

Summary Table: Characteristics of Ecoregions of North Dakota and South Dakota

17. MIDDLE ROCKIES										
Level IV Ecoregion	Physiography	Geology	Soil		Climate			Potential Natural Vegetation	Land Use and Land Cover	
Area (square miles)	Elevation / Local Relief (feet)	Surficial Material and Bedrock	Order (Great Groups)	Common Soil Series	Temperature / Moisture Regimes	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum; July maximum; °F)		
17a. Black Hills Foothills 900	Unglaciated. A ring of foothills surrounding the Black Hills mountains core. The Dakota Hogback separates the foothills from the plains. The Red Valley (Racetrack) inside the Hogback encircles the Black Hills dome.	Mesozoic sandstone and shale. The Hogback is composed of Lakota Sandstone, Fall River Sandstone, Pierre Shale, and Minnekaona Limestone. The Red Valley is composed of the Spearfish Formation, a red sandy shale.	Entisols (Torrorthents), Mollics (Argiustolls, Haploborols)	Butche, Canyon, Enning, Nevee, Spearfish, Grummit, Tifford, Yale, Rolap	Mesic / Ustic	15-17	110-140	10/36; 57/86	Ponderosa pine woods with grass understorey of little bluestem, grama grasses, and foothill. Some bur oak in the north and Rocky Mountain juniper in the south.	Cattle grazing, ranching. Suburban development in the eastern Black Hills. Ponderosa pine savanna.
17b. Black Hills Plateau 1507	Unglaciated. Plateau topography with broad ridges, entrenched canyons. In metamorphic areas, highly dissected, tilted rock faces, steep canyon slopes. In limestone areas caves, springs, consistent yearly streamflow.	Paleozoic limestone of the Englewood Formation, Devonian Period, and Madison area, highly dissected, tilted rock faces, steep canyon slopes. In limestone areas caves, springs, consistent yearly streamflow.	Aflisols (Entroborols), Mollics (Haploborols, Inceptisols (Entrochreps)	Citadel, Vanacker, Grizzly Butka, Pautka, Micromen, Pannausaug, rock outcrop	Frigid / Udic	16-18	40-100	6/34; 50/63	Ponderosa pine forest dominant. Aspen, paper birch, some spruce in drainages and wet meadows. Understorey white-bloasted, buffaloberry, chokecherry, snowberry.	Grazing and timbering, recreation, hunting, some timber production, woodland grazing. Ponderosa pine forest with farms and ranches in valley bottoms and prairie openings.
17c. Black Hills Core Highlands 688	Mountainous topography with highly eroded outcrops and broad valleys. Limestone plateau above 5500 feet. Granite intrusions from the major peaks including Bear Mountain, Terry Peak, Custer Peak, and Harney Peak, the highest point in South Dakota at 7242 feet.	Precambrian igneous and sedimentary rock and metamorphic schist, slates, quartzite; granite and pegmatite. Higher elevation igneous.	Aflisols (Cryoborols, Entroborols)	Shosh, Trebor, Virkula, Mcmont, rock outcrop, Pautka, Butka	Frigid / Cryic / Udic	19-24	30-80	5/33; 55/80	Mostly ponderosa pine with white spruce, paper birch and aspen on north facing slopes, moist areas, and higher elevations. Understorey: sedges, bearded wheatgrass, juniper, snowberry, Oregon grape, huckleberry.	Mining in the metamorphic areas. Recreation, hunting, timber production, woodland grazing. Pine and spruce forests, high meadow and granite rock outcrops.

