

3.5 TERRESTRIAL VEGETATION

3.5.1 Introduction

This section discusses terrestrial vegetation resources in the proposed Project area. The description of terrestrial vegetation resources is based on information provided in the 2011 Final Environmental Impact Statement (Final EIS) as well as new circumstances or information relevant to environmental concerns that have become available since the publication of the Final EIS, including the proposed reroute in Nebraska. The information that is provided here builds on the information provided in the Final EIS and in many instances replicates that information with relatively minor changes and updates. Other information is entirely new or substantially altered from that presented in the Final EIS. Specifically, the following information, data, methods, and/or analyses have been substantially updated in this section from the 2011 document:

- The number, type, and length of ecoregions, land uses, and vegetation communities crossed by the Project have changed due to changes in the proposed Project route and the exclusive use of Geographical Information Systems (GIS) databases such as the National Land Cover Database (NLCD 2006) and the United States Geological Survey Gap Analysis (Fry et. Al. 2011);
- Biologically unique landscapes and communities of conservation concern crossed by the pipeline have changed, with the most significant changes occurring in Nebraska due to changes in the proposed Project route and the avoidance of the NDEQ-identified Sand Hills Region; and
- Noxious weed occurrences along the proposed Project have changed due to the Project reroutes and new information since preparation of the Final EIS.

3.5.2 Ecoregions

Vegetative cover is an important component in the classification of ecoregions that reflects differences in ecosystem quality and integrity (U.S. Environmental Protection Agency [USEPA] 2007). Ecoregions are described through analysis of patterns and composition of geology, physiography, native vegetation, climate, soils, land use, wildlife, and hydrology. Variation in temperatures and precipitation, and differences in soils and parent materials along the northwest to southeast gradient crossed by the proposed Project route, result in wide variation in vegetation communities. Ecoregions are divided and further subdivided into four levels. The level of generalization of delineated ecosystems respects different levels of planning and reporting needs while still linking habitats based on their similarities (Commission for Environmental Cooperation [CEC] 1997). The two most detailed ecoregion levels, Level III and Level IV, are discussed in this section.

The proposed Project route would cross the following four Level III Ecoregions of the United States from northwest to southeast (percentages of total Level III Ecoregions crossing mileage shown in parentheses):

- Northwestern Glaciated Plains (24 percent);
- Northwestern Great Plains (16 percent);

- Western Corn Belt Plains (4 percent); and
- Central Great Plains (56 percent).

Ancillary facilities not adjacent to the proposed Project route would also be built in North Dakota and Kansas and would be located in the Northwestern Great Plains (ID No. 43), Central Great Plains (ID No. 27), and the Flint Hills (ID No. 28) Level III Ecoregions. Table 3.5-1 below provides a summary of the Level III Ecoregions in Montana, South Dakota, Nebraska, and Kansas in which proposed Project facilities would be located

Level IV Ecoregions (USEPA 2012) are more detailed regions (subsets of Level III Ecoregions) used for state-level review. The proposed Project route would cross a total of 19 Level IV Ecoregions of the United States. Level IV Ecoregions are presented by milepost in Table 3.5-2 below (grouped by the respective Level III Ecoregions in which they are located) and are supported by descriptions of dominant native vegetation communities per Ecoregion within each state. Figures 3.5.2-1 through 3.5.2-3 depict the Level III and Level IV Ecoregions crossed by the proposed Project route.

Ancillary facilities in North Dakota and Kansas are not adjacent to the proposed Project's pipeline route, and are therefore not included in Table 3.5-2 below; however, the pipe yard in North Dakota is located in the Missouri Plateau Level IV Ecoregion (43a) and the pump station in Clay County, Kansas would be located in the Smoky Hills (27a) Level IV Ecoregion. The descriptions for these Ecoregions are included in Table 3.5-2. The pump station in Butler County, Kansas would be located within the Flint Hills (28a) Level IV Ecoregion which is considered "the largest remaining intact tallgrass prairie in the Great Plains. The natural tallgrass prairie still exists in most areas and is used for range and pasture land. However, some cropland agriculture has been implemented in river valleys and along the periphery of the Flint Hills, especially in the northwest corner where the topography is more level" (USEPA 2012c).

3.5.3 General Vegetation Resources

The general land cover types crossed by the proposed Project route include cultivated cropland, developed land, nonvascular and sparse rock vegetation, grassland/rangeland, upland forest, open water, wetland forest, and palustrine emergent wetlands. These were identified as being present within 250 feet of the centerline of the proposed pipeline route using the 2011 U.S. Geological Survey (USGS) GAP Analysis (USGS 2011). Cultivated cropland generally consists of introduced crop species, which provide food for livestock and human consumption. Developed lands include several ecosystem designations such as open space, low and medium intensity, and non-specific. The land covers that are characterized by naturally occurring terrestrial and aquatic vegetation include nonvascular and sparse rock vegetation (associated with the Western Great Plains Badlands), grassland/rangeland, upland forests, open water, wetland forests, and palustrine emergent wetlands.

Tables 3.5-3 (proposed pipeline) and 3.5-4 (proposed ancillary facilities) describe the land cover types and ecosystems designations in which proposed Project facilities would be located, and provide examples of common plant species known to occur within the designations.

Table 3.5-1 USEPA Level III Ecoregions Crossed by Proposed Project Facilities

Level III Ecoregion (ID Number)	States in which Ecoregion is Located	Description
Northwestern Glaciated Plains (42)	Montana, South Dakota, and Nebraska	This is a transitional region between the generally more level, moister, more agricultural Northern Glaciated Plains to the east and the generally more irregular, dryer, Northwestern Great Plains to the west and southwest. The western and southwestern boundary roughly coincides with the limits of continental glaciations. This region is pocked by a moderately high concentration of semi-permanent and seasonal wetlands, locally referred to as Prairie Potholes.
Northwestern Great Plains (43)	Montana, North Dakota, South Dakota, and Nebraska	This region includes the Missouri Plateau section of the Great Plains. It is a semiarid rolling plain of shale and sandstone punctuated by occasional buttes. Native grasslands, largely replaced on level ground by winter and spring wheat and alfalfa, persist in rangeland areas on broken topography. Agriculture is restricted by the erratic precipitation and limited opportunities for irrigation.
Western Corn Belt Plains (47)	Nebraska	Once covered with tallgrass prairie, over 90 percent of this ecoregion is now used for cropland agriculture; much of the remainder is forage for livestock. A combination of nearly level to gently rolling glaciated till plains and hilly loess plains, ample precipitation mainly in the growing season, and fertile, warm, and moist soils make this one of the most productive areas of corn and soybean.
Central Great Plains (27)	Nebraska, Kansas	This region is slightly lower, receives more precipitation, and is somewhat more irregular than the Western High Plains to the west. Once grasslands with scattered low trees and shrubs in the south, much of this region has been converted to croplands. The eastern boundary marks the eastern limits of the major winter wheat-growing area of the United States.
Flint Hills (28) ^a	Kansas	This region is characterized by rolling hills composed of shale and cherty limestone, rocky soils, and by humid, wet summers. The Flint Hills marks the western edge of the tallgrass prairie. Erosion of the softer Permian limestone has left the more resistant chert (or flint) deposits, producing the hilly topography and coarse soils of the area. The natural tallgrass prairie still exists in most areas and is used for range and pasture land.

Sources: Classification of Level III Ecoregions is based on USEPA (2007); descriptions of the regions are based on USEPA (2002).

^aThe Flint Hills Ecoregion occurs at the location of the Butler County, Kansas, pump station and is not crossed by the proposed Project pipeline.

Table 3.5-2 USEPA Level III and IV Ecoregions Crossed by Proposed Project Facilities

Level IV Ecoregions (ID Number)	Milepost		Total Miles	Potential Natural Vegetation	Land Use and Land Cover
	In	Out			
Level III: Northwestern Glaciated Plains					
Cherry Patch Moraines (42m)	0	7	7	Grama (<i>Bouteloua</i> spp.)-needlegrass (<i>Hesperostipa</i> spp.)-wheatgrass (<i>Pascopyrum</i> spp.); shrubs limited to moister depressional areas.	Undulating to strongly sloping ecoregion that has many seasonal lakes and wetlands and includes one of the most extensive and prominent end moraines in Montana. Shortgrass prairie vegetation is native and shrubs are restricted to moist depressions. Steep slopes, hummocky moraines, gullies, bouldery knolls, gravelly ridges, and coulees are often grazed. Extensive cereal farming occurs elsewhere.
Glaciated Northern Grasslands (42j)	8	90	82	Grama-needlegrass-wheatgrass.	Glaciated, dissected, rolling to strongly rolling drift plain with many seasonal impoundments. Mostly rangeland with some farming on scattered, undissected benches and on alluvial, irrigated soils.
	110	117	7		
		Total	89		
Ponca Plains (42g)	580	593	13	Mixed-grass prairie - little bluestem (<i>Schizachyrium scoparium</i>), prairie sandreed (<i>Calamovilfa longifolia</i>), green needlegrass (<i>Nassella viridula</i>), and needle and thread (<i>Hesperostipa comata</i>).	Unglaciated, level to rolling plains. Intensive row crops, soybeans, corn, sunflowers, alfalfa, and some grazing.
Southern River Breaks (42h)	594	618	23	Mixed-grass prairie: western wheatgrass (<i>Pascopyrum smithii</i>), little bluestem, sideoats grama (<i>Bouteloua curtipendula</i>), and green needlegrass on uplands. Deciduous woodland: bur oak (<i>Quercus macrocarpa</i>), American basswood (<i>Tilia americana</i>), and eastern redcedar (<i>Juniperus virginiana</i>) in canyons and northfacing slopes. Plains cottonwood (<i>Populus deltoides monilifera</i>), green ash (<i>Fraxinus pennsylvanica</i>), peachleaf willow (<i>Salix amygdaloides</i>), boxelder (<i>Acer negundo</i>), buffaloberry (<i>Shepherdia</i> spp.), and sumac (<i>Rhus</i> spp.).	Lightly glaciated, dissected hills and canyons with high relief bordering Keya Paha River. Mixed grass and woodlands grazing.

