



**LEWIS & CLARK**  
**NRD** NATURAL  
RESOURCES  
DISTRICT  
*Protecting Lives Protecting Property Protecting the Future*

608 N. Robinson  
P.O. Box 518  
Hartington, NE 68739  
Office: (402) 254-6758  
Fax: (402) 254-6759  
Email: [lcnrnd@hartel.net](mailto:lcnrnd@hartel.net)

RECEIVED

OCT 01 2009

DEPARTMENT OF  
NATURAL RESOURCES

September 30, 2009

Brian Dunnigan  
NE Dept of Natural Resources  
301 Centennial Mall South, 4<sup>th</sup> Floor  
POB ox 94676  
Lincoln NE 68509-4676

Dear Brian:

Enclosed is a copy of the Lewis & Clark NRD's Master Plan and Long Range Implementation Plan. The Board of Directors approved the plan at their September 18<sup>th</sup> meeting. If you have any questions or comments let me know.

Sincerely,

*Marilyn Schumacher*  
Marilyn Schumacher  
Admin Sec'y

cc Game & Parks  
NARD  
Neighbor NRDs  
NRCS Offices



# LEWIS & CLARK

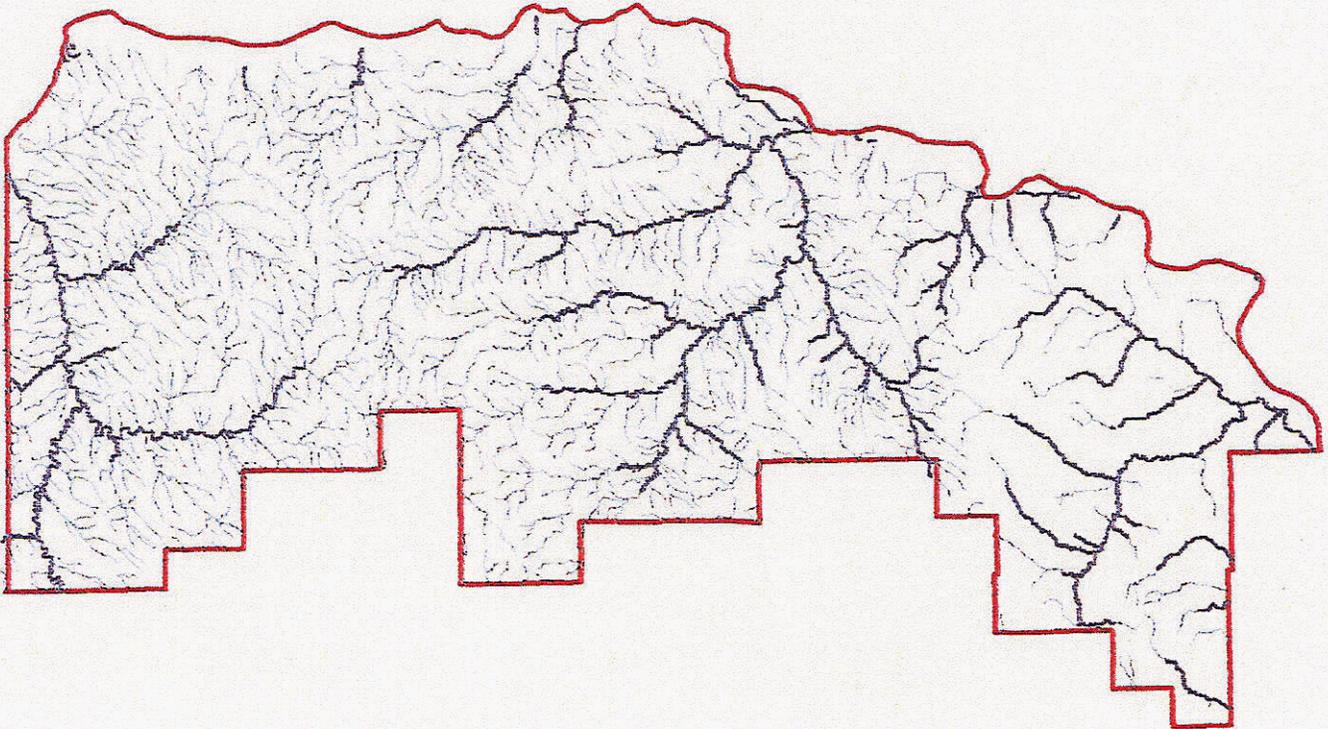
---

# NRD

NATURAL  
RESOURCES  
DISTRICT

*Protecting Lives Protecting Property Protecting the Future*

## Master Plan



September 2009  
RECEIVED

OCT 01 2009

DEPARTMENT OF  
NATURAL RESOURCES

## **ADOPTION RESOLUTION**

This Comprehensive Master Plan was adopted by the Lewis & Clark Natural Resources District Board of Directors at their regular monthly meeting held September 17, 2009, at Hartington, Nebraska

**DIRECTORS:**

- Danny Schaefer**
- Ron Wortmann**
- Marcel Kramer**
- Mary Ann Wortmann**
- Gary Howey**
- Curtis Armstrong**
- Dan Kollars**
- Bill Christensen**
- Mark Fehringer**
- Leroy Hoelsing**
- Jack Fuchtman**