25. WESTERN HIGH PLAINS										
Level IV Ecoregion	Physiography	Geology	Soil		Climate			Potential Natural Vegetation	Land Use and Land Cover	
Area (square miles)	Elevation / Local Relief (feet)	Surficial Material and Bedrock	Order (Great Groups)	Common Soil Series	Temperature / Moisture Regimes	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum; July maximum; °F)		
25a. Pine Ridge Escarpment 965	Unglaciated. Alternating ridges and valleys with entrenched channels. Elevations increasing from northeast to southwest. Rock outcrops.	Miocene sandstone (Arikaree Formation).	Entisols (Torrorthents), Mollics (Argiustolls, Haploborols)	Ogallala, Canyon, Kadoka, Epping, Rock outcrops	Mesic / Ustic	16-17	120-140	9/36; 58/91	Ponderosa pine savanna with eastern redcedar, western snowberry, knobloos, sumac, chokecherry, and rose. Grassland: little bluestem, western wheatgrass, green needlegrass, prairie sandreed.	Cattle grazing, minor hay and feed crops, and some timber cutting. Pine savanna.

42. NORTHWESTERN GLACIATED PLAINS										
Level IV Ecoregion	Physiography	Geology	Soil		Climate			Potential Natural Vegetation	Land Use and Land Cover	
Area (square miles)	Elevation / Local Relief (feet)	Surficial Material and Bedrock	Order (Great Groups)	Common Soil Series	Temperature / Moisture Regimes	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum; July maximum; °F)		
42a. Missouri Coteau 9122	Glaciated. Hummocky, rolling stagnation moraine. Stream drainage absent or uncommon. Numerous pothole wetlands between mounds of glacial till.	Thick glacial till over Tertiary sandstone and shale in the north and Cretaceous Pierre Shale in the south.	Mollics (Haploborols, Argiustolls, Haploborols, Calciborols)	Barnes, Buse, Parnell, Sva Williams, Bowbells, Zahl	Frigid / Udic, Ustic	15-19	110-130	-3/16; 57/84	Western wheatgrass, bluestem, needleandthread, green needlegrass. Prairie cordgrass, northern reedgrass near wetlands.	Cattle grazing on steeper land mixed with tiled agriculture of hay and spring wheat. Native prairie remaining on unbroken rangeland. Wetlands provide wildlife habitat.
42b. Collapsed Glacial Outwash 1771	Glaciated. Irregular plains left by glacial outwash deposited over stagnant ice. Broad, shallow, brackish wetlands and lakes.	Late Wisconsinan glacial outwash deposits over Tertiary sandstone and shale and Cretaceous Pierre Shale.	Mollics (Natrargisols, Haploborols, Calciborols, Argiustolls)	Roso, Bowdle, Lehr, Wahck, Telfer, Lihen, Siosa, Parrshall, Arvilla, Southard, Divide, Harriet	Frigid / Udic, Ustic	15-19	110-130	-2/20; 59/86	Needleandthread, plain molly, prairie junegrass, blue grama. Salergas in alkaline areas.	Cattle grazing, minor hay and feed crops, and some timber cutting. Wetlands provide wildlife habitat.
42c. Missouri Coteau Slope 5793	Glaciated. Level to gently rolling plain sloping to Missouri River. Sparse drainage pattern; few wetlands.	Wisconsinan glacial till over Tertiary sandstone and shale and Cretaceous Pierre Shale.	Mollics (Haploborols, Argiustolls, Haploborols, Calciborols)	Williams, Max, Zahl, Bowbells, Parnell	Frigid / Ustic	15-18	110-130	-2/20; 56/89	Western wheatgrass, needleandthread, prairie junegrass, green needlegrass.	Many tiled agriculture of spring wheat, barley, alfalfa, silage, corn. Some grazing on steep and saline or wet areas.
42d. Northern Missouri Coteau 1697	Glaciated. Hummocky, rolling terrain. Stream drainage absent or uncommon. Numerous pothole wetlands.	Wisconsinan glacial till over Tertiary sandstone and shale.	Mollics (Argiustolls, Haploborols, Argiustolls)	Zahl, Williams, Parnell, Bowbells	Frigid / Udic, Ustic	15-16	100-120	-6/14; 64/89	Western wheatgrass, green needlegrass and alfalfa, bluestem, and needleandthread. Green ash and aspen on lowland areas.	Many cattle grazing and some wetlands. Level areas are cultivated.
