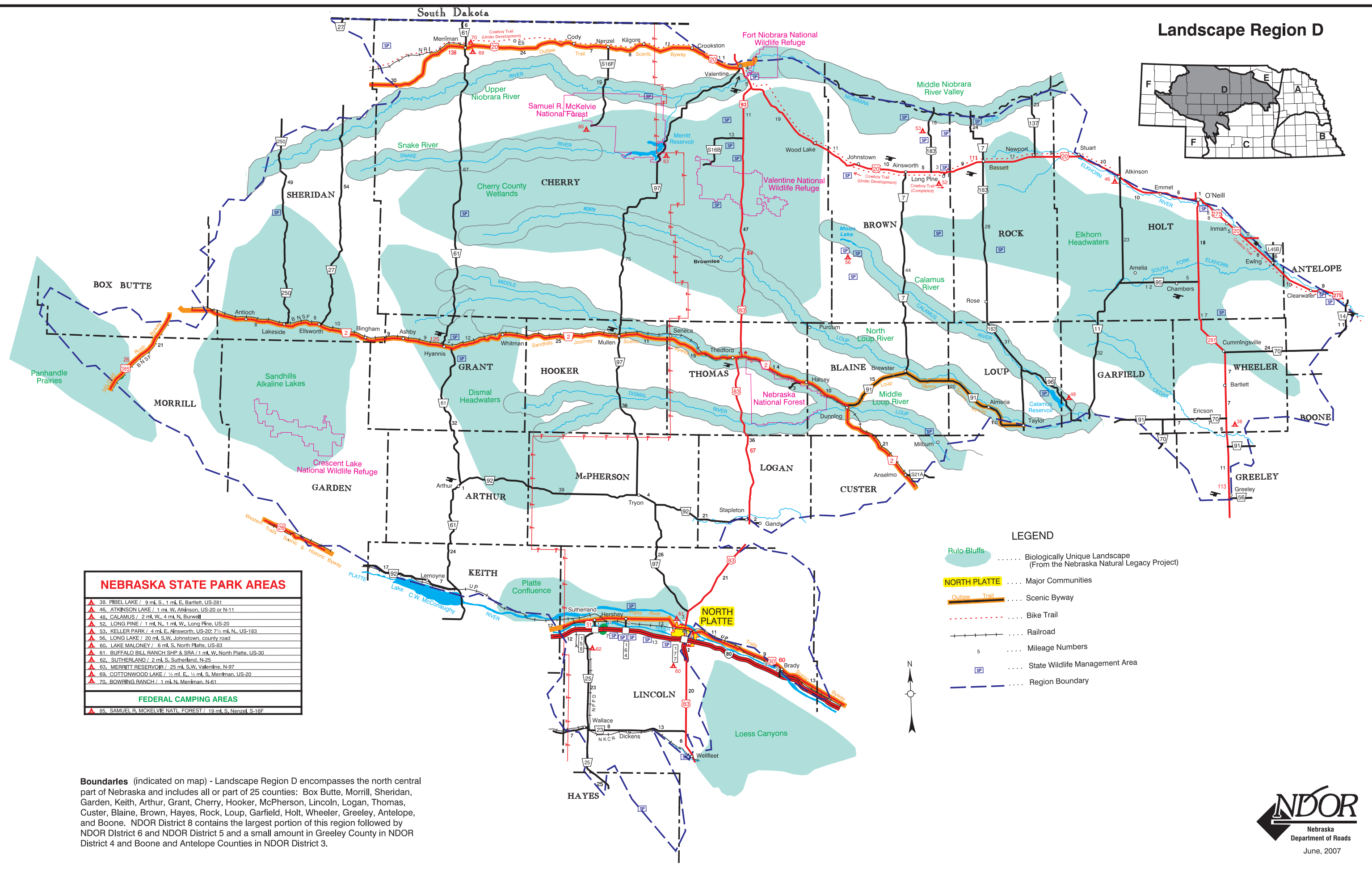
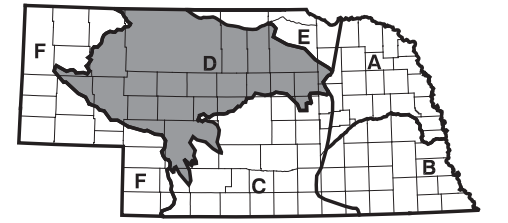




