and groundwater flow.

Results show that the mean annual volume of groundwater underlying the ULNRD is approximately 533 million acre-feet (MAF), approximately 310 times the amount of water held by Lake McConaughy. The mean annual groundwater recharge is 2.91 inches. The mean annual change in groundwater storage is increasing at approximately 0.281 MAF. The largest input of water into the ULNRD is precipitation at approximately 8.03 MAF and the largest output is evapotranspiration at approximately 6.78 MAF on a mean annual basis. All streamflow on a mean annual basis leaving the ULNRD is approximately 0.753 MAF per year, or the equivalent of 34% of the Platte River flow at the Grand Island stream gage. The results clearly demonstrate the tremendous water resources in the ULNRD and the vast quantity of groundwater underlying the ULNRD.

Vegetation

The District is a transition zone where eastern tall-grass prairie and western short-grass prairie meet and intermingle. Areas within the District vary tremendously, ranging from permanent wetlands to arid areas with almost desert-like conditions. The variability of topography and availability of soil moisture, together with the geographic location, all combine to produce a wide variety of vegetation not normally found growing together.

The large areas of stabilized sand dunes provide some of the most dependable grazing in Nebraska. Predominant grass species here are little bluestem, sand bluestem, prairie June grass, prairie sand reed, switch-grass and Indian grass. Other dune-top plants are stiff sunflower, purple prairie clover, small soap weed (yucca), sand cherry, cacti, leadplant and many varieties of wild flowers. In the interdunal valleys are grasses and other plants with shallow root systems, such as wheatgrass, needle-and-thread grass, and the grammas.

Undoubtedly, some plant species have increased as a result of livestock grazing, while others have decreased, but there is no evidence that livestock grazing has caused any species to disappear. The most prominent grasses of the hay meadows are wheatgrass, big bluestem, northern reed grass, Canada wild rye, switch grass, prairie cord grass, timothy, land clovers and the introduced red-top.

The wet meadows are dominated by reed canary grass, various bulrushes and forbs. Plants of the marshes are common reed grass, reed canary, prairie cord grass, cattails, bulrushes, spike rushes, sedges, wild rice, swamp milkweed, and various smartweeds. Some of the ponds and lakes are dense with submersed aquatic plants such as widgeon grass, pondweeds, coontail, milfoil, aquatic buttercups, waterweed, watercress, naiad, star duckweed, waterlily, cowlily, watermeal, arrowheads and water plantain.

Although most of the District is unforested, trees and shrubs are an important part of the ecological makeup of the area. The majority of the timber occurs along the lakes, rivers and tributaries. Shelterbelts are used around farm and ranch buildings and on livestock feeding grounds. These plantings add beauty to the farmsteads, furnish cover for wildlife and protect homes and livestock from the wind. Trees that have been found to do well in the sandy soils for this purpose include cottonwood, hackberry, honey locust, and conifers such as the cedar, juniper and pines.

Wildlife

The extraordinary variety of habitats from dune top to interdunal wetland and riverbank provides habitats for many different species of fish, birds, mammals, amphibians and reptiles.

Some of the most common fish found in the District lakes and rivers are trout, yellow perch, black crappie, walleye, bluegill, bullhead, bass, northern pike, carp, channel catfish, minnows, dace and sucker.

Birds, both game and nongame species are numerous in the District. Game birds are wild turkey, ring-necked pheasant, sharp-tailed grouse, prairie chicken, bobwhite quail, mourning dove, ducks and geese. Other larger birds are the white pelican, herons, egrets, loons, grebes, coots, eagles, owls, hawks, terns, cranes and long-billed curlew. Many smaller birds either reside here or migrate through. Among these are the meadowlark, sparrow, robin, woodpeckers, swallows, blue jay, magpie, crow, chickadee, wrens, bluebird, blackbirds, starling, oriole, hummingbird, thrushes, finches, flycatcher, junco, cuckoo, grosbeak, sand pipers, bobwhite, rails, warblers and killdeer.