**NRD STAFF:**

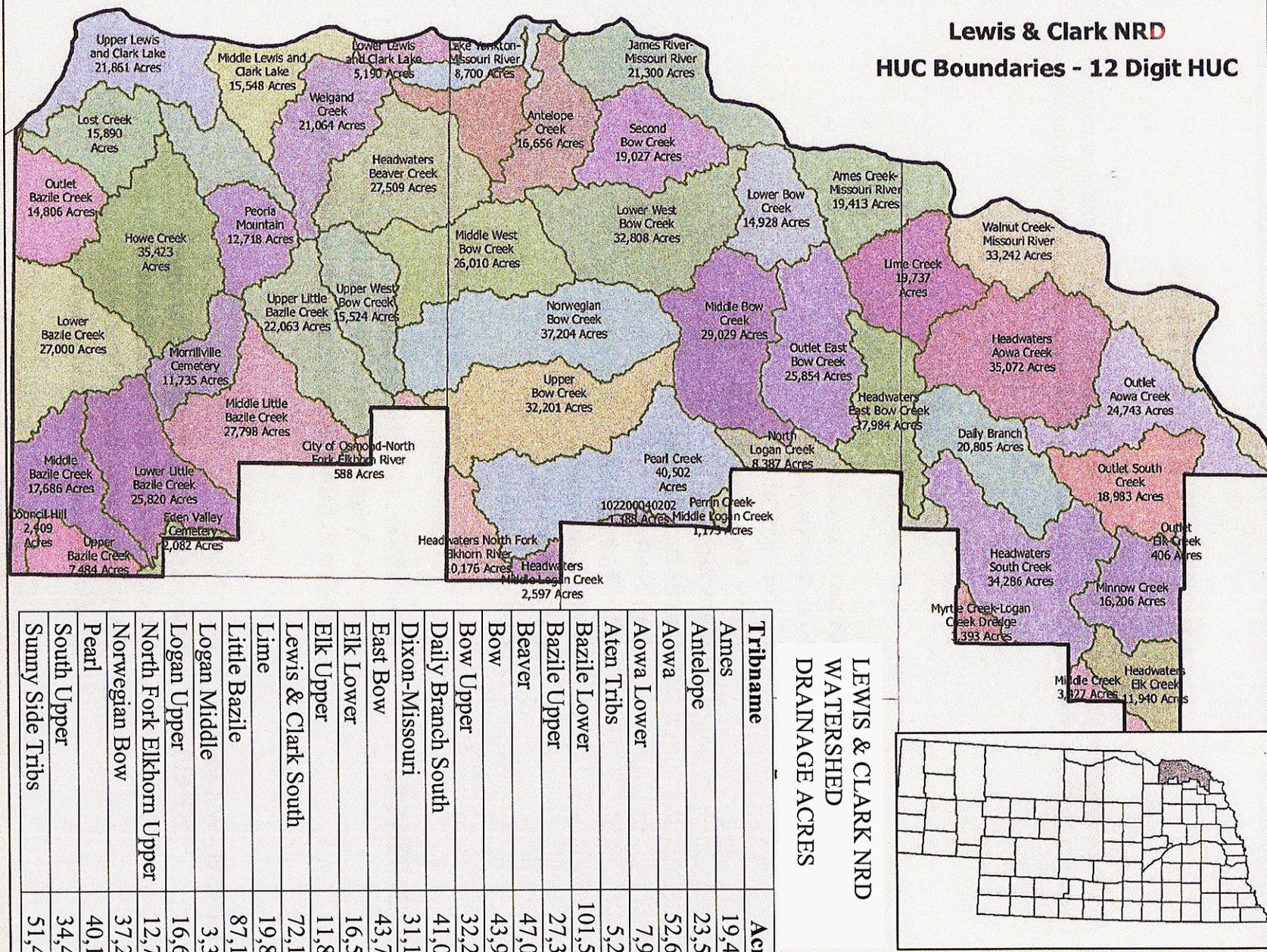
- Tom Moser, General Manager**
- Terry Julesgard, Resource Technician**
- Marilyn Schumacher, Administrative Secretary**

**RURAL WATER  
STAFF:**

- Gene Schroeder, Project Manager**
- Galen Jueden, Field Technician**
- Gary Eckmann, Plant Operator**
- Marla Wortmann, Bookkeeper**

# Lewis & Clark Natural Resources District

Lewis & Clark NRD  
HUC Boundaries - 12 Digit HUC



LEWIS & CLARK NRD  
WATERSHED  
DRAINAGE ACRES

Tribname	Acres
Ames	19,482
Antelope	23,520
Aowa	52,627
Aowa Lower	7,968
Aten Tribs	5,286
Bazile Lower	101,597
Bazile Upper	27,389
Beaver	47,070
Bow	43,942
Bow Upper	32,245
Daily Branch South	41,007
Dixon-Missouri	31,103
East Bow	43,747
Elk Lower	16,555
Elk Upper	11,861
Lewis & Clark South	72,122
Lime	19,848
Little Bazile	87,187
Logan Middle	3,337
Logan Upper	16,631
North Fork Elkhorn Upper	12,754
Norwegian Bow	37,218
Pearl	40,164
South Upper	34,464
Sunny Side Tribs	51,478