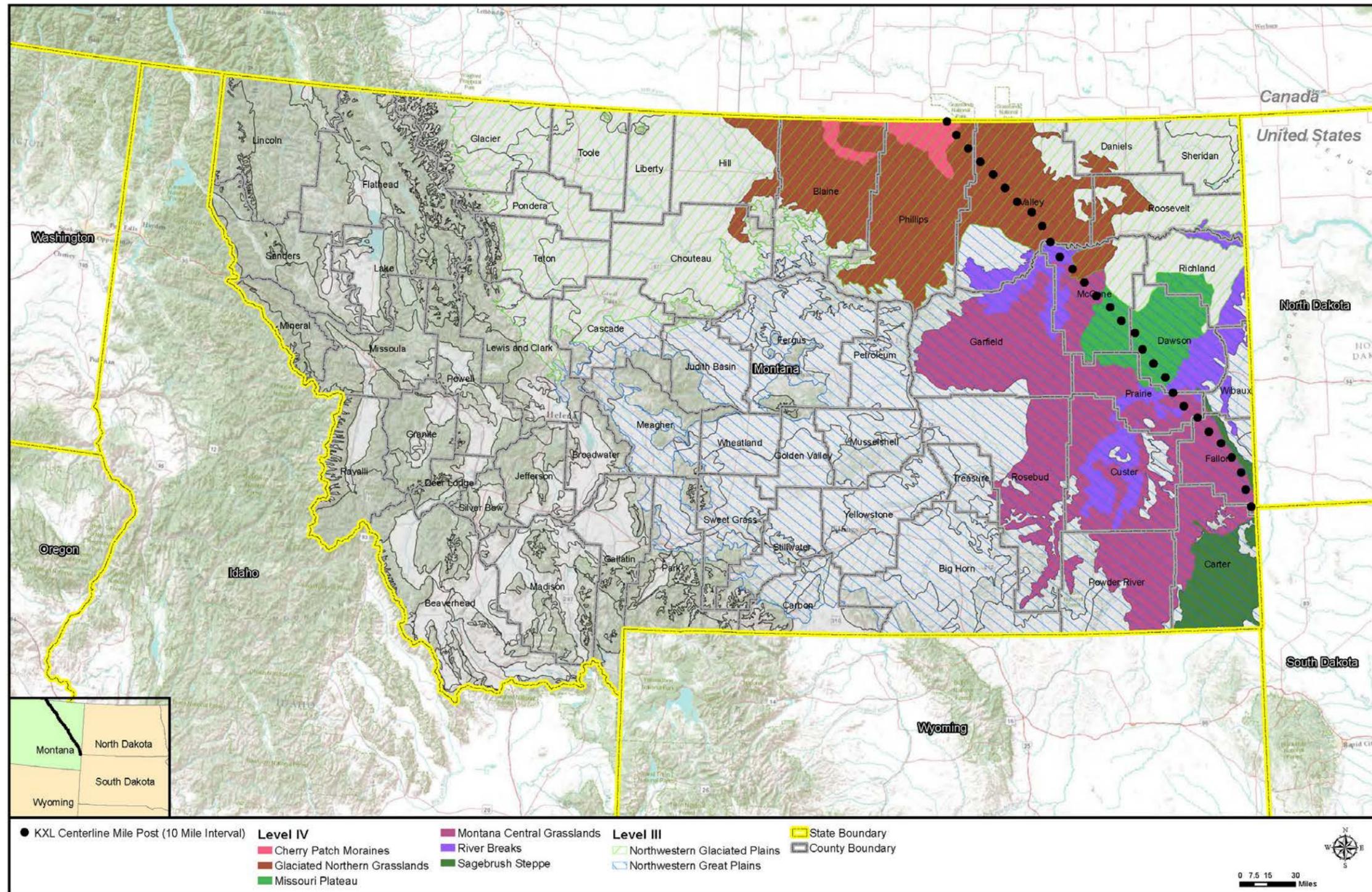
Level IV Ecoregions (ID Number)	Milepost		Total Miles	Potential Natural Vegetation	Land Use and Land Cover
	In	Out			
Holt Tablelands (42p)	628	697	69	Mixed-grass prairie: little bluestem, switchgrass (<i>Panicum virgatum</i>), sideoats grama, blue grama (<i>Bouteloua gracilis</i>), sand dropseed (<i>Sporobolus cryptandrus</i>), needle and-thread, prairie sandreed, and sand bluestem (<i>Andropogon hallii</i>).	A transitional area between the loamy, glaciated regions with loess soils to the east and the Sand Hills in the west and south. Cropland agriculture occurs on the more level tablelands and in areas with loamy soils, whereas grassland is found in areas of greater relief.
Level III: Northwestern Great Plains					
River Breaks (43c)	91	105	14	In Montana: bottomlands with heavy soils – western wheatgrass, buffalograss (<i>Bouteloua dactyloides</i>); with gravelly soils – threadleaf sedge (<i>Carex filifolia</i>), and needle and thread. On north-facing slopes – junipers (<i>Juniperus</i> spp.) and deciduous trees. In South Dakota: blue grama, western wheatgrass, buffalograss, some bluestem, and prairie sandreed. Rocky Mountain juniper (<i>Juniperus copulorum</i>) in draws and on north slopes, scattered cottonwoods (<i>Populus</i> spp.) in riparian areas.	In Montana: unglaciated, very dissected terraces and uplands that descend to the Missouri River system and the Yellowstone River system. Primarily used for grazing on native grasses with remnant woodlands in draws and on north facing slopes and alluvial flats. In South Dakota: unglaciated, highly dissected hills and uplands bordering Cheyenne River, Bad River, and White River and alluvial plains. Mostly rangeland and native grasses, cattle grazing, remnant woodlands in draws and on alluvial flats.
	195	200	5		
	423	434	11		
	483	491	8		
	498	498	1		
	540	550	10		
		Total	49		
Montana Central Grassland (43n)	106	109	3	Grama-needlegrass-wheatgrass.	Unglaciated, rolling plains studded with buttes and badlands dissected by many small, ephemeral, or intermittent streams, underlain by fine-grained sedimentary rock. Primarily rangeland, with some irrigated and dry-land farming, and coal mining.
	118	133	15		
	201	285	84		
		Total	102		
Missouri Plateau (43a) *	134	194	60	In Montana: wheatgrass-needlegrass. In South Dakota: blue grama, wheatgrass/needlegrass, little bluestem, and prairie sandreed.	In Montana: primarily unglaciated, treeless, rolling hills and gravel-covered benches; less arid soils result in mosaic of rangeland and farmland with spring wheat, hay, barley, and oats; in contrast to neighboring regions which are mainly rangelands. Subject to wind erosion. In South Dakota: unglaciated, moderately dissected rolling plains with isolated sandstone buttes. Mosaic of dry-land farming with spring wheat, barley, oats, sunflowers, and alfalfa.
	392	421	29		
		Total	89		

Level IV Ecoregions (ID Number)	Milepost		Total Miles	Potential Natural Vegetation	Land Use and Land Cover
	In	Out			
Sagebrush Steppe (43e)	285	286	1	Little sagebrush (<i>Artemisia arbuscula</i>), big sagebrush (<i>A. tridentata</i>), with western wheatgrass, green needlegrass, blue grama, Sandberg bluegrass (<i>Poa secunda</i>), and buffalograss.	Unglaciated, level to rolling plains with occasional buttes, badlands, scoria mounds, and salt pans with thick mats of shortgrass prairie and dusky gray sagebrush. Primarily grazing with minimal cultivation.
Moreau Prairie (43j)	341	391	50	Western wheatgrass, green needlegrass, blue grama, and buffalograss.	Unglaciated, level to rolling plains with occasional buttes, badlands, and numerous salt pans on alkaline soils. Mostly cattle and sheep ranching, with occasional dry-land wheat and alfalfa.
Subhumid Pierre Shale Plains (43f)	435	482	47	Shortgrass prairie: western wheatgrass, green needlegrass, blue grama, and buffalograss.	Unglaciated, undulating to rolling plains with steep-sided, incised streams on shale. Rangeland cattle grazing, dry-land farming winter wheat, and alfalfa.
	492	539	47		
	551	574	23		
		Total	117		
Keya Paha Tablelands (43i)	575	579	4	Mosaic of Sand Hills transition prairie and gravelly mixed-grass prairie: little bluestem, blue grama, sideoats grama, prairie sandreed, threadleaf sedge, western wheatgrass, and needle and thread.	Unglaciated, level to rolling sandy plains with isolated gravelly buttes, dissected near streams. Rangeland with areas of cropland, alfalfa, winter wheat, millet, and corn are principal crops.
	619	625	6		
		Total	10		
Niobara River Breaks (43r)	626	627	1	Ponderosa pine (<i>Pinus ponderosa</i>) woodlands with eastern redcedar south-facing bluffs and canyon slopes. Deciduous woodlands: bur oak, American basswood, green ash, and some paper birch (<i>Betula papyrifera</i>) on north-facing bluffs and lower canyon slopes. Plains cottonwoods and eastern redcedar on floodplains and mixed grass and Sand Hills prairies in valley.	Rangeland with scattered cropland in valley bottom. Recreational use.
Level III: Western Corn Belt Plains					
Transitional Sandy Plain (47l)	698	715	17	Potential natural vegetation is a combination of Sand Hills prairie, tallgrass prairie, and some wet meadows, and lacks the oak-hickory forest component found in more eastern regions.	Contains some of the characteristics of Sand Hills in the west and the glaciated regions to the east. This level to rolling plain has fine sandy loams to fine sands with soils coarser and sandier than those in other regions.