42e. Southern Missouri Coteau 2382	Glaciated. Gently undulating topography. Scattered areas of high wetland density.	Wisconsinan glacial till over Cretaceous Pierre Shale.	Mollics (Haploborols, Natrargisols, Argiustolls, Calciborols)	Eakin, Highmore, Java, Bowdle, Dudley, DeGrey, Zahl	Mesic / Ustic	19-21	130-150	4/28; 60/89	Western wheatgrass, green needlegrass, blue grama, alfalfa, and prairie junegrass. Prairie cordgrass and northern reedgrass in poorly drained areas.	Dominantly cropland. Corn, small grains, grain sorghum, and alfalfa.
42f. Southern Missouri Coteau Slope 4673	Glaciated. Level to rolling uplands sloping seaward to Missouri River. Simple stream drainage.	Wisconsinan glacial till and loess over Cretaceous Pierre Shale.	Mollics (Argiustolls, Haploborols)	Highmore, Moberge, Hoodek, Ehan	Mesic / Ustic	19-21	130-150	9/30; 64/89	Western wheatgrass, green needlegrass, blue grama, alfalfa, and prairie junegrass.	Dominantly cropland, corn, small grains, grain sorghum, and alfalfa.
42g. Ponca Plains 969	Unglaciated. Level to gently rolling plains. Prefacial stream drainage.	Miocene soft sandstone (Arikaree Formation) and Cretaceous Pierre Shale.	Mollics (Argiustolls, Calciborols)	Reliance, Anselmo, Holt, Jansen	Mesic / Ustic	20-22	130-160	7/32; 60/89	Mixed-grass prairie: Little bluestem, prairie sandreed, green needlegrass and needleandthread.	Intensive rowcrop agriculture for soybeans, corn, sunflowers, and alfalfa. Some grazing on Anselmo and Holt.
42h. Southern River Breaks 896	Lightly glaciated. Dissected hills and canyons with slopes of high relief bordering major rivers and associated alluvial plains.	Cretaceous Pierre Shale.	Mollics (Argiustolls, Entrochreps)	Tuffah, Samare, Okaton, Manter	Mesic / Ustic	20-22	135-160	7/32; 60/89	Deciduous woodland: cottonwood, green ash, knobloos willow, boxelder, eastern redcedar, buffaloberry, sumac, Greasewood, western wheatgrass, little bluestem, sideoats grama.	Grazing, wildlife habitat. Mixed grass and woodland cover.
42i. Glaciated Dark Brown Prairie 1075	Glaciated. Level to gently rolling plain sloping to Missouri River. Established drainage pattern. Lack of wetlands.	Glacial till over Tertiary sandstone and shale.	Mollics (Argiustolls, Haploborols)	Williams, Bowbells, Zahl	Frigid / Udic, Ustic	14-16	110-130	-5/15; 54/82	Western wheatgrass, needleandthread, green needlegrass and blue grama. Little bluestem on thin soils. Some sage on droughty soils.	Tilled mainly for durum or spring wheat and other small grains. Some irrigation near the Missouri River.

43. NORTHWESTERN GREAT PLAINS										
Level IV Ecoregion	Physiography	Geology	Soil		Climate			Potential Natural Vegetation	Land Use and Land Cover	
Area (square miles)	Elevation / Local Relief (feet)	Surficial Material and Bedrock	Order (Great Groups)	Common Soil Series	Temperature / Moisture Regimes	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum; July maximum; °F)		
43a. Missouri Plateau 20000	Unglaciated. Moderately dissected level to rolling plains with isolated sandstone buttes.	Tertiary sandstone, shale and some coal in South Dakota, Ludlow, Fox Hills, and Fort Union Formations; in North Dakota, Ludlow, Cannonball, Slope, Hullian Creek, and Sentinel Butte Formations.	Mollics (Haploborols, Calciborols, Argiustolls, Natrargisols, Entisols (Ustorthents, Ustipannums))	Vehar, Chama, Amor, Williams, Rhoades, Belfield, Cabba, Flaher, Redler, Regent, Parrshall, Gales, Zahl	Frigid / Ustic	15-17	95-130	-3/21; 55/83	Blue grama, wheatgrass/bluegrass association, little bluestem, prairie sandreed.	Dryland farming and cattle grazing. Spring wheat a predominant crop with acreage of barley, oats, and sunflowers. Native areas consist of mixed grasses.