## Master Plan Objectives

<b>AREA</b>	<b>GOAL</b>	<b>OBJECTIVES</b>
<b>A. WATER QUANTITY &amp; QUALITY</b>	Protect the quantity and quality and promote effective management	A.1) Monitor changes in Districts water table levels A.2) Define Districts aquifers and available supply A.3) Promote Best Management Practices and Irrigation Management with information and cost-share programs A.4) Resolve conflicts of use by mutually acceptable solutions A.5) Administer Chemigation program to protect irrigation well sites A.6) Monitor changes in Districts nitrate and pesticide levels A.7) Investigate areas of concern for Groundwater Management Areas A.8) Coordinate problem resolution on contamination occurrences A.9) Investigate nutrient and sediment control in watershed lakes
<b>B. WATER SUPPLY</b>	Protect existing supplies and promote Alternative sources	B.1) Provide Rural Water Project to meet public need B.2) Train and educate directors and staff on local, state and federal issues B.3) Provide guidance on alternative sources of drinking water B.4) Promote Wellhead Protection Areas efforts with area communities
<b>C. SOIL CONSERVATION</b>	Install conservation practices and encourage proper management	C.1) Provide cost-share programs to reduce soil erosion C.2) Re-establish grass vegetation on marginal land C.3) Provide technical assistance and education to promote conservation C.4) Promote conservation ethics by information and education C.5) Administer Buffer Strip Program C.6) Monitor Conservation Plans for practice maintenance C.7) Continue self-education efforts for directors and staff C.8) Enforce compliance with the Erosion and Sediment Control Act*
<b>D. MISSOURI RIVER &amp; RECREATIONAL AREAS</b>	Promote opportunities on private and public land	D.1) Provide public use and Wildlife Management Areas D.2) Support Recreational River concept and participate in planning D.3) Coordinate with US Corps of Engineers on bank protection maintenance D.4) Assist Communities in conservation and park development D.5) Provide for public access through NRD habitat programs D.6) Facilitate tourist information with Corps of Discovery Welcome Center D.7) Develop Trail Projects

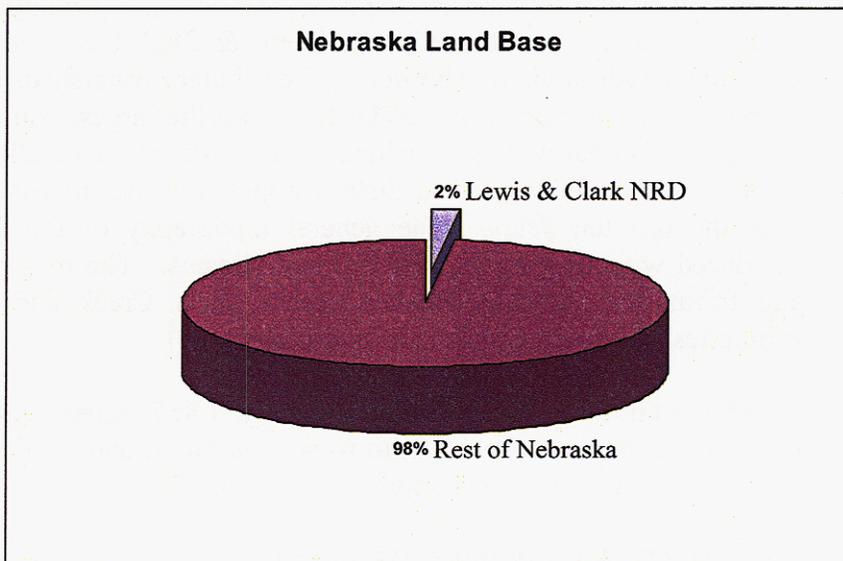
## Master Plan Objectives

AREA	GOAL	OBJECTIVES
E. INFORMATION & EDUCATION	Inform public on natural resource purpose function and projects	E.1) Provide news releases on District activities and distribute information E.2) Focus on youth education with scholarships and presentations E.3) Present public information meetings on resource issues E.4) Continue self-education on resource management E.5) Provide awards programs of conservation recognition E.6) Promote demonstration projects and tours on District activities E.7) Include city and county agencies on NRD activities
F. FLOOD PREVENTION	Complete active watershed projects and continue planning others	F.1) Reduce flood damage on Aowa Creek Watershed with structures F.2) Maintain function of existing flood control dams F.3) Work with County boards on road structures promotion F.4) Provide cost-share for structural control with private landowners F.5) Work with communities on flood prevention efforts
G. FORESTRY & PASTURE MANAGEMENT	Conserve, improve and increase efficient pasture use and promote the planting of conservation trees	G.1) Provide grass drills to re-establish grassland G.2) Coordinate tree planting services with private landowners Assistance Program G.3) Provide cost-share on tree and grass installation G.4) Encourage mitigation plantings on district flood structure sites G.5) Promote efficient management on existing rangeland G.6) Assist communities with tree needs through a Community
H. WILDLIFE HABITAT	Preserve and re-establish cover on private land	H.1) Provide habitat programs to set-aside marginal land H.2) Coordinate Wildlife Management Areas with NE Game & Parks Commission H.3) Promote CRP enrollment with NRCS H.4) Assist private landowners in fish stocking application H.5) Work with local groups to improve habitat creation
I. SOLID WASTE & DRAINAGE	Facilitate proper management methods	I.1) Resolve conflicts with technical guidance I.2) Review livestock waste permits for resource risks