Nebraska Department of Roads

# PLAN FOR THE ROADSIDE ENVIRONMENT

# Landscape Region D



NEBRASKA STATE PARK AREAS	
▲ 38. PIBEL LAKE / 9 mi. S. 1 mi. E. Bartlett, US-281	
▲ 46. ATKINSON LAKE / 1 mi. W. Atkinson, US-20 or N-11	
▲ 48. CALAMUS / 2 mi. W., 4 mi. N. Burwell	
▲ 52. LONG PINE / 1 mi. N., 1 mi. W., Long Pine, US-20	
▲ 53. KELLER PARK / 4 mi. E. Ainsworth, US-20; 7 1/2 mi. N., US-183	
▲ 56. LONG LAKE / 20 mi. S.W. Johnstown, county road	
▲ 60. LAKE MALONEY / 6 mi. S. North Platte, US-83	
▲ 61. BUFFALO BILL RANCH SHP & SRA / 1 mi. W. North Platte, US-30	
▲ 62. SUTHERLAND / 2 mi. S. Sutherland, N-25	
▲ 63. MERRITT RESERVOIR / 25 mi. S.W. Valentine, N-97	
▲ 69. COTTONWOOD LAKE / 1/2 mi. E., 1/2 mi. S. Merriman, US-20	
▲ 70. BOWRING RANCH / 1 mi. N. Merriman, N-61	
FEDERAL CAMPING AREAS	
▲ 85. SAMUEL R. MCKELVIE NATL. FOREST / 19 mi. S. Nenzel, S-16F	

**LEGEND**

- Rulo Bluffs
- ..... Biologically Unique Landscape (From the Nebraska Natural Legacy Project)
- NORTH PLATTE
- Major Communities
- Outlaw Trail
- Scenic Byway
- - - Bike Trail
- Railroad
- 5 Mileage Numbers
- SP State Wildlife Management Area
- - - Region Boundary

**Boundaries** (indicated on map) - Landscape Region D encompasses the north central part of Nebraska and includes all or part of 25 counties: Box Butte, Morrill, Sheridan, Garden, Keith, Arthur, Grant, Cherry, Hooker, McPherson, Lincoln, Logan, Thomas, Custer, Blaine, Brown, Hayes, Rock, Loup, Garfield, Holt, Wheeler, Greeley, Antelope, and Boone. NDOR District 8 contains the largest portion of this region followed by NDOR District 6 and NDOR District 5 and a small amount in NDOR District 4 and Boone and Antelope Counties in NDOR District 3.



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# Description – Region “D”

## Environmental Components

- **Climate**

- Plant hardiness zone - This region is primarily within Zone 4b of the USDA Plant Materials Hardiness Zone Map with a range of annual minimum temperatures between -20 to -25 degrees Fahrenheit.
- Annual rainfall – Considered semi-arid, participation ranges from 23 inches per year in the east portion of the region to less than 17 inches in the west.

- **Landform** – A fragile sandy rangeland of undulating fields of grass-stabilized sand dunes. Dunes generally align in a northwesterly to southeasterly direction. In the eastern edge, the dunes transition to flat sandy plains with wet meadows and marshes through Rock, Holt, and Wheeler Counties. A distinct lake area exists in the north central portion of the region where the high water table allows nearly 2,000 scattered small shallow lakes. The western end of this Sandhills region contains a second area of small scattered lakes that are moderate to highly alkaline. The alkaline lakes have limited influence from ground water and are in an area referred to as the “closed basin area” generally devoid of streams.

- **General soil types** – Region “D” consists of sand with very little organic matter. These soils are fragile and highly susceptible to wind erosion. Water erosion is of less concern except where water is concentrated in steep ditches. Clay lenses that pond water are found in the western portion of this region.

- **Hydrology**

High infiltration rates, up to 10 feet per day, allow rainwater and snowmelt to percolate rapidly downward. Extensive aquifers, up to 900 feet thick, have formed below the Sandhills in gravel deposits. The underground reservoir is part of the Ogallala aquifer.

- Rivers and streams – Region “D” contains portions of three rivers that have their headwaters outside the region and state. One is the Niobrara River, flowing easterly through the northern Sandhills and forming part of the north boundary with a portion of Region “F”. Seventy-six miles of the Niobrara River are part of the National Wild and Scenic Rivers system from Valentine east to near the Keya Paha/Boyd county line in Region E. The other rivers are the North Platte River and South Platte River that both briefly run easterly through the southern most portion of Region “D”. The Snake River flows east into the Niobrara from its headwaters in the western Sandhills.