Level IV Ecoregions (ID Number)	Milepost		Total Miles	Potential Natural Vegetation	Land Use and Land Cover
	In	Out			
Northeastern Nebraska Loess Hills (47k)	716	733	17	Cropland, especially corn, is common, and there is more irrigated agriculture and pastureland, but fewer scattered woodlands than neighboring Western Corn Belt Plains.	Has an older, coarser loess mantle that is not as weathered as in ecoregions to the south. The climate is generally cooler with slightly lower annual precipitation than in southern glaciated regions.
Level III: Central Great Plains					
Central Nebraska Loess Plains (27e)	734	761	27	Mixed-grass prairie big bluestem, little bluestem, sideoats grama, blue grama, and western wheatgrass with eastern redcedar intrusion. Redcedar concentrated in northwest and next to Sand Hills.	Rolling, dissected plains with deep loess layer, perennial and intermittent streams. Predominantly rangeland with large areas of cropland in winter wheat, corn, forage crops, and some irrigated agriculture.
Platte River Valley (27g)	762	776	14	Lowland tallgrass prairie with areas of wet meadow and marsh. With flood management and reduced river flow, floodplain forests have increased along the Platte River.	Flat, wide, alluvial valley with shallow, interlacing streams on a sandy bed. Extensive cropland, much of which is irrigated, corn, grain sorghum, soybeans, and alfalfa. Some native rangeland and hay lands; many channelized streams and flood control structures.
Rainwater Basin Plains (27f)	777	872	95	Transitional tallgrass prairie to the east and mixed-grass prairie in the west dominated by big bluestem, little bluestem, and sideoats grama. Wetlands dominated by western wheatgrass, sedge, spikerush (<i>Eleocharis</i> spp.) and slender bulrush (<i>Schoenoplectus heterochaetus</i>).	Flat to gently rolling loess-covered plains; historically covered with extensive rainwater basins and wetlands. Extensive cropland, dry-land sorghum and winter wheat, irrigated corn, and alfalfa. Most of the basins have been drained for cultivation.
Smokey Hills (27a)	873	875	2	Transition from tallgrass prairie in the east to mixed-grass prairie in the west. Some floodplain forests along riparian areas.	Cropland with winter wheat as primary crop (more corn grown in irrigated areas) and areas of grassland.

Sources: Level III Ecoregions are based on USEPA (2007); Level IV Ecoregions are based on (USEPA 2012a, USEPA 2012b, and USEPA 2012c). Plant names follow U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS) (2012) PLANTS Database. Milepost information from exp Energy Services, Inc. 2012.

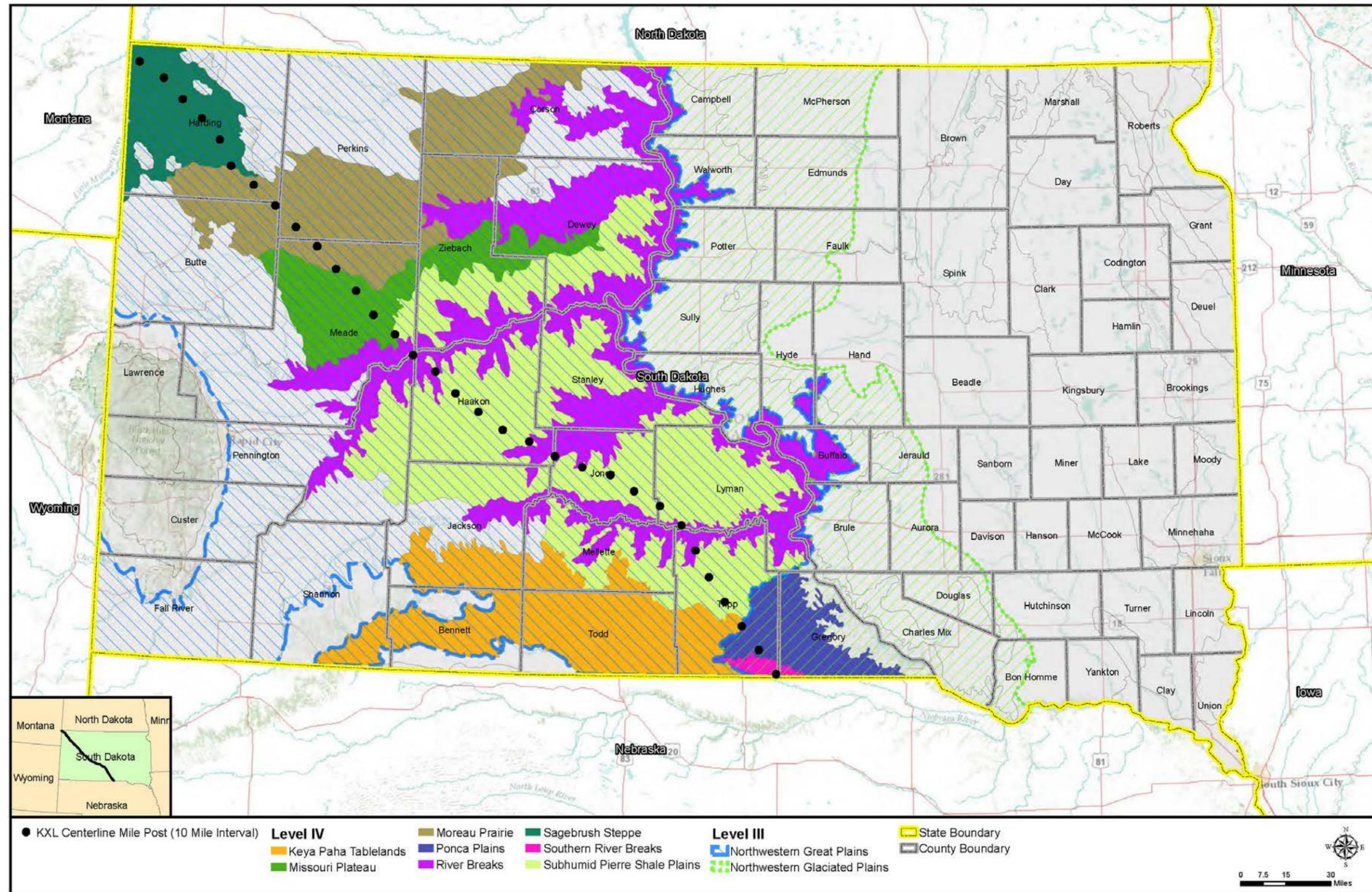
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Source: USEPA 2012a through 2012c, respectively.