# MASTER PLAN

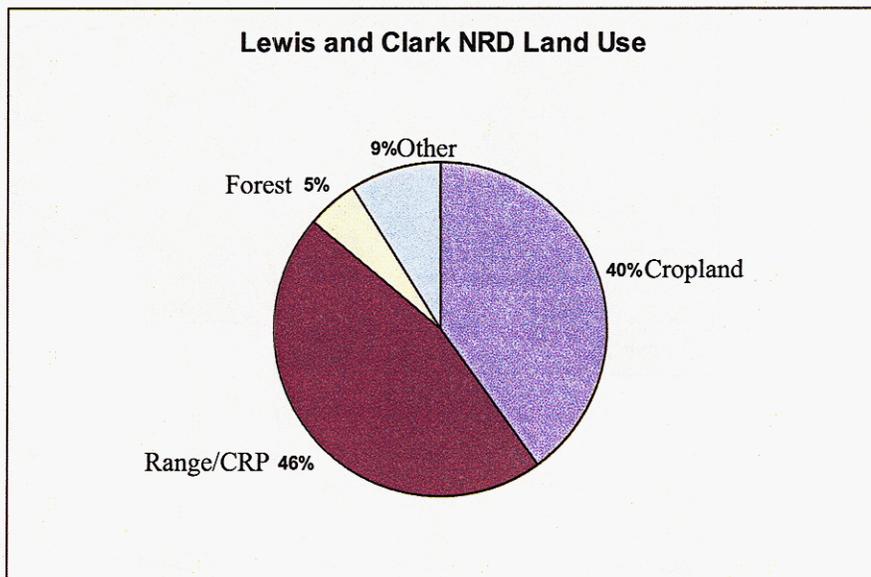
## BACKGROUND & PURPOSE

Natural Resources Districts were created by the Nebraska Legislature in 1972 (Section 2-3201). They were a result of the combination of Soil and Water Conservation and Special Purpose Districts and established according to river basins to meet resource related needs. They are given statute authority to develop and administer plans, facilities, and programs for local natural resource problems.



As required by Section 2-3276, a Master Plan shall be prepared and reviewed every 10 years. The Master Plan shall include goals and objectives for the purposes of natural resources issues, while objectives will describe District methods directed at achieving those goals. This plan is intended to be a guide to help attain the Lewis & Clark Natural Resources District purposes set forth in Section 2-3229 and consolidated into the following order:

1. Water Quantity and Quality
2. Water Supply
3. Soil Conservation
4. Missouri River
5. Information and Education
6. Flood Prevention
7. Forestry and Pasture Management
8. Wildlife Habitat
9. Solid Waste and Drainage