43b. Little Missouri Badlands 2852	Unglaciated. Highly dissected erosional landscape of conical hills. Mass wasting and slumping widespread. Most streams ephemeral. Flowing streams carry heavy sediment loads.	Pliocene sediments of the Hullian Creek and Sentinel Butte Formations.	Entisols (Ustorthents, Ustipannums), Mollics (Haploborols)	Cabba, Flaher, Zeon, Bowtell, Deyoung Maltes, Patient, Havre, Glendive, Wolfpoint	Frigid / Ustic (Aridic inter-grade)	14-16	110-120	1/24; 56/85	Shortgrass prairie: western wheatgrass, blue grama, little bluestem, prairie sandreed. Rocky Mountain juniper in draws and on north slopes. Scattered cottonwood in riparian areas.	Cattle ranching, wildlife habitat and recreation. Bur hills with scattered junipers; grasslands in bottomlands.
43c. River Breaks 10517	Unglaciated. Highly dissected hills and uplands bordering major rivers and associated alluvial plains.	In North Dakota, Tertiary sandstone and shale (Fort Union Formation). In South Dakota, Cretaceous Pierre Shale, on the east side of the Missouri River, on the east side of the Missouri River, breaks eroded through glacial till to Tertiary and Cretaceous formations.	Mollics (Calciborols, Haploborols), Entisols (Ustorthents, Ustipannums, Pluvagrasps), Aridisols (Natrargisols, Vertisols (Haplusterts), Vertisols (Haploborols))	Sansare, Opal, Bullock, Cabba, Amor, Flaher, Vehar, Terrik, Mendick, Cherry Chama, Zahl, Lullie, McKean	Frigid (north), Mesic (south of Missouri River / Ustic)	16-18	80-125 (north); 32/7; 60/91 (south)	-3/21; 56/87 (north)	Blue grama, western wheatgrass, buffaloberry, and some bluestem. Juniper and deciduous trees on north-facing slopes. Cottonwood gallery forests on the floodplains.	Steep slopes restrict land use to cattle grazing and land cover. Some riparian wetlands in draws and on grasses. Remnant woodlands in native areas. Resisting unimproved riparian areas.
43d. Forested Buttes 232	Unglaciated. Prominent buttes with steep vertical sides. Source of springs and drainage headwaters.	Sandstone with concretions and local quartzite (Arikaree Formation).	Entisols (Ustorthents), Aflisols (Entroborols)	Cabba, Cabhart, Reva, Rockna, Cobagen, rock outcrop	Frigid / Ustic	13-14	90-120	3/26; 55/86	Ponderosa pine, Rocky Mountain juniper, snowberry. Green ash in drainages. Little bluestem dominates the grasslands.	Logging, grazing on National Forest land.
43e. Sagebrush Steppe 2457	Unglaciated. Level to rolling plains with occasional buttes, badland formations, scoria (hot coal) mounds and salt pans.	Upper Cretaceous sandstone and shale (Hell Creek Formation and Pierre shale).	Aridisols (Natrargisols), Inceptisols (Ustochreps), Entisols (Ustipannums, Ustorthents), Mollics (Natrargisols, Haploborols)	Archin, Parchin, Twilight, Zeon, Bullock, Cabhart, Branswell, Rhoades, Patient Maltese, Rhane, Ditts	Frigid / Ustic (Aridic inter-grade)	13-14	90-120	3/26; 55/86	Dwarf sagebrush, big sagebrush, with western wheatgrass, green needlegrass, blue grama, Sandberg bluegrass, and buffaloberry.	Cattle grazing and wildlife habitat. Woodland and shrub cover.