Region “D” is the headwaters for southeasterly flowing streams, such as the North Loup, Calamus, Cedar, Elkhorn, and Dismal Rivers which drain much of the central and eastern Sandhills. Their flows are derived almost entirely from groundwater discharge and little from overland flow. The flow of these rivers is remarkably consistent throughout the year and rarely results in floods or dries out from drought. The Sandhills contain many smaller streams, including the Minnechaduzza, Pine, Boardman, and Birdwood Creeks.



- Wetlands and Lakes – The high water table in the north central part of the region has allowed nearly 2,000 shallow lakes and adjacent wetlands to form. Most lakes and wetlands are clustered near stream headwaters. In the western Sandhills, lakes have developed where surface drainage is poor. Sandhill lakes and marshes are generally small and shallow with the greatest depth less than fourteen feet.

Most Sandhills lakes, marshes, and wet meadows are near neutral pH, but alkaline wetlands and lakes are common in the west where salts and carbonates have accumulated in wetland soils. The Sandhills contain some of the Great Plains' largest fens, groundwater-fed wetlands with peat or muck soils. They are often found at the headwaters of streams and the upper end of Sandhill lakes and marshes where groundwater discharge is abundant.

- **Plant Communities**

- Herbaceous–The Sandhills contain a variety of native plant communities ranging from wetlands to dry upland prairie. Two principal terrestrial community types are found and both contain certain sparsely vegetated blowouts. Blowouts are wind-excavated depressions that have a unique plant community that includes the endangered blowout penstemon. Through wide-scale efforts to vegetate these sites, fewer blowouts exist today.

The Sandhills dune prairie community consists of a mixture of sand-adapted grasses including sand bluestem, prairie sandreed, little bluestem, and hairy grama. Typical forbs are stiff sunflower, bush morning glory, and Plains gayfeather.

The Sandhills dry valley prairie community is found between dunes and has taller prairie grasses including big bluestem, indiagrass, and switchgrass. Forbs include prairie goldenrod, white sage, and prairie coneflower.

Wet meadows occur in Sandhill valleys supporting vegetation dominated by sedges, spikerushes, prairie cordgrass and switchgrass. Alkaline wet meadows are dominated by inland saltgrass, foxtail barley, alkali sacaton, meadow bluegrass, and scratch grass.

- Woody – Native woodlands are uncommon in the Sandhills and are found only in fire-protected river valleys and bluffs. Eastern cottonwood, peach leaf willow and coyote willow dominate riparian woodlands along small streams.



Small shrubs such as lead plant, yucca, Arkansas rose and western wild rose, as well as native shrub thickets of chokecherry, wild plum, sand cherry, and snowberry occur as distinct inclusions in the Sandhills dune prairie.

In the northeast and central areas, many deciduous windbreaks have been planted primarily with cottonwood. Some eastern red cedar also was used. Eastern red cedar is becoming invasive in some areas, especially prairie, pasture, and rangeland areas. Control of seed-producing trees may be necessary in these areas.

The middle Niobrara River Valley contains the largest concentration of woodlands in the Sandhills. Eastern deciduous woodlands containing bur oak, basswood, black walnut, and green ash grow on south-facing bluffs. Cool, moist, spring-fed canyons along the south bluff contain glacial relict woodlands dominated by paper birch and

quaking aspen-trees characteristic of more northern environments. The steep, rocky, north river bluffs supports ponderosa pine dominated woodlands characteristic of the Rocky Mountains. Both Sandhills prairie and northern mixed grass prairie are also found along the bluffs. The Middle Niobrara River Valley has been referred to as a biological crossroads because of the diverse mixture of plant and animal species that are found here.

There are two segments of the Nebraska National Forest in the Sandhills, The Samuel R. McKelvie National Forest located southwest of Valentine and the Nebraska National Forest located at Halsey. These are hand planted ponderosa pine forests in the midst of Sandhill prairie, begun in 1902.

- Invasive plants – Bromegrass, Canada thistle, leafy spurge and red cedar are examples of invasive species steadily encroaching on prairie remnants, pastures and the roadsides. Phragmites, tamarix, and Reed’s canarygrass are examples of the invasives threatening the stream and river courses, as well as wetlands.
- Protected plants – The following plants are listed in this region as threatened or endangered by state and/or federal agencies:

Blowout Penstemon (Penstemon haydenii)  
 Western Prairie Fringed Orchid (Platanthera praeclara)  
 Small White Lady’s-Slipper Orchid (Cypripedium candidum)

- **Animals** – The following species are listed in this region as threatened or endangered by state and/or federal agencies.