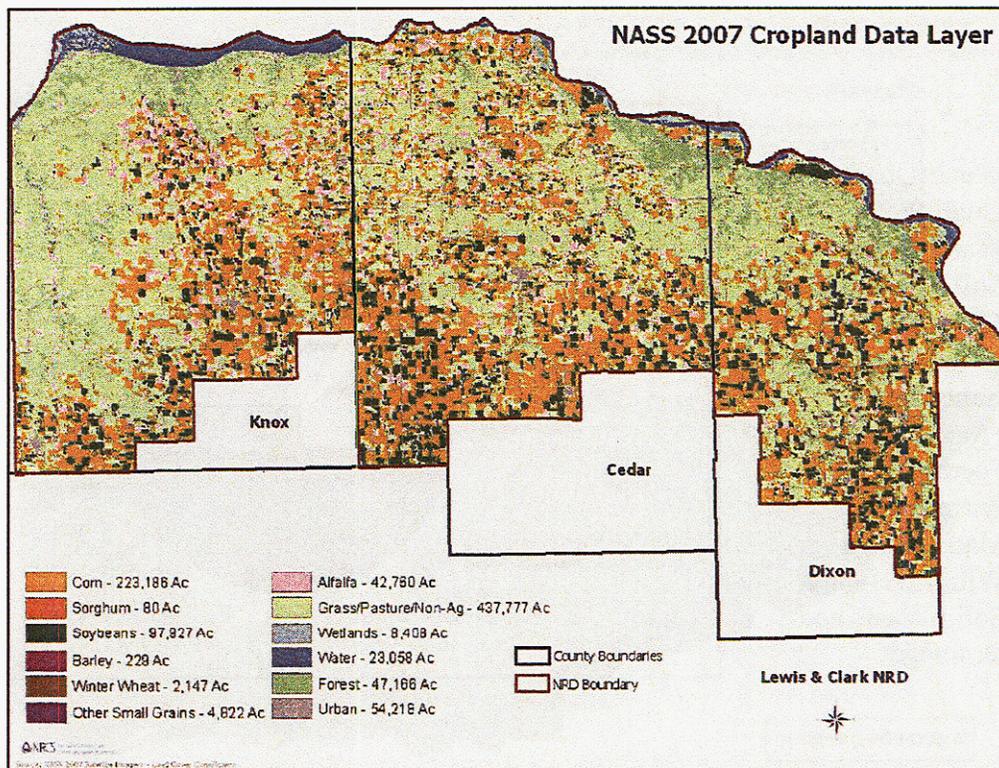
## DISTRICT DESCRIPTION

Located in extreme northeastern Nebraska, the Lewis & Clark NRD is defined on the basis of watershed boundaries and consists of the eastern half of Knox and the northern portions of Cedar and Dixon Counties. The District is part of the Missouri Tributaries River Basin. Its western boundary begins in central Knox County and extends eastward through Cedar and Dixon Counties with the Lewis & Clark Lake and Missouri River at its northern edge and a hydrologic line bordering the tributary watersheds as the southern boundary. It is primarily a rural, farm oriented District with the largest communities being Hartington and Creighton. Other villages include Ponca, Allen, Newcastle, Wynot, Coleridge, Crofton, Center and Bloomfield. The district population overall has trended to decrease gradually over the last ten years. The general topography of the District is gently rolling hills interlaced with flowing and intermittent streams. The major streams are the Bazile Creek and tributaries, Antelope-Beaver Creeks, Bow Creek and tributaries, Aowa Creek and tributaries and South Creek. (See hydrology map)

The total land area is approximately 1,467 square miles, or 956,300 acres. The approximate distance from east to west is 68 miles, and from north to south is 30 miles. The population of the District is approximately 16,377.

## DISTRICT RESPONSIBILITIES

The Lewis & Clark Natural Resources District is a multi purpose local unit of Nebraska government with the responsibility of management, development and protection of the soil and water resources within its boundaries. An elected board of directors makes decisions and hires staff as necessary to carry out district activity. The directors are elected via the primary and general election for a term of four years.



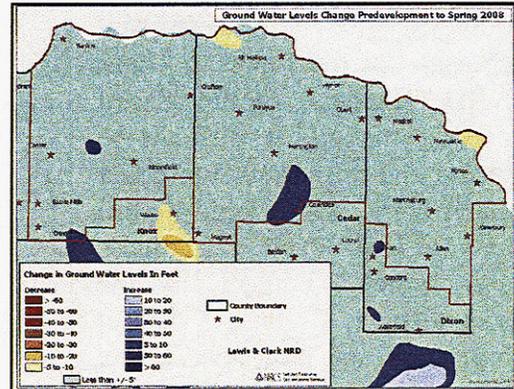
# RESOURCE GOALS AND OBJECTIVES

## WATER QUANTITY AND QUALITY

The Groundwater Management Plan documents the limited groundwater quantities in the Lewis & Clark NRD. With the district's complex groundwater system consisting mainly of glacial deposits which make it difficult to locate and withdraw significant quantities of water for irrigation or even domestic uses, presents many challenges to the NRD. Depth to groundwater is usually 50 feet to 200 feet and the static levels have remained very constant. Surface water from streams and the Missouri River provide a limited source of water for irrigation, with the majority of water supply utilized from the 967 irrigation wells in the NRD.

Irrigation usage is generally limited to the southern half of the district and some scattered development along the Missouri River. Supplies for irrigation are monitored closely with bi-annual static water level measurements.

Water quality in the Lewis & Clark NRD is rated good to excellent by technical standards but is somewhat high in total dissolved solids; and in recent years has been subject to isolated contamination by nitrate-nitrogen. Concerns on quality issues are rated serious by the district because of the economic benefits related to prevention of contamination over remedial actions. Present programs are aimed to determine quality status by monitoring efforts of scope and trends. For more information, refer to the Lewis & Clark Natural Resources District Groundwater Management Plan.



## GOAL

To protect the quantity and quality of the present groundwater aquifers and to promote efficient management to both ground and surface water to prevent pollution for occurring.

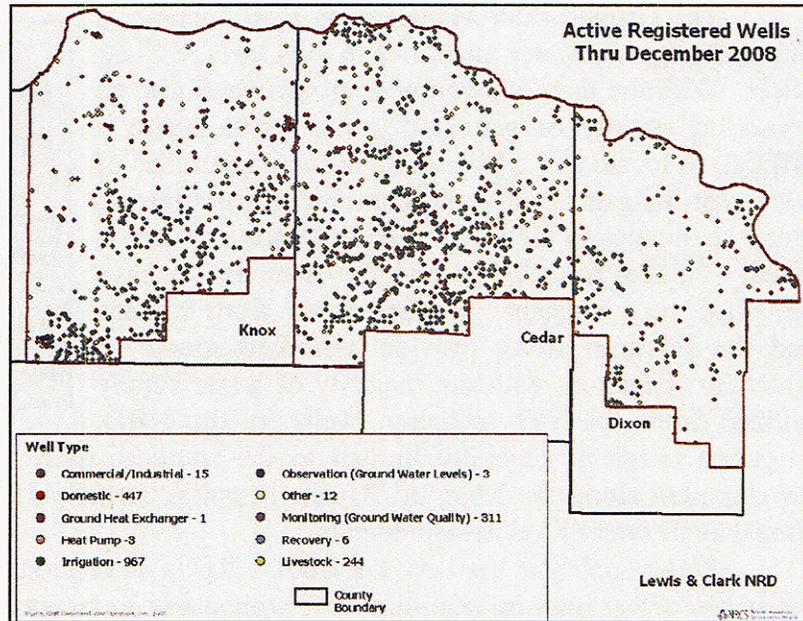
## OBJECTIVES

1. Monitor water supply throughout the NRD on a semi-annual basis for static water level information.
2. Better define districts aquifers and available supply using the best science available.
3. To encourage proper irrigation management to reduce waste of supply and discourage contamination causing irrigation practices.
4. To attempt to resolve conflict of use by working with both sides to seek a mutually acceptable solution.
5. To administer the Chemigation Permitting Program and inspection program to protect groundwater supplies from chemical spills and misuse.
6. Monitor water quality throughout the NRD on an annual basis for nitrate-nitrogen levels and periodically for pesticides and herbicides.
7. Investigate areas of concern for developing Groundwater Management Areas.
8. Coordinate problem resolutions for contaminated water supplies.
9. Investigate nutrient and sediment control in watershed lakes.