43f. Subhumid Pierre Shale Plains 7544	Unglaciated. Undulating plain. Steep-sided, incised stream channels.	Cretaceous Pierre shale.	Mollics (Argiustolls, Haploborols), Inceptisols (Ustochreps), Entisols (Ustorthents, Torrorthents), Vertisols (Haplusterts)	Milbous, Lakoma, Opal, Promise, Samare, Midway, Ottumwa	Mesic / Ustic	15-17	110-135	4/29; 60/91	Wheatgrass, grama grass, needlegrass, percepting grass, needleandthread.	Cattle grazing, dryland farming. Winter wheat, alfalfa and sorghum.
43g. Semiarid Pierre Shale Plains 3853	Unglaciated. Undulating to rolling plains. Steep-sided, incised stream channels.	Cretaceous Pierre shale.	Aridisols (Camborols), Mollics (Argiustolls), Entisols (Ustorthents)	Pierre, Samul, Lisman, Sautona, Nunn	Mesic / Aridic, Ustic	14-15	125-140	6/29; 57/87	Shortgrass prairie grasses such as western wheatgrass, green needlegrass, blue grama and buffaloberry.	Cattle grazing, rangeland, dryland farming of winter wheat and alfalfa.
43h. White River Badlands 1913	Unglaciated. Highly dissected landscape of eroded walls and escarpments, isolated tablelands and buttes. Dense, dendritic drainage pattern; ephemeral streams highly erosive.	Oligocene Brule and Chadron claystone formations (White River Group) over Cretaceous Pierre Shale.	Aridisols (Camborols), Mollics (Argiustolls), Entisols (Ustorthents)	Coata, Epping, Imity, Ocella, Bufon	Mesic / Ustic, Aridic	16-17	120-140	9/35; 60/91	Sand sagebrush, silver sagebrush, western wheatgrass, grama grass and buffaloberry.	Cattle grazing. Range and hayland.
43i. Keys Paha Tablelands 3451	Unglaciated. Level to rolling, sandy plains. Dissected near streams.	Eolian and alluvial sand and silt over Miocene soft sandstone (Ogallala Formation).	Mollics (Argiustolls, Haploborols), Entisols (Torrorthents)	Anselmo, Kadoka, Keith, Manter, Rosebud, Epping, Koota, Roscoe, Vetal	Mesic / Ustic	16-20	120-140	9/34; 59/89	Blue grama, sideoats grama, western wheatgrass, little bluestem, and needleandthread.	Cattle ranching predominates north with some dryland farming for alfalfa and winter wheat. Corn and sugar beets in irrigated areas south. Mixed prairie range with cropland.
43j. Moreau Prairie 4138	Unglaciated. Level to rolling plains with occasional buttes, badland formations, and salt pans.	Upper Cretaceous sandstone and shale (Hell Creek Formation).	Aridisols (Natrargisols), Aflisols (Natrastolls), Mollics (Natrargisols, Argiustolls, Haploborols), Inceptisols (Ustochreps)	Bullock, Parchin, Absber, Rhoades, Serum, Reeder, Amor, Ekabala, Inasberg, Moreau, Twilight	Frigid / Ustic, Aridic	14-16	115-130	6/30; 58/87	Mixed prairie of western wheatgrass, green needlegrass, blue grama and buffaloberry.	Mostly cattle and sheep ranching. Occasional dryland farming of wheat and alfalfa.