American Burying Beetle (Nicrophorus americanus)	Whooping Crane (Grus americana)
Topeka Shiner (Notropis topeka)	Bald Eagle (Haliaeetus leucocephalus)
Northern Redbelly Dace (Phoxinus eos)	Interior Least Tern (Sterna antillarum athalassos)
Blacknose Shiner (Notropis heteropsis)	River Otter (Lutra canadensis)
Finescale Dace (Phoxinus neogaeus)	Piping Plover (Charadrius melodus)

- **Biologically Unique Landscapes and Habitats** (as defined in the Nebraska Natural Legacy Project) are areas of the state that have been identified as key habitats that offer the highest likelihood that they will persist over the long term. These areas were selected based on known occurrences of ecological communities and at-risk species and offer the best opportunity for conserving the full array of biological diversity in Nebraska. Disturbance to these areas should be minimized. Habitat preservation in the landscape design is highly desirable. Opportunities to enhance and restore critical habitat should be considered in these areas.

Listed here are the Biologically Unique Landscapes that occur in this landscape region: Cherry County Wetlands – occurs in Cherry County in the northern Sandhills; Dismal River Headwaters – occurs in west central Sandhills in counties of Cherry, Grant, Arthur, McPherson, and Hooker; Elkhorn River Headwaters – occurs in northern Sandhills and includes large portions of Brown, Rock, Holt, Garfield, and Wheeler Counties; Middle Niobrara River Valley – occurs as a 76 mile reach of the river in Cherry, Keya Paha, Rock, and Brown Counties designated as a National Wild and Scenic River; - Sandhills Alkaline Lakes – occurs in Sheridan, Morrill, and Garden Counties in the Western Sandhills; Snake River – includes the upper reaches of the Snake River from the western end of Merritt Reservoir westward to the stream’s headwaters; Upper Loup

Rivers and Tributaries – includes the upper reaches of the Middle Loup, Dismal, North Loup, and Calamus from their headwaters in the central Sandhills, southeastward to where the rivers enter the Loess hills; Panhandle Prairies – mostly in northern Landscape Region “F”.

### **Sociological Components**

- **Area history** – This region of grass stabilized sand dunes remains sparsely populated and in a relatively unspoiled natural condition. Considered a desert through the 1850’s, early ranchers discovered the potential in rangeland for cattle production and how fragile the area is to overgrazing. Attempts at large-scale crop production through center pivot irrigation in the 1970’s was unsuccessful. These areas were reseeded to grasses and 95% of the Sandhills is maintained as grasslands for livestock production.
- **Economic features** – Ranching is the primary economic activity. Nature-based tourism recreation along the Niobrara, Dismal, and Loup Rivers continues to expand.
- **Land use / Ag type** – Dominated by grassland for cattle production. Large amounts of public land in three National Wildlife Refuges, two National Forests, State Wildlife Management areas, State parks.

Federal lands in this region include: Fort Niobrara National Wildlife Refuge in Cherry County; Samuel R. McKelvie National Forest in Cherry County; Valentine National Wildlife Refuge in Cherry County; Nebraska National Forest in Thomas and Blaine Counties; and Crescent Lake National Wildlife Refuge in Garden County.

- **Major communities** – North Platte, Valentine, Bassett, Mullen, Ainsworth.
- **Transportation**

Major highways – portions of US-20, N-2, US-83, US-183, N-61, and N-97.

Railroads – Burlington Northern Santa Fe, Nebkota Railway, Inc.

Scenic highways – “Outlaw Trail Scenic Byway” on US-20 from Valentine west through Cherry County to Gordon in District 5.

“Sandhills Journey Scenic Byway” along N-2 from Alliance east exiting the Sandhills at Anselmo, continues on to Grand Island.