## WATER SUPPLY

Water supply for domestic use is a significant concern for the Lewis & Clark NRD. Because of the glacial deposit making it difficult to locate and withdraw significant water supplies for domestic use and the high levels of hardness and mineral content in the groundwater, the district organized and now administers the Cedar/Knox Rural Water Project. The Project utilizes the Missouri River as its source to provide drinking water as one of the few surface water treatment systems in the state. The system presently serves 760

rural customer and the communities of Crofton, Fordyce, Obert and Saint Helena and is staffed with three operators and a bookkeeper. A self-assessment Improvement Project Area, it was built in 1981 and had a major expansion in 1991. This availability of a quality source of supply along with a solid reputation has made the project a major utility service in the district.



## GOAL

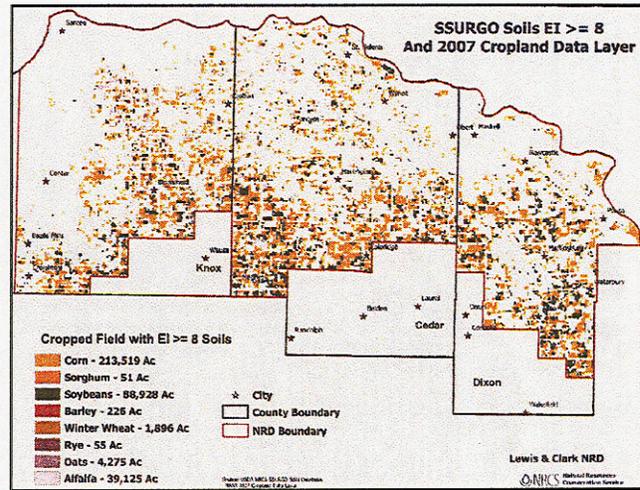
To take steps necessary to protect and control present water supply with efficient management and to strive for alternative sources when quality supplies are not available.

## OBJECTIVES

1. To continue to provide alternative water supply through rural water projects and work to establish expanded or separate systems where economic potential and dedicated local interest warrants such action.
2. To train and educate directors and staff on water supply management and Clean Water Act requirements.
3. Provide guidance to communities and individuals on alternative sources for drinking water.
4. Promote Wellhead Protection programs with area communities to protect and prevent future contamination influences on public water supplies.

## SOIL CONSERVATION

The Lewis & Clark Natural Resources District sees this as a serious resource need in the district. Even though farming practices have improved, the district is still seeing soil erosion rates over the erodibility index (E.I.) recommended level. The majority of this is coming off cropland which accounts for half of the NRD, but management problems exist on rangeland as well. The 2007 Nebraska Resources Inventory shows a need for erosion control practices to provide the land treatment necessary, and the NRD has ongoing programs including cost-share incentive programs. Financial resources alone will not solve the soil erosion problem as technical assistance and lack of conservation ethics are also limiting factors in efforts to obtain goals. Federal programs and economic burdens are also playing a prominent role.



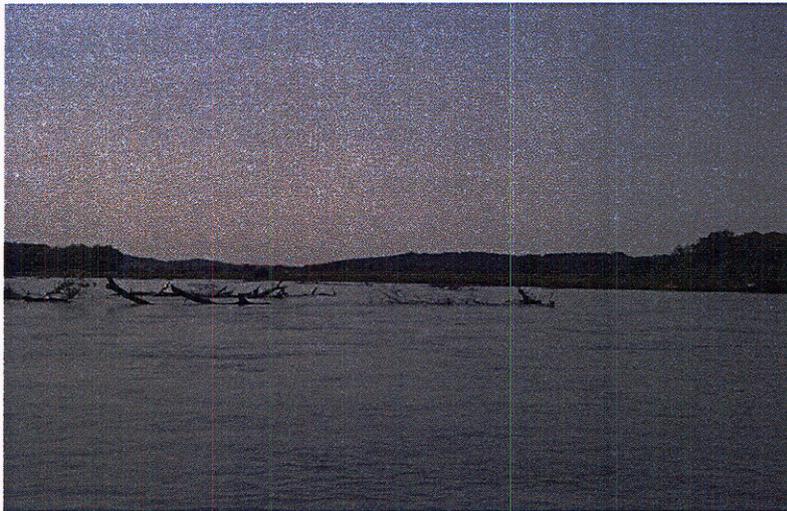
## GOAL

To achieve land treatment needs on district acres by increasing application of best management practices on erodible cropland and reduce sediment runoff on range land by encouraging proper management.