Big game mammals within the District are white-tail and mule deer and pronghorn antelope. Mammals trapped for their pelts are coyote, mink, racoon, beaver and muskrat. Numerous other small mammals are badger, cottontail rabbit, jackrabbit, ground squirrels, prairie dog, tree squirrels, porcupine, skunk, opossum, bats, pocket gopher, kangaroo rat, moles, voles, mice and weasel.

Amphibians present are the tiger salamander, toads and frogs. Reptiles found near lakes, marshes, ponds and roadside ditches are several species of turtles. The open sandy areas are the habitat of several common lizards. Several kinds of snakes are widespread across the District with the prairie rattlesnake being the most notorious.

Hazard Mitigation Plan

The Upper Loup NRD Hazard Mitigation Plan (HMP) helps to minimize the impact of disasters by providing a framework to allow the NRD and the other plan participants to prepare. Potential, natural disaster risks and vulnerabilities that are common to the area are identified and then long-term strategies for protecting people and property from similar events are developed for each participant. Federal funding is then available to make participants ready for potential disasters. An update to the Upper Loup HMP was completed and approved in 2020.

Currently the Upper Loup is working on a Drought Mitigation Plan which is to be completed 12/2022.

Cooperating Agencies

The District cooperates regularly with a variety of state, federal and local agencies to accomplish its mission. The following agencies are important partners of the District.

1. Federal

- a. USDA Natural Resources Conservation Service
- b. USDA Farm Services Agency
- c. US Army Corps of Engineers
- d. US Bureau of Reclamation
- e. US Environmental Protection Agency
- f. US Fish and Wildlife Service
- g. US Forest Service
- h. US National Park Service
- i. US Geological Survey
- j. Federal Emergency Management Agency
- k. Federal Highway Commission

2. State

- a. Nebraska Department of Natural Resources
- b. Nebraska Department of Environment and Energy
- c. Nebraska Department of Agriculture
- d. Nebraska Forest Service
- e. Nebraska Game and Parks Commission
- f. Nebraska Department of Health and Human Services
- g. Nebraska Department of Roads
- h. Nebraska Emergency Management Agency
- i. Board of Educational Lands and Funds
- j. Nebraska Department of Economic Development
- k. University of Nebraska – Lincoln Cooperative Extension

3. Local

- a. Cities and Villages Governing Bodies
- b. County Governing Bodies
- c. Custer Public Power District

4. Cooperating Associations

- a. Nebraska Association of Resources Districts
- b. Nebraska Water Resources Association
- c. Nebraska Rural Water Association
- d. Nebraska Groundwater Federation
- e. Nebraska Association of County Officials
- f. National Association of Conservation Districts

GOALS and OBJECTIVES

The vision for the Upper Loup NRD is to "work cooperatively with district residents to promote good stewardship of land and water resources."

Upper Loup NRD's mission is to "manage, conserve and protect the District's land and water resources." This mission will be accomplished by protecting the quality and quantity of surface water and groundwater, reducing soil erosion and flooding, promoting agricultural best management practices, forestry and wildlife habitat preservation. These tasks can only be accomplished by working cooperatively with local residents and agencies of local, state and federal government.

The Upper Loup Natural Resources District will strive to fulfill its vision and mission over the duration of this plan. The district has developed a series of goals and objectives associated with the various purposes of the NRD as measures of progress made toward achieving the vision and accomplishing the mission of the NRD.

Soil Conservation & Erosion Control

Goal: Maintain, and where possible improve, the quality and long-term productivity of soil resources of the District, and prevent damage from sediment caused by wind and water erosion.

Objectives:

1. Provide educational information to youth and adults that encourages soil management and tillage practices, which will maintain or improve the quality and productive capability of land resources in the District.
2. Cooperate with the USDA Natural Resources Conservation Service to develop conservation plans and to provide cost-share assistance to landowners for eligible voluntary soil management practices that will reduce wind and water erosion.
3. Implement, update, and enforce sediment and erosion control rules as specified by the Nebraska Erosion and Sediment Control Act and other related legislation.
4. Cooperate with and seek technical advice from local, state and federal agencies relative to best management and tillage practices that will increase effective surface residue and help to prevent erosion.
5. Provide secretarial and personnel assistance to the Natural Resources Conservation Service as deemed necessary and appropriate by the Board for District land and water programs.