Figure 3.5.2-1 Montana USEPA Ecoregions

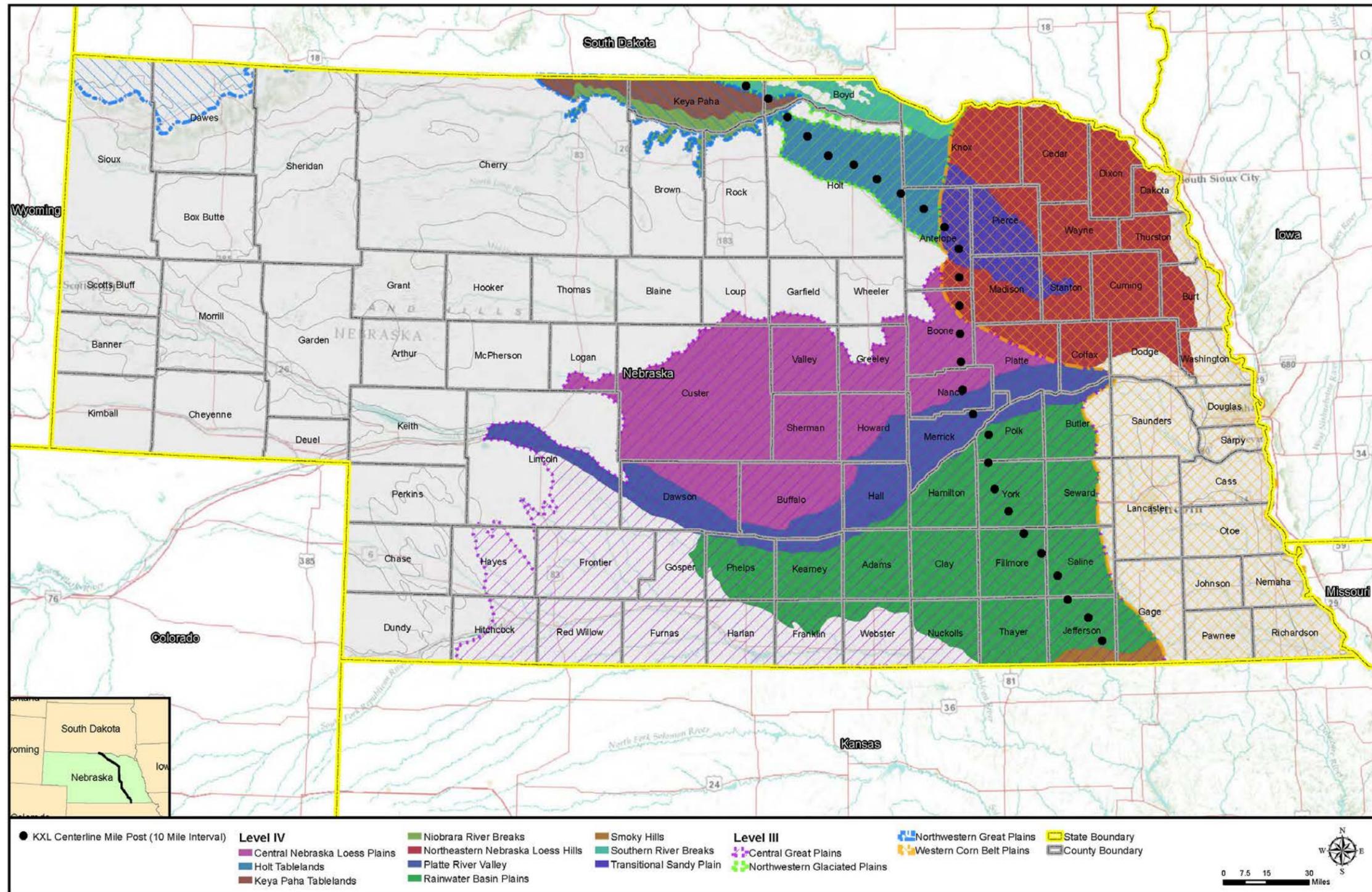
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Source: USEPA 2012a through 2012c, respectively.

Figure 3.5.2-2 South Dakota USEPA Ecoregions

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Source: USEPA 2012a through 2012c, respectively.

Figure 3.5.2-3 Nebraska USEPA Ecoregions

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Table 3.5-3 Land Cover Types with Ecosystem Designations Crossed by the Proposed Pipeline Route

Ecosystem Designation	Description	Common Plants	Presence per State		
			MT	SD	NE
Cultivated Cropland					
Cultivated Cropland	Cultivated land, row crops, hayfields.	Wheat, barley, oats, sorghum, corn, beans, and hay.	X	X	X
Pasture/Hay		Non-native grasslands.	X	X	X
Developed Land					
Open Space	Land that is not intensively developed for residential, commercial, industrial, or institutional use.	NA ^a	X	X	X
Low Intensity	Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49% of the total cover. Single-family housing units are commonly found in these areas.	NA	X	X	X
Medium Intensity	Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79% of the total cover. Single-family housing units are commonly found in these areas.	NA	X	X	X
Non-Specific				X	X
Nonvascular/Sparse Rock Vegetation					
Western Great Plains Badlands	Land lies below its local base level and is shaped by streams, erosion, and erodible parent material. Noted for the relative absence of vegetative cover.	Dryland shrubs or herbaceous taxa.	X	X	
Grassland/Rangeland					
Inter Mountain Basins Big Sagebrush Steppe	Occurs on both glaciated and non-glaciated landscapes. Soils are typically deep and non-saline with a microphytic crust.	Wyoming big sagebrush (<i>Artemisia tridentata</i> spp. <i>Wyomingensis</i>), western wheatgrass, xeromorphic shrubs.	X	X	
Northwestern Great Plains Mixed-grass Prairie	Occurs on both glaciated and non-glaciated landscapes. Soils are typically deep and non-saline with a microphytic crust.	Western wheatgrass, thickspike wheatgrass (<i>Elymus lanceolatus</i>), green needlegrass, blue grama, and needle and thread (<i>Hesperostipa comata</i>).	X	X	X
Introduced Upland Vegetation - Perennial Grassland and Forbland	Land cover is significantly altered/disturbed by introduced, non-native perennial grasses and forbs. Natural vegetation types are no longer recognizable.	Crested wheatgrass (<i>Agropyron cristatum</i>), smooth brome (<i>Bromus inermis</i>), Kentucky bluegrass (<i>Poa pratensis</i>), knapweed (<i>Centaurea</i> spp.), Canada thistle (<i>Cirsium arvense</i>), leafy spurge (<i>Euphorbia esula</i>), pepperweed (<i>Lepidium</i> spp.), and sweet clover (<i>Melilotus officinalis</i>).	X	X	

Ecosystem Designation	Description	Common Plants	Presence per State		
			MT	SD	NE
Perennial Grassland and Forbland	Herbaceous cover dominated by introduced perennial grasses and forbs.	Crested wheatgrass, smooth brome, Kentucky bluegrass, knapweed, Canada thistle, leafy spurge, pepperweed, and sweetclover.			X
Western Great Plains Sand Prairie	Coarse textured soils.	Needle and thread, little bluestem, threadleaf sedge, prairie sandreed, sand bluestem (<i>Andropogon hallii</i>), and big bluestem (<i>Andropogon gerardii</i>).	X	X	X
Western Great Plains Tallgrass Prairie	Less than 5-11% tree cover.	Big bluestem, Indian grass (<i>Sorghastrum nutans</i>), switch grass (<i>Panicum virgatum</i>), little bluestem, and several grama grasses.		X	X
Central Mixed-grass Prairie	Transition zone where tallgrass and shortgrass prairie merge, taking on the characteristics of both.	Tall and shortgrass prairie species, blue grama, buffalo grass, sideoats grama, western wheatgrass, sand dropseed, Indian grass, and Canada wild rye (<i>Elymus Canadensis</i>).		X	X
Central Tallgrass Prairie	Rich loess soils and receives 25 to 36 inches of annual precipitation.	Big bluestem, Indian grass, switchgrass, Canada wild rye, showy goldenrod (<i>Solidago speciosa</i>), prairie blazing star (<i>Liatris pycnostachya</i>), sky blue aster (<i>Aster oolentangiensis</i>), and purple coneflower.			X
Northwestern Great Plains Shrubland	Found at elevations 1,220 to 1,524 meters. It is more commonly found at mesic sites with moderately shallow or deep, fine to sandy loam soils.	Serviceberry (<i>Amelanchier arborea</i>), skunkbush sumac (<i>Rhus trilobata</i>), snowberry (<i>Symphoricarpos albus</i>), silver buffalo berry (<i>Shepherdia argentea</i>), shrubby cinquefoil (<i>Potentilla fruticosa</i>), silverberry (<i>Elaeagnus ebbingei</i>), and horizontal rug juniper (<i>Juniperus horizontalis</i>).	X	X	
Upland Forest					
Western Great Plains Wooded Draw and Ravine	Associated with highly intermittent or ephemeral streams. May occur on steep northern slopes or within canyon bottoms where soil moisture and topography produce higher moisture levels.	Rocky Mountain juniper, aspen, paper birch, and boxelder maple.	X	X	X
Northwestern Great Plains- Black Hills Ponderosa Pine Woodland and Savanna	Typically found within the matrix of the Great Plains grassland systems where available soil moisture is higher or soils are more coarse and rocky.	Ponderosa pine, Douglas fir (<i>Pseudotsuga menziesii</i>), Rocky Mountain juniper, bearberry (<i>Arctostaphylos uvaursi</i>), big bluestem, and pussy toes (<i>Anthennaria neglecta</i>).	X	X	
Northern Rocky Mountain Foothill Conifer Wooded Steppe	Occurs between lower tree line and grasslands or shrublands on warm, dry, exposed sites that are too droughty to support a canopy.	Ponderosa pine, western juniper (<i>Juniperus occidentalis</i>), and bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>).	X	X	