## Objectives

1. To provide cost-share incentive funding for soil and water conservation practices that reduce soil erosion from cropland.
2. To re-establish grass vegetation on marginal land by providing grass drill services or enrollment in habitat programs for set-aside.
3. To provide technical assistance personnel for promoting conservation practices by paying for employees to work with NRCS.
4. To promote conservation ethics by means of educational programs, demonstrations, awards and soil stewardship activities.
5. To sponsor and promote construction of buffer strip practices.
6. To monitor Conservation Agreement Plans for continued maintenance of existing land treatment methods.
7. To continue self education efforts of directors and staff on modern soil conservation techniques.
8. To enforce compliance with soil loss limits according to the Sediment and Erosion Control Act

## **MISSOURI RIVER**



Clark Lake and along the Missouri River draw ample usage both locally and regionally and the district sees a need to both provide complementary public facilities as well as access to private lands.

### **GOAL**

To promote recreational opportunities on private land and provide selected public facilities of outdoor recreation.



Because of its location adjacent to the Missouri River, the Lewis & Clark NRD has attractive natural features and potential for recreation. This resource is a valid project purpose to consider in formulation, design and management of development efforts. Fishing, hunting and water related activities are important concerns of the district. The present public facilities provided at Lewis and

### **OBJECTIVES**

1. To cooperate with Nebraska Game and Parks Commission in management of existing Wildlife Management Areas or State Recreation Areas for public use.
2. To continue support of the Missouri National Recreational River concept and participate in its implementation on a federal level.
3. To work with private landowners and the US Army Corps of Engineers to accomplish needed maintenance of Section 32 Bank Protection installations along the Missouri River.
4. To assist communities in the planning and design of conservation and park development.
5. To provide incentives for public access to lands enrolled in the Wildlife Habitat Improvement Program.
6. To facilitate tourism usage in the area by sponsoring construction and operation of the Corps of Discovery Welcome Center.
7. To develop public use trails to promote resource awareness and wellness benefits.

## **INFORMATION AND EDUCATION**



A resource area in itself, the information and education efforts of the Lewis & Clark NRD is an aspect which bears individual mention. Public awareness on NRD activities not only makes them more acceptable but is a responsible function of any tax supported agency. Besides making conservation material available, the district believes in an assertive approach to education and

demonstrates its role in local resource management. That role consists of utilization of the media, working with local groups and direct contact with the public. The problems of public education are in how to best get the message across.

### **GOAL**

To inform the general public of the purpose, function and activities of the NRD and instill in them respect for our natural resources.

### **OBJECTIVES**

1. To provide news releases on regular board meeting activities and distribute information on resources conservation to churches, schools and other public institutions.
2. To focus special emphasis on youth recognition and education programs to insure proper resource use in the future.
3. To hold public information meetings on resource issues for the benefit of those affected.
4. To constantly strive to educate directors and staff in all methods of resources management.
5. To provide awards programs of recognition for those who strive to improve resource conservation.
6. To promote demonstration projects and tours which allow public viewing of conservation efforts in programs.
7. To provide local government, specifically cities and counties, NRD activity information at least once every year.

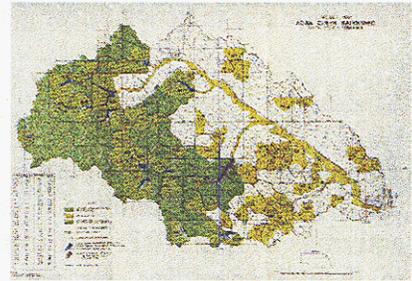


## **FLOOD PREVENTION**

The Lewis & Clark NRD receives average annual rainfall of 22 to 24 inches, which together with rolling hills and loess soils provide significant flooding potential. The NRD has been active in providing flood control structures and has had three Resource Development Fund Flood Control Projects financed in the past by the Natural Resources Commission – Antelope Creek (1986) and Aowa Creek (1980-2009). In addition, the District has, over the years, helped communities finance road structures to replace high cost bridges with flood controlling dams. Payment of up to 50% of the cost is provided if 75% of the drainage above the site is under proper land treatment.



The Aowa Creek PL-566 Watershed Project is complete with 50 grade stabilization and flood control dams installed. The project is 55,000 acres in size and with assistance of the Dixon County Board has already provided benefits to the communities of Newcastle and Ponca. The Antelope Creek Project, in Cedar County, now Chalkrock Wildlife Management Area controls drainage off 11,500 acres besides providing recreation on land donated by area farmers for flood control.



The District continues to consider other flood control structures and methods where appropriate.

## **GOALS**

To work toward completion of active watersheds and their correlating land treatment and to continue planning efforts on other watersheds in the District.

## **OBJECTIVES**

1. To reduce flood damage in the Aowa Creek Watershed by providing sponsorship to build structures.
2. To maintain existing watershed structures in functional condition for continued flood control.
3. To reduce flood runoff by assisting in the cost of road structures in conjunction with county boards.
4. To provide cost-share assistance to private landowners for flood control and grade stabilization dams as well as other conservation practices to reduce sediment runoff.
5. To work with communities on flood prevention solutions to reduce damage from heavy rain events.