43k. Dense Clay Prairie 1378	Unglaciated. Rolling prairie. Intermittent streams in shallow valleys.	Cretaceous Pierre shale.	Vertisols (Haplusterts, Torrens), Aridisols (Natrargisols), Entisols (Torrorthents)	Kyle, Pierre, Wisler, Swatbey, Hise, Lismas	Mesic / Ustic, Aridic	13-15	120-130	6/30; 58/87	Western wheatgrass with no shortgrass understorey.	Sheep and cattle ranching. Fragile grassland cover.

44. NEBRASKA SAND HILLS										
Level IV Ecoregion	Physiography	Geology	Soil		Climate			Potential Natural Vegetation	Land Use and Land Cover	
Area (square miles)	Elevation / Local Relief (feet)	Surficial Material and Bedrock	Order (Great Groups)	Common Soil Series	Temperature / Moisture Regimes	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum; July maximum; °F)		
44a. Nebraska Sand Hills 488	Sand sheets and extensive fields of burchomard, parabolic, and dome sand dunes. High water table, intertidal wetlands.	Eolian sand over Miocene soft sandstone	Entisols (Ustipannums)	Valentine	Mesic / Ustic	16-17	140-150	9/36; 58/91	Sand associated grasses: Sand bluestem, little bluestem, prairie sandreed. Big bluestem and switchgrass in wetter interdrains.	Cattle ranching, some hayland. Grassland cover.

46. NORTHERN GLACIATED PLAINS										
Level IV Ecoregion	Physiography	Geology	Soil		Climate			Potential Natural Vegetation	Land Use and Land Cover	
Area (square miles)	Elevation / Local Relief (feet)	Surficial Material and Bedrock	Order (Great Groups)	Common Soil Series	Temperature / Moisture Regimes	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum; July maximum; °F)		
46a. Pembina Escarpment 274	Glaciated. Steep, dissected escarpment. High glacial periglacial streams.	Glacial till over Tertiary sandstone and shale.	Mollics (Haploborols, Argiustolls, Calciborols), Aflisols (Entroborols)	Rollette, Olga, Kloten, Waukon, Kelvin, Buse, Walsh, Edgely	Frigid / Udic	18-20	95-125	-10/10; 53/80	Burr oak dominant; some aspen and paper birch. Understorey plants: beaked hazel, highbush cranberry (pebbars), service berry, red cedar dogwood.	On steep slopes, woodland retained for woodland grazing and wildlife habitat. In flatter areas, cleared areas used for small grain, sunflowers and flax.
46b. Turtle Mountains 409	Glaciated. Platform of hummocky, rolling terrain above surrounding drift plains. Stream network lacking. High concentration of large lakes and wetlands.	Glacial till over Tertiary sandstone and shale.	Mollics (Haploborols, Argiustolls, Calciborols), Aflisols (Entroborols)	Bottineau, Buse, Rolla, Kelvin, Montgoie	Frigid / Udic	16-22	95-120	-10/10; 53/80	Burr oak dominant on side slopes. Open on top. Other species present: green ash, paper birch, huckleberry, sumac, serviceberry, snowberry.	Native woodland and pasture clearings. Some hay and small grains on granite soils.
46c. Glacial Lake Basins 3584	Glaciated. Very level glacial lake floors. Low wetland density.	Glacial lake deposits	Mollics (Calcicquolls, Endoaquolls, Haploborols, Natrargisols)	Hegan, Fargo, Bearden, Overly, Embden, Gardena, Glyndon, Great Bend, Aberdeen	Frigid / Udic	16-19 (north); 20-22 (south)	95-120 (north); 120-140 (south)	-10/10; 54/80 (north); 121; 60/85 (south)	Western wheatgrass, needleandthread, blue grama, green needlegrass.	Extensively tilled for durum and spring wheat, sunflowers, and flax. Corn and soybeans south.