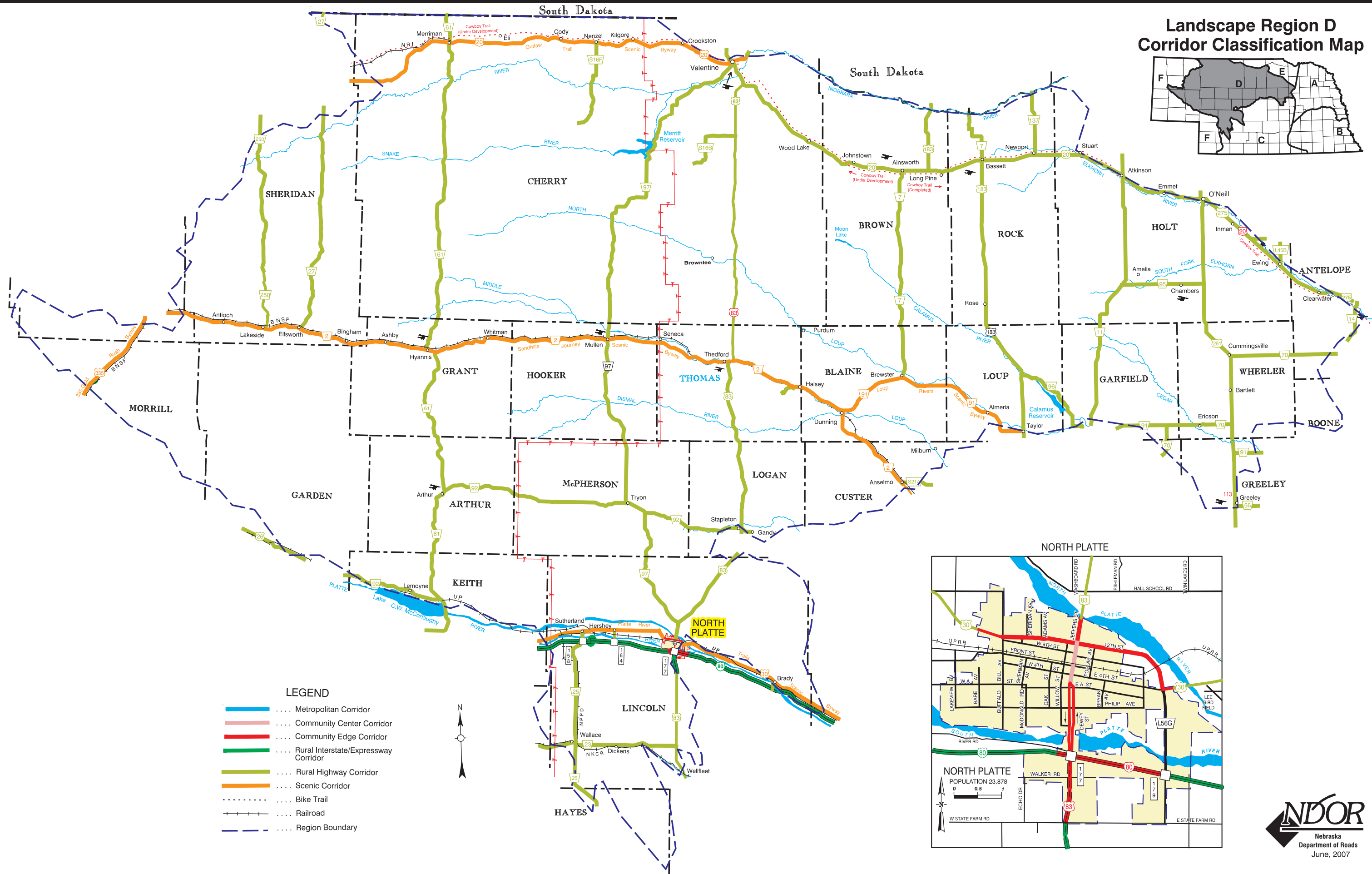
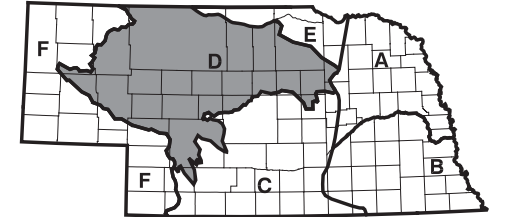
“Loupe Rivers Scenic Byway” along N-91 from Dunning to Taylor. This byway continues on Highway N-11 outside this region to Wood River in District 4.

“385 Gold Rush Byway” – a small portion in Morrill County.

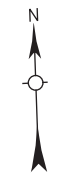
Bike routes – Cowboy Trail, Gordon east through Valentine, exiting the Sandhills at Bassett along US-20.