## **FORESTRY AND RANGE MANAGEMENT**

Forested areas are limited to only about three percent of the Lewis & Clark NRD; mostly the bluff areas along the Missouri River and farmstead windbreaks. Native rangeland and pasture areas account for forty-six percent respectively of the total acres in the District. Only about a third of the grassland areas are adequately protected which indicates a need



also causing excessive erosion.

for grazing management and grassland improvement on the majority. Overgrazing is a critical problem, not only affecting grass composition but



### **GOAL**

To conserve, improve and increase efficient range and pasture management and to preserve and plant trees in the district.

### **OBJECTIVES**

1. To provide grass drill service to re-establish grass vegetation on marginal cropland in the NRD
2. To assist landowners in establishing tree belts by providing an annual tree-planting program.
3. To provide cost-share for planting of trees and seeding of grass.
4. To encourage mitigation tree planting in PL-566 structures with local landowners for re-establishing woodland habitat.
5. To utilize information and education programs to promote efficient grassland management on private land.
6. Assist communities in developing tree and landscape projects through the Community Assistance Program

## **WILDLIFE HABITAT**

Recognizing that wildlife is an indicator of the healthy resources in the District and that habitat or "home" for wildlife is the most limiting factor of any species the Lewis & Clark NRD feels an obligation for strong commitment to this resource area and the resulting benefit it provides. The District has a wide variety of native and adapted fish and wildlife species. Surface waters are classified as warm water rivers, streams and ponds. Vegetation varies from cropland, to pasture, to native range over rolling hills intermixed with woodland mostly along streams or at farmsteads. The Missouri River and Lewis and Clark Lake are notable features that provide exclusive fish and waterfowl habitat.

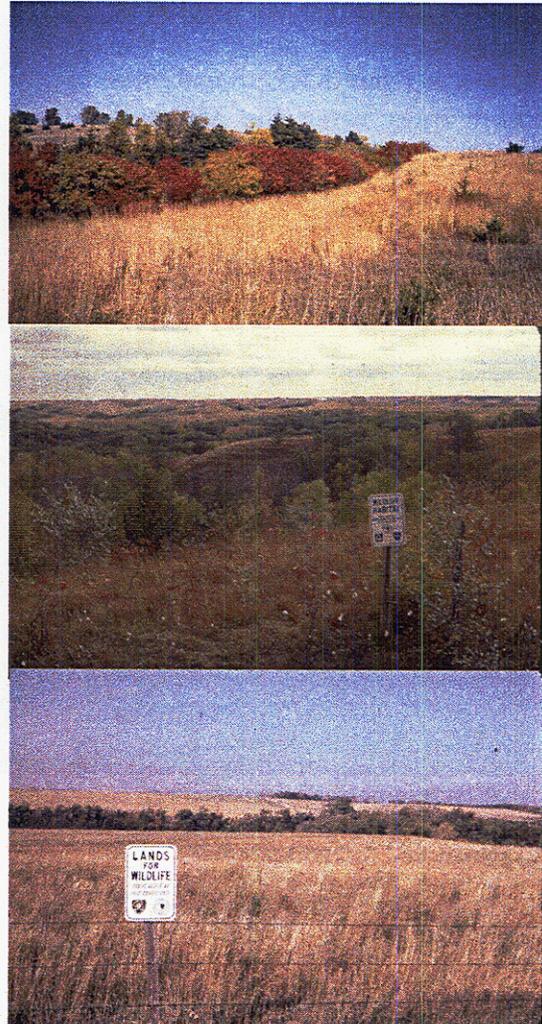
All of these features combine to provide a diverse community for fish and wildlife populations which fluctuate with change in private land use. The efforts of the District are directed to maintain and improve habitat, not only for the sake of wildlife but because of the benefits in soil erosion control with grassland management resulting, and to work cooperatively with the Nebraska Game & Parks Commission in doing so.

### **GOAL**

To encourage re-establishment of protective grass and woody vegetative cover on private land and preserve existing wildlife habitat.

### **OBJECTIVES**

1. To provide a Wildlife Habitat Improvement Project for set aside of marginal land into protective cover.
2. To coordinate and participate with Nebraska Game and Parks Commission in management of Wildlife Management Areas at Buckskin Hills, Chalkrock Lake and Powder Creek.
3. To encourage and support Conservation Reserve Program enrollment with NRCS and FSA to provide grassland seeding and maintenance of those seedings.
4. To assist private landowners in application for fish stocking operation by Nebraska Game & Parks Commission.
5. To work with local groups on habitat establishment concepts.



## **SOLID WASTE AND DRAINAGE**

Nebraska Statute 2-3229 assigns limited general responsibilities to Nebraska Resources Districts relating to solid waste disposal and drainage projects, neither of which carry a high priority at this time in the opinion of the Lewis & Clark NRD Board of Directors (Sept. 2009). As defined by statute, drainage issues have not been publicly raised to the NRD and solid waste disposal has been addressed by state agencies (Dept. Environmental Quality). The NRD however does remain open to future concerns.

### **GOAL**

To facilitate, where necessary, the proper management of solid waste disposal within NRD boundaries and to assist individual requests for solution on drainage problems.

### **OBJECTIVES**

1. To work with communities and private landowners to resolve conflicts and help them retain adequate technical guidance on potential solutions within the authority of the NRD
2. To review livestock waste control facility permit requests to determine if they pose a risk to groundwater quality or other natural resources in the district.