46d. Glacial Lake Deltas 1877	Glaciated. Flat sheets of sand and gravel or rolling sand dunes. Fracture of stream channels.	Sand and gravel deposited over glacial lake floor	Mollics (Haploborols, Calcicquolls, Endoaquolls), Entisols (Ustipannums, Pannapannums)	Hecla, Ulen, Arvilla, Siosa, Serden, Rosewood, Lobes, Bantay, Hamar	Frigid / Udic	16-19 (north); 19-21 (south)	95-120 (north); 120-140 (south)	-10/10; 54/80 (north); 41/9; 58/85 (south)	Prairie sandreed, little bluestem, indiangrass, switchgrass, sand bluestem.	Droughty soils mostly used for native pasture. When tilled, used for small grain, flax and fall-planted soy (north), or small grains, sunflowers, and corn (south). Some irrigation.
46e. Tawakoni Dead Ice Moraine 960	Glaciated. Lower elevation extension of Prairie Coteau. Closely spaced hummocks, high wetland density.	Wisconsinan glacial till over Cretaceous Pierre Shale	Mollics (Argiustolls, Haploborols, Argiustolls, Calciborols)	Forman, Aastad, Buse, Parnell	Frigid / Udic	19-21	120-140	-2/19; 58/85	Western wheatgrass, green needlegrass, blue grama, needleandthread, sideoats grama.	Mostly used for small grains and hay. Wetlands provide wildlife habitat.
46f. End Moraine Complex 1518	Glaciated. A diverse area of hummocky stagnation moraine, parallel end moraine ridges, and other glacial features such as eskers, kames and thrust ridges.	Wisconsinan glacial till and outwash	Mollics (Haploborols, Argiustolls, Calciborols, Argiustolls)	Heimdal, Enrick, Esmond, Barnes, Buse, Bottineau, Aastad, Edgely, Hamar	Frigid / Udic	18-20	90-120	-7/13; 55/82	Tallgrass/widgrass prairie: western wheatgrass, green needlegrass, big and little bluestem, blue grama. Forest vegetation of burr oak and aspen associated with Devils Lake.	Mixed range and cropland depending upon slope and presence of rocks in soil. Spring wheat, oats, barley, flax, and hay.
46g. Northern Black Prairie 5090	Glaciated. Generally flat, with occasional "washboard" undulations. High concentrations of temporary and seasonal wetlands. Simple drainage pattern.	Glacial till over Cretaceous Pierre Shale (check west) and Tertiary Ft. Union Formation.	Mollics (Haploborols, Natrargisols, Calcicquolls, Argiustolls)	Barnes, Buse, Cresthad, Hamery, Buse, Parnell	Frigid / Udic	16-20	95-120	-10/10; 54/80	Northern prairie: western wheatgrass, green needlegrass, little bluestem, blue grama, and rough fescue.	Extensively tilled to durum and spring wheat, other small grains, sunflowers and alfalfa.
46h. Northern Dark Brown Prairie 1114	Glaciated. Generally flat, with occasional "washboard" undulations. High concentrations of temporary and seasonal wetlands. Simple drainage pattern.	Glacial till over Tertiary Ft. Union Formation.	Mollics (Argiustolls, Natrargisols, Calciborols, Argiustolls)	Williams, Bowbells, Zahl, Numan, Hamery, Parnell	Frigid / Ustic	15-16	100-120	-6/14; 54/82	Western wheatgrass, little bluestem and needleandthread. Aspen and green ash in drainages.	Extensively tilled to durum and spring wheat, other small grains, sunflower and alfalfa. Saline areas used for range or alfalfa.
46i. Drift Plains 1560	Glaciated. Generally flat, with occasional "washboard" undulations. High concentrations of temporary and seasonal wetlands. Simple drainage pattern.	Glacial till over Cretaceous Pierre Shale and Fox Hills Formations.	Mollics (Haploborols, Calcicquolls, Natrargisols, Calciborols, Argiustolls)	Barnes, Buse, Buse, Hamery, Cresthad, Parnell	Frigid / Ustic	17-19	95-125	-5/16; 56/83	Western wheatgrass, big and little bluestem, switchgrass, and indiangrass.	Extensively tilled for spring wheat and other small grains, sunflowers, and alfalfa.