Flood Prevention and Control

Goal: Prevention of damages from flood water and flood prevention and control.

Objectives:

1. Update flood plain maps periodically with land use and other changes.
2. Educate public about flood threats and response plans.
3. Assist district villages and counties in flood prevention planning and flood control projects and measures.

Groundwater Resources Management

Goal: Develop management programs to extend groundwater reservoir life to the greatest extent practicable, consistent with beneficial use of the groundwater and best management practices of groundwater aquifers within District boundaries.

Objectives:

1. Administer District's Groundwater Management Area Rules and Regulations, Groundwater Management Plan, Voluntary Integrated Water Management Plan, Lower Platte River Basin Plan, in order to conserve groundwater supplies, protect stream flows in order that beneficially usable quantities of water remain in the aquifer.
2. Conduct monitoring and other data collection activities necessary for interpretation of changes in groundwater levels.
3. Cooperate with other agencies to plan and conduct data collection activities related to groundwater quantity.
4. Inform citizens, furnish educational materials and provide education programs about District activities and principles of water conservation.
5. Assist with the implementation of Best Management Practices and beneficial uses by agriculture, municipalities, domestic and industrial users.
6. Provide cost-share assistance to landowners for eligible voluntary water conservation management practices.
7. Conduct studies and research to better understand and manage groundwater in the District.

Water Quality and Pollution Control

Goal: Protect water and land resources from contamination, enhance and maintain the quality of land, surface water and groundwater resources of the District.

Objectives:

1. Update as needed and administer its Groundwater Management Plan and Groundwater Management Area rules and regulations.
2. Administer the Nebraska Chemigation Act rules and regulations.
3. Assist local political sub-divisions in implementing wellhead protection areas.
4. Maintain and expand the District's water quality monitoring program to enhance the water quality database.
5. Work with the agriculture sector to inform and educate better application practices of fertilizers containing nitrogen to improve nitrogen use efficiency.
6. Provide education, technical and cost share assistance to implement Best Management Practices to reduce potential pollution.
7. Assist district villages, counties, civic organizations, businesses, and individuals with solid waste reduction planning and recycling.
8. Maintain and expand as needed the District's recycling program.
9. Increase public awareness of the importance of protecting natural resources from contamination by either point or non-point sources of pollution.

Drainage Improvement and Channel Rectification

Goal: Assist with development of drainage systems that reduces damage from storm water and groundwater seepage.

Objectives:

1. Encourage landowners to maintain natural drainage of their property to prevent flooding of adjacent property.
2. Assist with the implementation of Best Management Practices.
3. Work closely with counties and road superintendents to improve drainage along county roads.

Wildlife Habitat and Recreation

Goal: Preserve, develop and manage wildlife habitat and assist district communities with the development of recreational facilities for public use.

Objectives:

1. Cooperate with federal and state agencies, private organizations, and individuals to establish projects that improve wildlife habitat.
2. Provide tree and shrub planting services to private landowners for the establishment or enhancement of wildlife habitat areas.
3. Encourage private landowners to preserve wetlands where practical.
4. Cooperate with district villages, counties, political sub-divisions, civic organizations, and businesses that are developing outdoor recreational facilities for the public.

Forestry and Range Management

Goal: Maintain and improve the quality of woodlands and grasslands for soil and water conservation, as well as livestock production and wildlife.

Objectives:

1. Continue the District's tree planting program for establishment of windbreaks, shelterbelts, living snow fences and wildlife habitat.
2. Expand tree species inventory to avoid problematic tree diseases.
3. Cooperate with local political sub-divisions, civic groups and individuals to promote tree planting by providing free trees to schools and groups and cost-share programs to individuals.
4. Continue to promote planned grazing systems and provide cost-share on the establishment of eligible grassland, grazing, and other effective management practices.
5. Discourage the conversion of highly erodible rangeland for row crop production.
6. Continue cooperation with landowners and other agencies, an active noxious weed control program.
7. Furnish no-till grass drills and gopher machines for use by district residents.