# Landscape Region D Corridor Classification Map



- LEGEND**
- Metropolitan Corridor
  - Community Center Corridor
  - Community Edge Corridor
  - Rural Interstate/Expressway Corridor
  - Rural Highway Corridor
  - Scenic Corridor
  - ... Bike Trail
  - + Railroad
  - - - Region Boundary





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## **Corridor Objectives – Landscape Region “D”**

Landscape Region “D” contains a large number of Biologically Unique Landscapes that will influence construction and landscape treatments in this corridor.

### **The Metropolitan Corridor**

This corridor type is not used in this region at this time.

### **Community Edge and Center Corridors**

The communities in Landscape Region “D” are primarily smaller and often have less defined edge and center areas. Traffic calming should be a major consideration along with maintaining and enhancing the community’s unique identity.

### **Rural Interstate/Expressway Corridor**

Within Landscape Region “D” this corridor type runs parallel to the Platte River through the southern most portion of the region.

### **Rural Highway Corridor**

Much of the area adjacent to this corridor is range land or pasture. Almost every highway in this corridor type in this region goes through a biologically unique landscape as shown on the Landscape Region “D” map. This highway corridor is also important for wildlife (plant and animal) as a passage between these biologically unique habitats and secondarily as habitat itself. However, in this region there is much less need of habitat since the adjacent ground has often not been significantly altered by man. Techniques to help prevent monotony and control of blowing snow are both very important in this region for this corridor type.

### **Scenic Corridor**

Within Landscape Region “D” there are portions of 5 designated scenic highways. Each of these routes has a unique character to be maintained

The overriding landscape objective in this corridor type is to preserve the existing views and scenic qualities that brought rise to the scenic designation. All work within these corridors should be in context with the adjacent surroundings.

Screening of objectionable views needs to be strongly considered in this corridor type, along with the framing of special views.

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## Typical Plant Species for Use in Landscape Region “D”

The listings to follow are recommendations of native species of plant material for use in the landscape region. This list is expected to broaden as the demand for additional native species increases in the future. Micro-climates within Region “D” strongly influence appropriate locations for shrubs and trees.

### Shrubs

Botanical Name	Common Name
<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry
<i>Amorpha fruticosa</i> *	False Indigo
<i>Cornus racemosa</i> *	Gray Dogwood
<i>Cornus sericea</i>	Redosier Dogwood
<i>Juniperus communis</i>	Common Juniper
<i>Prunus americana</i>	American Plum
<i>Prunus besseyi</i>	Western Sandcherry
<i>Prunus virginiana</i>	Common Chokecherry
<i>Rhus trilobata</i>	Skunkbush Sumac
<i>Ribes odoratum</i>	Clove Current
<i>Ribes aureum</i>	Golden Current
<i>Rosa arkansana</i>	Arkansas Rose
<i>Rosa woodsii</i>	Woods Rose
<i>Salix exigua</i>	Sandbar Willow
<i>Sambucus canadensis</i> *	Elderberry
<i>Shepherdia argentea</i>	Silver Buffaloberry
<i>Symphoricarpos albus</i> *	Common Snowberry
<i>Symphoricarpos occidentalis</i>	Western Snowberry
<i>Symphoricarpos orbiculatus</i> *	Coralberry
<i>Viburnum lentago</i> *	Nannyberry Viburnum

\* Indicates limited to very eastern part of Region “D”

### Trees

Botanical Name	Common Name
<i>Acer negundo</i>	Boxelder
<i>Acer saccharinum</i> *	Silver Maple
<i>Betula papyrifera</i> ○	Paper Birch
<i>Celtis occidentalis</i>	Hackberry
<i>Fraxinus pennsylvanica</i>	Green Ash
<i>Gymnocladus dioicus</i> *	Kentucky Coffeetree
<i>Juglans nigra</i> *	Blackwalnut
<i>Gleditsia tricanthos</i> * (limited use)	Honeylocust

○ Species found along Niobrara Valley, meeting of east and west continental plant materials

\* Indicates limited to very eastern part of Region “D”

### Trees (Continued)

Botanical Name	Common Name
<i>Juniperus scopulorum</i>	Rocky Mountain Juniper
<i>Pine ponderosa</i>	Ponderosa Pine
<i>Populus heltooides</i>	Eastern Cottonwood
<i>Populus tremuloides</i>	Quaking Aspen
<i>Quercus macrocarpa</i>	Bur Oak
<i>Salix amygdaloides</i>	Peach Leaf Willow
<i>Salix nigra</i> *	Black Willow
<i>Tilia americana</i> *	American Linden
<i>Ulmus americana</i>	American Elm