Ecosystem Designation	Description	Common Plants	Presence per State		
			MT	SD	NE
Northern Rocky Mountain Foothill Limber Pine-Juniper Woodland	Found in the foothill and lower montane zones. Receives a relatively small amount of precipitation. It occurs mainly on limestone substrates.	Limber pine (<i>Pinus flexilis</i>) and juniper.	x		
Western Great Plains Dry Bur Oak Forest/Woodland	Occurs in small-to-large patches on buttes, escarpments, and in foothill zones, usually on northerly facing slopes.	Bur oak, American basswood, quaking aspen, and eastern redcedar.		x	x
Ruderal Forest	Pioneer species of disturbed lands.	Maple, oak, ponderosa pine with crested wheatgrass, smooth brome, and Kentucky bluegrass.			x
NC Interior Dry-Mesic Oak Forest/Woodland	Found in gently rolling to flat landscapes. Characterized by a dry edaphic condition that is transitional between dry prairies, oak barrens, or savannas and dry-mesic oak-hickory forests and woodlands.	Eastern black oak (<i>Quercus velutina</i>), bur oak, scarlet oak (<i>Quercus coccinea</i>), and northern pin oak (<i>Quercus ellipsoidalis</i>).			x
Open Water					
Open Water (Fresh)	Open water, sometimes associated with wetland habitat.	Emergent and submergent vegetation.	x	x	x
Wetland Forest					
Northwestern Great Plains Riparian	Associated with perennial to intermittent or ephemeral streams. Flooding is the key ecosystem process.	Black cottonwood, narrowleaf cottonwood (<i>Populus trichocarpa</i>), Plains cottonwood, willow, red osier dogwood (<i>Cornus sericea</i>), western wheatgrass, American licorice (<i>Glycyrrhiza lepidota</i>), big sagebrush, and silver sagebrush (<i>Artemisia cana</i>).	x	x	
Northwestern Great Plains Floodplain	Meandering channels with alluvial bar formation. Vegetation occurs in bands or zones reflecting past deposition.	Black cottonwood, narrow leaf cottonwood, eastern cottonwood, Plains cottonwood, willow, red osier dogwood, common chokecherry (<i>Prunus virginiana</i>), boxelder, and green ash.	x		
Introduced Riparian and Wetland Vegetation	Dominated by introduced species that are spontaneous, self-perpetuating, and the delayed result of planting, cultivation, and/or human maintenance.	Purple loosestrife (<i>Lythrum salicaria</i>), reed canary grass (<i>Phalaris arundinacea</i>), and common reed.	x		
Western Great Plains Floodplain Systems	Woody and herbaceous communities associated with larger rivers and streams that are subject to at least seasonal inundation.	Cottonwood, willows, switchgrass, snowberry, and buffaloberry.		x	x
Southern Great Plains Floodplain Forest	Primarily along the floodplains or medium and large rivers. Soils are mainly alluvial and range from sand to dense clays.	Eastern cottonwood, willows, switchgrass, big bluestem.			x

Ecosystem Designation	Description	Common Plants	Presence per State		
			MT	SD	NE
Palustrine Emergent Wetland					
Great Plains Prairie Pothole	Occur in shallow depressions scraped out by glaciers.	Hardstem bulrush (<i>Schoenoplectus acutus</i>), softstem bulrush (<i>Schoenoplectus tabernaemontani</i>), common threesquare (<i>Schoenoplectus pungens</i>), cattails (<i>Typha</i> spp.), aquatic buttercups (<i>Ranunculus hydrocharoides</i>), aquatic smartweeds (<i>Lemna</i> spp.), pondweeds (<i>Elodea</i> spp.), duckweeds (<i>Lemnaceae</i> spp.), spikerush, and foxtail barley (<i>Hordeum jubatum</i>).	x		
North American Arid West Emergent Marsh	Occur in depressions in the landscape, as fringes around lakes, and along the mainstem and backwater channels of slow flowing streams and rivers.	Bulrushes (<i>Scirpus</i> spp.), cattails, rushes, pondweeds, smartweeds (<i>Polygonum</i> spp.), and pond lilies (<i>Nymphaeaceae</i> spp.).	x		
Inter-Mountain Basins Greasewood Flat	Found on nearly level, older alluvial terraces on broad or narrow floodplains and coalescing alluvial fans in valley. They typically have saline soil and a shallow water table.	Greasewood (<i>Sarcobatus vermiculatus</i>) is the dominant shrub.	x	x	
Western Great Plains Saline Depression Wetland	Discharge wetlands where highly saline water has moved into the depression. The water is prevented from percolating out due to impermeable dense clay.	Alkali bulrush (<i>Schoenoplectus maritimus</i>), common threesquare, inland saltgrass (<i>Districhlis spicata</i>), Nuttall's alkali grass (<i>Puccinellia nuttalliana</i>), foxtail barley, red swampfire (<i>Salicornia rubra</i>), and freshwater cordgrass (<i>Spartina pectinata</i>).	x	x	
Eastern Great Plains Wet Meadow, Prairies, and Marsh	Herbaceous wetland communities that are found in drainages within loess-mantled hills.	Hydrophytic graminoids.		x	x
Western Great Plains Depressional Wetland Systems	Completely isolated from both the regional groundwater system and inter-wetland surface drainage basins. They occur in depressional basins found flat, enclosed upland areas or on level, shallow lake basins.	Western wheatgrass, foxtail barley, povertyweed (<i>Iva axillaris</i>), willow dock (<i>Rumex salicifolius</i>), spikerush, and hardstem bulrush.	x	x	x

Source: USGS 2011 GAP Analysis. Descriptions and common plants obtained from metadata. Plant names follow U.S. Department of Agriculture (USDA) National Resource Conservation Services (NRCS) 2012 PLANTS Database.

^a Not applicable (NA).

Table 3.5-4 Land Cover Types with Ecosystem Designations in which Proposed Ancillary Facilities in North Dakota and Kansas would be Located

Ecosystem Designation	Description	Common Plants
North Dakota		
Cultivated Cropland		
Cultivated Cropland	Cultivated land, row crops, hayfields.	Wheat, barley, oats, sorghum, corn, beans, and hay.
Developed Land		
Open Space	Land that is not intensively developed for residential, commercial, industrial, or institutional use.	NA ^a
Grassland/Rangeland		
Northwestern Great Plains Mixed-grass Prairie	Occurs on both glaciated and non-glaciated landscapes. Soils are typically deep and non-saline with a microphytic crust.	Western wheatgrass, thickspike wheatgrass, green needlegrass, blue grama, and needle and thread.
Upland Forest		
Northwestern Great Plains Shrubland	Found at elevations 1,220 to 1,524 meters. It is more commonly found at mesic sites with moderately shallow or deep, fine to sandy loam soils.	Serviceberry, skunkbush sumac, snowberry, silver buffalo berry, shrubby cinquefoil, silverberry, and horizontal rug juniper.
Western Great Plains Wooded Draw and Ravine	Associated with highly intermittent or ephemeral streams. May occur on steep northern slopes or within canyon bottoms where soil moisture and topography produce higher moisture levels.	Rocky Mountain juniper, aspen, paper birch, and boxelder maple.
Kansas		
Developed Land		
Open Space	Land that is not intensively developed for residential, commercial, industrial, or institutional use.	NA ^a
Grassland/Rangeland		
Harvested Forest - Grass/Forb Regeneration	Harvested forest lands for timber. Perennial groundcovers regenerating under natural conditions.	Crested wheatgrass, smooth brome, Kentucky bluegrass, knapweed, Canada thistle, leafy spurge, pepperweed, and sweetclover.
Southeastern Great Plains Tallgrass Prairie	This system is primarily found in the Flint Hills and Osage Plains of Kansas and Oklahoma. Generally thin soil layer over limestone beds; relatively unsuitable for farming.	Big bluestem, switchgrass, little bluestem, indiangrass, stiff goldenrod (<i>Oligoneuron rigidum</i>), Nebraska blazing star (<i>Liatris punctata</i>), white heath aster (<i>Symphyotrichum ericoides</i>).

Ecosystem Designation	Description	Common Plants
Upland Forest		
North-Central Interior Dry-Mesic Oak Forest and Woodland	System is typically found throughout glaciated areas of the Midwest, usually occurring in gently rolling landscapes with well drained soils.	Bur oak, Northern Red Oak (<i>Quercus rubra</i>), bitternut hickory (<i>Carya cordiformis</i>), and mockernut hickory (<i>Carya alba</i>).
Wetland Forest		
Southeastern Great Plains Floodplain Forest	System is typically found in floodplains of rivers of the East Central Texas Plains, Texas Blackland Prairie Regions, Crosstimbers, and the southeastern edge of the Central Great Plains. Soil formation is dominated by periodic flooding and related sediment deposition.	Pecan (<i>Carya illinoensis</i>), cedar elm (<i>Ulmus crassifolia</i>), American elm (<i>Ulmus americana</i>), sugarberry (<i>Celtis laevigata</i>), water oak (<i>Quercus nigra</i>), and white ash (<i>Fraxinus americana</i>).

Source: USGS 2011 GAP Analysis. Descriptions and common plants obtained from metadata. Plant names follow U.S. Department of Agriculture (USDA) National Resource Conservation Services (NRCS) 2012 PLANTS Database.

^a Not applicable (NA).

3.5.4 Biologically Unique Landscapes and Vegetation Communities of Conservation Concern

Native vegetation communities throughout the proposed Project area have been altered by agricultural, urban, and industrial development and by changes in ecosystem processes that have maintained or reset succession, including fire, bison grazing, and prairie dog use. Some of the vegetation communities crossed by the proposed Project route have become conservation concerns by state and federal agencies as well as non-profit collaborations. Vegetation communities are generally of concern because of declining abundance, sensitivity to disturbance, and/or reliance of listed or sensitive species on the habitats that they create. The vegetative communities of conservation concern crossed by the proposed Project route include native grasslands, Rainwater Basin, sagebrush steppe, riparian forest, and native forests. Additionally, vegetation cover within wetlands, conservation and reserve areas, wildlife production areas, and unique landscapes are sensitive habitats that provide valuable resources for wildlife. The following subsections provide brief descriptions of these unique vegetation communities. Figures 3.5.4-1 through 3.5.4-3 illustrate the current distribution of native grasslands, Rainwater Basin, sagebrush steppe, riparian forest, and native forest communities crossed by the proposed Project route.

3.5.4.1 *Native Grasslands*

Native grasslands or prairies are among the most threatened native vegetation communities in the United States. In the past, grasslands such as the tallgrass prairies, mixed-grass prairies, and shortgrass prairies dominated central North America. Across the proposed Project area, the influence of fire and grazing, especially by large herds of bison in the past, maintained native grasslands in a relatively treeless condition. With suppression of fires, woody vegetation has encroached upon the prairie landscape in some parts of Great Plains. Prairies have been lost to agriculture, urbanization, and mineral exploration and altered by invasions of non-native plants, fire suppression, and the establishment of woodlots and shelterbelts.