46j. Glacial Outwash 890	Unglaciated. Flat to slightly rolling. Ancient channel depressions, relict lakes.	Sand and plane-beded gravel, sediments of glacial meltwater rivers.	Mollics (Haploborols, Natrargisols), Entisols (Ustipannums)	Brantford, Claire, Fortin, Renshaw, Arvilla, Fordville, Siosa	Frigid / Ustic	16-18	110-130	-6/14; 55/81	Little bluestem, needleandthread, blue grama, prairie junegrass. Elm, ash, burr oak in river bottoms.	Cattle grazing on droughty soils. 5581 burr oak in river bottoms.
46k. Prairie Coteau 5229	Glaciated. Platform of hummocky, rolling terrain raised above surrounding drift plains. Stream network lacking. High concentration of large lakes and wetlands.	Glacial till over Cretaceous Shales	Mollics (Argiustolls, Haploborols, Argiustolls)	Forman, Aastad, Buse, Poinsett, Waukon, Parnell	Frigid / Udic	20-22	110-140	1/21; 60/85	Big and little bluestem, switchgrass, indiangrass, blue grama; woodland surrounding wetlands in northeast section.	Rolling areas in pastureland. Flatter areas tilled for small grains, corn, and soybeans.
46l. Prairie Coteau Escarpment 415	Glaciated. Dissected topography along face of 300-600 ft. escarpment, incised by high gradient perennial streams.	Thin glacial till over Cretaceous limy shale (Nobara Formation)	Mollics (Argiustolls, Calciborols)	Pever, Forman, Steche, Buse	Frigid / Udic	20-22	110-135	2/22; 60/85	Burr oak, green ash, elm, aspen, basswood, chokecherry, sumac with openings of little bluestem, green needlegrass, western wheatgrass, and blue grama.	Steepest areas in native woodland, used for pasture. Flatter areas tilled for small grains, corn, sunflowers, and alfalfa or used for pasture.
46m. Big Sioux Basin 1539	Only lightly glaciated. Erosional, rather than topographic landscape. Rolling, with incised stream drainage network, few wetlands.	Glacial till over Cretaceous Pierre Shale	Mollics (Haploborols)	Brookings, Krausberg, Vienna, Lismore	Frigid / Ustic	20-22	110-140	2/22; 60/85	Tallgrass prairie: big and little bluestem, switchgrass, and indiangrass. Sideoats grama, lead plant. Retardant vegetation: willows and cordgrass north, more hardwoods south.	Extensively tilled for small grains, sunflowers, and soybeans.
46n. James River Lowland 9227	Glaciated. Level to slightly rolling plain composed of glacial drift. Dense concentrations of temporary and seasonal wetlands. Little bluestem on thin soils. Some sage on droughty soils.	Glacial till over Cretaceous Pierre Shale and sandstone of Norbora Formation.	Mollics (Argiustolls, Haploborols, Natrargisols)	Beadle, Dudley, Hand, Bonilla, Houdek, Prosper	Mesic	18-20	115-140	1/22; 60/88	Western wheatgrass, green needlegrass, big bluestem, blue grama.	Extensively tilled for spring wheat, sunflowers, corn, and soybeans.
46o. Minnesota River Prairie 826	Unglaciated. Level to gently rolling plain. Moderate wetland density.	Glacial till over undivided Cretaceous sediments (Dakota Sandstone, Carlile and Pierre Shale).	Mollics (Ustorthents), Entisols (Ustorthents)	Heimdal, Sva, Siveston	Frigid / Udic	20-22	110-140	2/22; 60/85	Big and little bluestem, green needlegrass, western wheatgrass, blue grama, Elm, huckleberry, and green ash along river bottoms.	Extensively cultivated to small grains, corn, soybeans, and alfalfa.

47. WESTERN CORN BELT PLAINS										