○ Species found along Niobrara Valley, meeting of east and west continental plant materials

\* Indicates limited to very eastern part of Region "D"

### Grasses

Botanical Name	Common Name
<i>Andropogon gerardii</i>	Big Bluestem
<i>Andropogon hallii</i>	Sand Bluestem
<i>Bouteloua curtipendula</i>	Sideoats Grama
<i>Bouteloua gracilis</i>	Blue Grama
<i>Bouteloua hirsuta</i>	Hairy Grama
<i>Calamagrostis canadensis</i>	Bluejoint
<i>Calamovilfa longifolia</i>	Prairie Sandreed
<i>Elymus canadensis</i>	Canada Wildrye
<i>Elymus lanceolatus</i>	Thickspike Wheatgrass
<i>Elymus trachycaulus</i>	Slender Wheatgrass
<i>Elymus virginicus</i>	Virginia Wildrye
<i>Eragrostis trichodes</i>	Sand Lovegrass
<i>Koeleria macrantha</i>	Prairie Junegrass
<i>Nassella viridula</i>	Green Needlegrass
<i>Panicum virgatum</i>	Switchgrass
<i>Pascopyrum smithii</i>	Western Wheatgrass
<i>Schizachyrium scoparium</i>	Little Bluestem
<i>Sorghastrum nutans</i>	Indiangrass
<i>Spartina pectinata</i>	Prairie Cordgrass
<i>Sporobolus cryptandrus</i>	Sand Dropseed

### Sedges

Botanical Name	Common Name
<i>Carex brevior</i>	Fescue Sedge
<i>Carex filifolia</i>	Threadleaf Sedge
<i>Carex inops, ssp. heliophila</i>	Sun Sedge



## Legumes

Botanical Name	Common Name
<i>Amorpha canescens</i>	Leadplant
<i>Astragalus canadensis</i>	Canadian Milkvetch
<i>Dalea candida</i>	White Prairie Clover
<i>Dalea purpurea</i>	Purple Prairie Clover
<i>Desmanthus illinoensis</i>	Illinois Bundleflower
<i>Lespedeza capitata</i> *	Round-head Lespedeza

\*Eastern two-thirds of Region "D"

## Wildflowers

Botanical Name	Common Name
<i>Achillea millefolium</i>	Yarrow
<i>Anemone canadensis</i>	Canada Anemone
<i>Antennaria parvifolia</i>	Pussy-toes
<i>Argemone polyanthemos</i>	Prickly Poppy
<i>Artemesia ludoviciana</i>	White Sage
<i>Aster laevis</i>	Smooth Blue Aster
<i>Aster novae-angliae</i>	New England Aster
<i>Callirhoe involucrata</i>	Purple Poppy Mallow
<i>Ceanothus americanus/herbaceus</i>	New Jersey Tea
<i>Cleome serrulata</i>	Rocky Mountain Bee Plant
<i>Echinacea angustifolia</i>	Black Samson
<i>Erysimum asperum</i>	Western Wallflower
<i>Helianthus pauciflorus</i>	Stiff Sunflower
<i>Liatris lancifolia</i>	Lanceleaf Blazing Star
<i>Liatris pycnostachya</i>	Thickspike Gayfeather
<i>Liatris squarrosa</i>	Scale Blazing Star
<i>Linum lewisii</i>	Blue Flax
<i>Monarda fistulosa</i>	Wild Bergamot
<i>Oligoneuron rigidum</i>	Stiff Goldenrod
<i>Penstemon grandiflorus</i>	Shell Leaf Penstemon
<i>Ratibida columnifera</i>	Upright Prairie Coneflower
<i>Ratibida columnifera, red</i>	Mexican Red Hat
<i>Rosa arkansana</i>	Prairie Rose
<i>Rudbeckia hirta</i>	Black-eyed Susan
<i>Senecio plattensis</i>	Prairie Ragwort
<i>Solidago missouriensis</i>	Missouri Goldenrod
<i>Sphaeralcea coccinea</i>	Scarlet Globemallow
<i>Tradescantia occidentalis</i>	Prairie Spiderwort
<i>Verbena hastata</i>	Blue Vervain

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