Tallgrass prairie is the wettest of the grasslands composed of sod-forming grasses. Mixed-grass prairies are intergrades between tallgrass and shortgrass prairies characterized by the warm-season grasses of the shortgrass prairie and the cool and warm-season grasses of the tallgrass prairie. Shortgrass prairies are dominated by blue grama and buffalograss—two warm-season grasses that flourish under intensive grazing. For some of the Great Plains states crossed by the proposed Project route, estimated declines range from 83 to 99 percent for native tallgrass prairie, 30 to 75 percent for mixed-grass prairie range, and 35 to 79 percent for shortgrass prairie (Samson et al. 1998). The proposed Project route would cross through the unique Verdigris-Bazile landscape in northeastern Nebraska. This area consists primarily of a mosaic of cropland, restored native grasslands, native tallgrass and mixed-grass prairie, and exotic cool season grasslands (Nebraska Natural Legacy Project [NNLP] 2012). Because of the decline and the importance of these areas as wildlife habitat, conservation of native prairie remnants is a high priority throughout the proposed Project area. Many of the sensitive plant species discussed in Section 3.8, Threatened and Endangered Species, that occur along the proposed pipeline route occur within native grasslands.

3.5.4.2 Rainwater Basin

The proposed Project route crosses through the Rainwater Basin landscape in Nebraska. The Rainwater Basin encompasses a 17-county area in central Nebraska. It is a complex of wetlands and grasslands on the flat to rolling loess-covered plains of the Rainwater Basin Plains. The landscape was historically a tall- to-mid-grass prairie plain containing as many as 11,000 playa¹ wetlands that covered more than 100,000 acres (Western Hemisphere Shorebird Reserve Network [WHSRN] 2012). This complex of playa wetlands formed by wind scour¹ retains water because of impervious clay layers accumulated in the bottoms of the depressions over thousands of years. These clay layers slow water from seeping into the ground (LaGrange 2005). Surface water drainage is poorly developed, and wetlands fill with precipitation and snowmelt (Schneider et al. 2005). This region supports millions of migratory ducks, geese, and shorebirds. Vegetation communities include mixed grass, tallgrass, and saline prairie communities.

3.5.4.3 Sagebrush Steppe

Mixed shrub and grass habitats characterize large expanses of grasslands throughout Montana and South Dakota. Depending on site moisture, communities may include silver sagebrush in more moist areas, big sagebrush and rabbitbrush (*Chrysothamnus* spp. and *Ericameria* spp.) in drier areas, or greasewood in alkali flats. Large areas of intact native sagebrush grasslands are a conservation priority in Montana and South Dakota. Sagebrush is susceptible to fire, and low-lying, xeric² big sagebrush communities may have a natural fire return interval of 100 to 200 years depending on topography and exposure. Sagebrush communities on more moist sites may have a natural fire interval of decades (U.S. Fish and Wildlife Service [USFWS] 2008). Post-fire re-establishment of sagebrush communities may require 20 to 50 years.

3.5.4.4 Riparian Habitats and Bottomland Hardwood

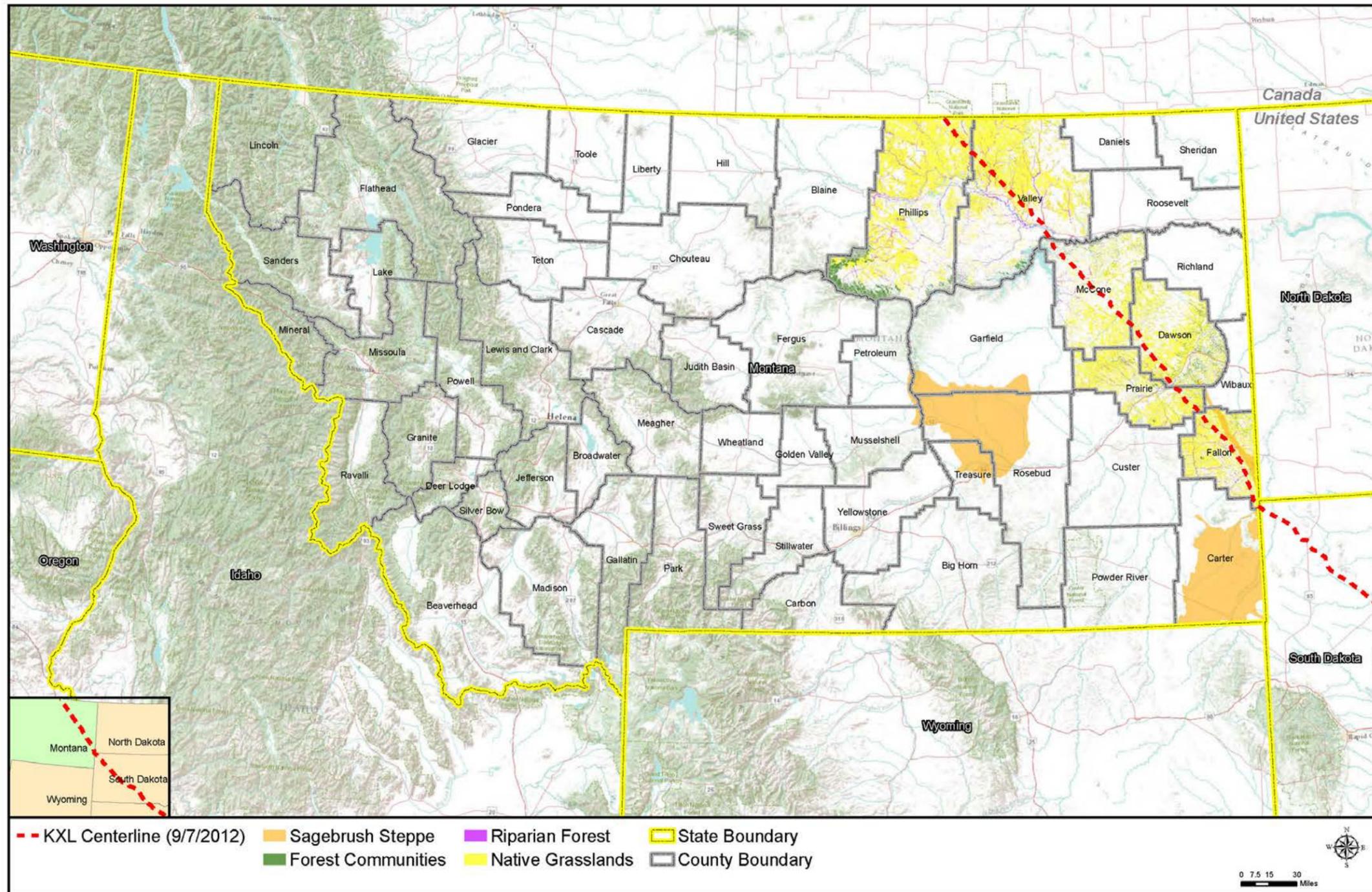
Riparian areas are important as wildlife habitat within the western United States (USFWS 1997) because riparian areas provide wildlife with habitat for food, dens, and nests. Riparian areas represent a transition between wetland and upland habitats but generally lack the amount or duration of water present in wetlands. Riparian vegetation may include wetland or upland plants. Riparian habitats identified as conservation priorities in Montana by the Natural Resource Conservation Services (NRCS) Wildlife Habitat Incentive Program include woody draws (dry streambed areas dominated by broadleaf riparian communities such as cottonwood-alder-chokecherry-willow communities), shrub riparian communities (alder-chokecherry-dogwood communities), graminoid³ and forb⁴ riparian communities (bluejoint reedgrass-cinquefoil-cattails), and mixed riparian communities (mixed grasses and shrubs) (NRCS 2012).

¹ Shallow, ephemeral ponds or lagoons that experience significant seasonal changes in semi-arid to arid climates. Often have high salinity or may be completely dry (Aber 2012).

² Habitat generally deficient of moisture.

³ Grass or grass-like plant, including grasses (*Poaceae*), sedges (*Cyperaceae*), rushes (*Juncaceae*), arrow-grasses (*Juncaginaceae*), and quillworts (*Isoetes*) (USDA NRCS 2012).

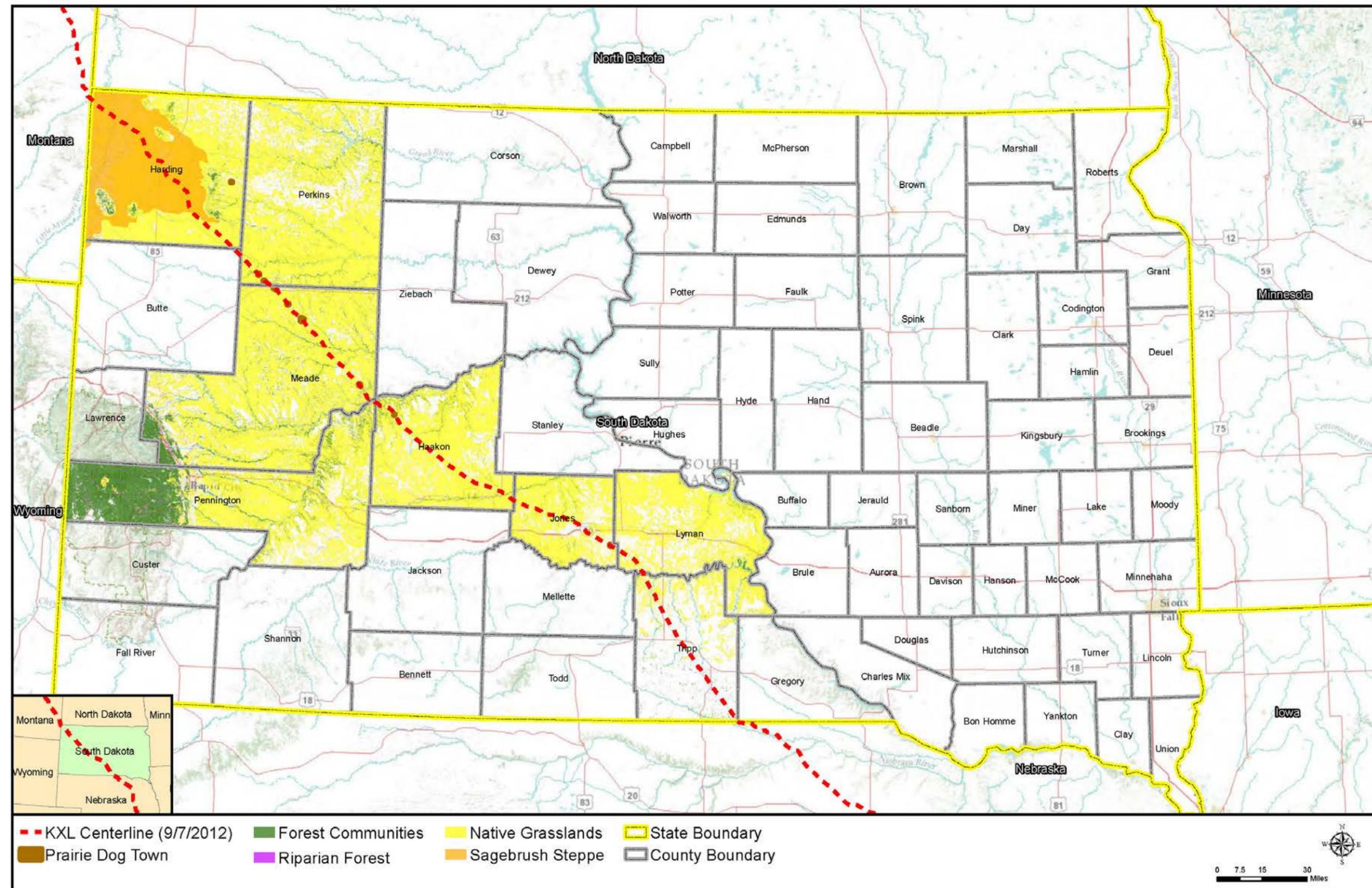
⁴ Vascular plant without significant woody tissue above or at the ground. Forbs and herbs may be annual, biennial, or perennial but always lack significant thickening by secondary woody growth and have perennating buds borne at or below the ground surface (USDA, NRCS 2012).



Source: USGS GAP 2011; Fry et al. 2011; USEPA 2012a.

Figure 3.5.4-1 Montana Vegetation Communities of Conservation Concern

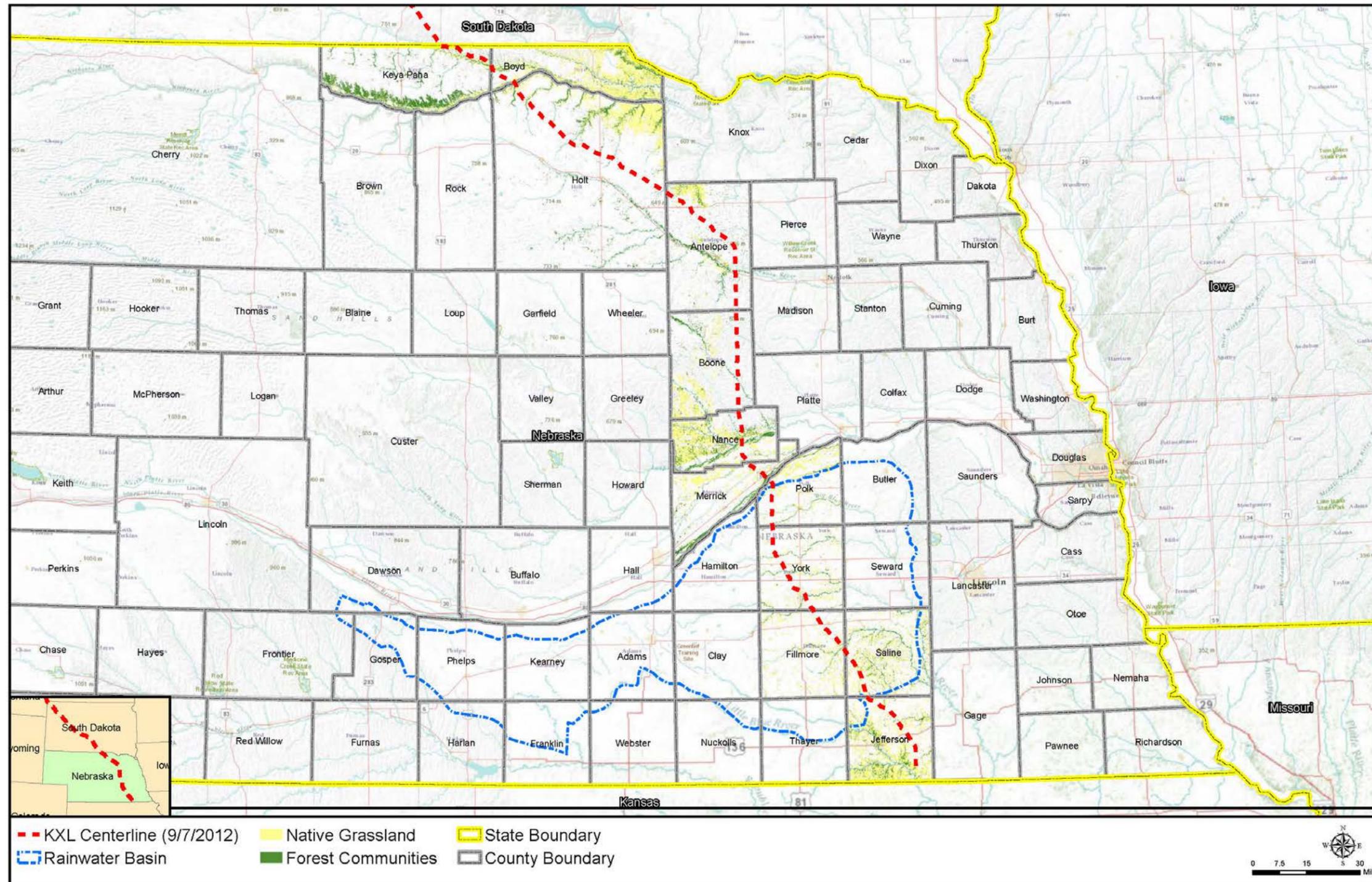
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Source: USGS GAP 2011; Fry et al. 2011; USEPA 2012b; and exp Energy Services, Inc. 2012.

Figure 3.5.4-2 South Dakota Vegetation Communities of Conservation Concern

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Source: USGS GAP 2011; Fry et al. 2011; USEPA 2012c; and exp Energy Services Inc. 2012.

Figure 3.5.4-3 Nebraska Vegetation Communities of Conservation Concern

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Extensive riparian habitats occur near the confluence of the Milk and Missouri Rivers, and near the Yellowstone River in Montana. High-priority conservation riparian communities in South Dakota include areas with emergent, scrub-shrub, or forest vegetation in semi-permanent or permanent depressional wetlands and low-gradient perennial streams and rivers (South Dakota Department of Game, Fish, and Parks [SDGFP] 2006). The proposed Project route would cross through the Keya Paha Watershed, Lower Niobrara River, Verdigris-Bazile, and Lower Loup River Unique Landscapes in Nebraska with priority cottonwood-willow riparian woodlands.

3.5.4.5 Forest Communities

Native wooded communities were once an integral component of the prairie landscape throughout the Great Plains where they provide foraging, breeding, and refuge habitats for many wildlife species. Prairie woodlands were generally limited in size and distribution by fire to river breaks and protected areas. Many of these communities have been lost due to land conversion to agricultural uses, levee construction, and urban development.

In Montana, green ash and cottonwood woodlands are declining in number (Montana Fish, Wildlife & Parks [MFWP] 2005). No forested habitats are considered high-conservation priorities within the Great Plains Steppe region of South Dakota (SDGFP 2006). Within the biologically unique landscapes identified in Nebraska, several forest communities are identified as conservation priorities including Keya Paha Watershed (oak woodland), Middle Niobrara River (bur oak-basswood-ironwood forest, oak woodland, and ponderosa pine woodland), and Lower Loup River (oak woodland) (Schneider et al. 2005).

3.5.4.6 Traditionally Used Native Plants

Native Americans traditionally have used many native plants for food, construction materials, forage for livestock, fuel, medicine, and spiritual purposes (Johnston 1987, Hart and Moore 1976, and Gilmore 1977). Although dependence on plants for many aspects of survival in the natural environment has become less pronounced in recent times, plants continue to be of substantial importance to the culture of most Native Americans. The plants themselves are important and in some cases, indigenous peoples consider them sacred. Places where traditionally used plants grow and have been collected for many generations may be considered to have spiritual and cultural significance.

Plants of ethnobotanical importance known or likely to occur in the proposed Project area include plants from all native vegetation communities, although many grow in wetlands and riparian areas. Important wetland and riparian plants include cottonwood (*Populus* spp.), hawthorn (*Crataegus* spp.), sweet grass (*Hierochloe odorata*), cattail (*Typha* spp.), snowberry (*Symphoricarpos* spp.), silver buffaloberry (*Sheperdia argentea*), and saskatoon (*Amelanchier alnifolia*). Wetlands and riparian habitats occupy a small percentage of the land area in the Great Plains; however, they are disproportionately important as sources of traditionally used plants. Native grasslands also provided numerous traditionally used plants including: Indian bread-root (*Psoralea esculenta*), wild flax (*Linum lewisii*), prickly pear cactus (*Opuntia* spp.), fringed sage (*Artemisia frigida*), and white sage (*Artemisia ludoviciana*). Reductions in native grasslands have also reduced populations of plants valued by Native Americans. In addition to plants traditionally used by Native Americans, many people also use and collect for sale the purple (or prairie) coneflower (*Echinacea* spp.) as an herbal supplement.

3.5.5 Wetland and Conservation Easements

The proposed Project route would cross multiple conservation easements including USFWS wetland easements, MFWP Conservation Easements, and multiple conservation agreements enrolled in the NRCS Conservation Reserve Program and the Wetland Reserve Program. The Wetland Reserve Program and Conservation Reserve Program are described in Section 3.9, Land Use, Recreation, and Visual Resources, of this Supplemental Environmental Impact Statement. The exact location and extent of these easements or agreements relative to the proposed Project route is pending additional relevant information and will be included, as available, in this review as part of the Final Supplemental EIS.

3.5.6 Noxious Weeds

Under the Federal Plant Protection Act of 2000 (formerly the Noxious Weed Act of 1974 [Title 7 of the United States Code Sections 2801–2814]), the U.S. Department of Agriculture (USDA) defines a noxious weed as “any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.” Noxious weeds and invasive plants are non-native, undesirable native, or introduced species. They are able to exclude and out-compete desirable native species, thereby decreasing overall species diversity. The Federal Plant Protection Act contains a list (updated February 2012) of 137 federally restricted and regulated noxious weeds (as per Title 7 of the Code of Federal Regulations, Chapter III, Part 360) including 19 aquatic and wetland weeds, 62 parasitic weeds, and 56 terrestrial weeds. Each state is federally mandated to uphold the rules and regulations set forth by the Federal Plant Protection Act and to manage its lands accordingly.

In addition to federal noxious weed lists, each state maintains a list of state and local noxious weeds. County weed control boards or districts are present in most counties along the proposed pipeline route. These county weed control boards monitor local weed infestations and provide guidance on weed control. Weed distributions (USDA NRCS 2012) in the counties along the proposed pipeline route suggest that 50 noxious weeds and invasive plants could potentially occur within the construction right-of-way. These are broadly categorized as follows:

- Six aquatic or wetland weeds;
- Thirty-seven upland weeds; and
- Seven weeds that may occur in either wetland or upland habitats.

Of these 50 weeds (listed in Table 3.5-5), 46 occur in Montana, 31 occur in South Dakota, and 28 occur in Nebraska. Of those, common crupina (*Crupina vulgaris*) and dodder (*Cuscuta* spp.) are federally designated noxious weeds. Executive Order 13112 directs federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species can cause. It further specifies that federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless it has been determined that the benefits outweigh the potential harm and that all feasible and prudent measures to minimize risk have been taken.

Table 3.5-5 Federal, State, or Local Introduced, Invasive, and Noxious Weeds Potentially Occurring Along the Proposed Project Route^a

Species ^c	Status/Habitat	Occurrence and State/County Designations ^{b,d}		
		MT	SD	NE
Hardheads [Russian knapweed] (<i>Acroptilon [Centaurea] repens</i>)	Introduced/Upland	x	x	
Lesser [Common] burdock (<i>Arctium minus</i>)	Introduced/Upland	x	x	x
Hoary alyssum (<i>Berteroa incana</i>)	Introduced/Upland	x		
Cheatgrass (<i>Bromus tectorum</i>)	Introduced/Upland	x	x	x
Flowering rush (<i>Butomus umbellatus</i>)	Introduced/Wetland	x		x
Whitetop [Hoary cress] (<i>Cardaria draba</i>)	Introduced/Upland	x	x	x
Spiny plumeless thistle (<i>Carduus acanthoides</i>)	Introduced/Upland		x	x
Nodding plumeless [musk] thistle (<i>Carduus nutans</i>)	Introduced/Upland	x	x	x
Diffuse [white] knapweed (<i>Centaurea diffusa</i>)	Introduced/Upland	x	x	x
Yellow star-thistle (<i>Centaurea solstitialis</i>)	Introduced/Upland	x	x	x
Spotted knapweed (<i>Centaurea stoebe [maculosa]</i>)	Introduced/Upland	x	x	x
Rush skeletonweed (<i>Chondrilla juncea</i>)	Introduced/Upland	x		
Tall thistle (<i>Cirsium altissimum</i>)	Native/Upland			x
Canada thistle (<i>Cirsium arvense</i>)	Introduced/Wetland and Upland	x	x	x
Flodman thistle (<i>Cirsium flodmanii</i>)	Native/Upland			x
Bull thistle (<i>Cirsium vulgare</i>)	Introduced/Upland	x	x	x
Poison hemlock (<i>Conium maculatum</i>)	Introduced/Wetland and Upland	x	x	x
Field bindweed (<i>Convolvulus arvensis</i>)	Introduced/Upland	x	x	x
Common Crupina (<i>Crupina vulgaris</i>)^b	Introduced/Upland	x		
Dodder (<i>Cuscuta spp.</i>)	Introduced and Native/ Upland	x	x	x
Gypsyflower [Houndstongue] (<i>Cynoglossum officinale</i>)	Introduced/Upland	x	x	x
Scotch Broom (<i>Cytisus scoparius</i>)	Introduced/Upland	x		
Common viper's bugloss [Blueweed] (<i>Echium vulgare</i>)	Introduced/Upland	x		
Russian olive (<i>Elaeagnus angustifolia</i>)	Introduced/Upland	x	x	x
Leafy spurge (<i>Euphorbia esula</i>)	Introduced/Upland	x	x	x
Baby's breath (<i>Gypsophila paniculata</i>)	Introduced/Upland	x	x	
Orange hawkweed (<i>Hieracium aurantiacum</i>)	Introduced/Upland	x	x	
Meadow hawkweed complex (<i>Hieracium caespitosum</i> , <i>H. x. floribundum</i> , <i>H. piloselloides</i>)	Introduced/Upland	x		

Species ^c	Status/Habitat	Occurrence and State/County Designations ^{b,d}		
		MT	SD	NE
Hydrilla (<i>Hydrilla verticillata</i>)	Introduced/Wetland	x		
Common St. Johnswort (<i>Hypericum perforatum</i>)	Introduced/Upland	x		x
Paleyellow iris [Yellow flag iris] (<i>Iris pseudacorus</i>)	Introduced and Upland and Wetland	x		
Dyer's woad (<i>Isatis tinctoria</i>)	Introduced/Upland	x		
Broadleaved [Perennial] pepperweed (<i>Lepidium latifolium</i>)	Introduced/Upland	x		
Oxeye daisy (<i>Leucanthemum vulgare</i> [<i>Chrysanthemum leucanthemum</i>])	Introduced/Upland	x	x	
Dalmatian toadflax (<i>Linaria dalmatica</i>)	Introduced/Upland	x	x	
Butterandeggs [Yellow toadflax] (<i>Linaria vulgaris</i>)	Introduced/Upland	x	x	
Purple loosestrife (<i>Lythrum salicaria</i>)	Introduced/Wetland	x	x	x
Eurasian (Spike) watermilfoil (<i>Myriophyllum spicatum</i>)	Introduced/Aquatic	x		x
Scotch cottonthistle (<i>Onopordum acanthium</i>)	Introduced/Upland		x	
Common reed (<i>Phragmites australis</i>)	Native/Wetland	x	x	x
Japanese knotweed complex [Crimson beauty] (<i>Polygonum cuspidatum</i> , <i>P. polystachyum</i> , <i>P. sachalinense</i>)	Introduced/Upland and wetland	x	X	x
Curlyleaf pondweed (<i>Potamogeton crispus</i>)	Introduced/Aquatic	x		
Sulphur cinquefoil (<i>Potentilla recta</i>)	Introduced/Upland	x		
Tall buttercup (<i>Ranunculus acris</i>)	Introduced/Upland	x		
Tansy Ragwort (<i>Senecio jacobaea</i>)	Introduced/Upland	x		
Field [Perennial] sowthistle (<i>Sonchus arvensis</i>)	Introduced/Upland and wetlands	x	x	
Tamarisk [Saltcedar] (<i>Tamarix</i> spp.)	Introduced/Upland and wetland	x	x	x
Common tansy (<i>Tanacetum vulgare</i>)	Introduced/Upland	x	x	x
Puncturevine (<i>Tribulus terrestris</i>)	Introduced/Upland	x	x	x
Common mullein (<i>Verbascum thapsus</i>)	Introduced species/Upland	x	x	x

Source: exp Energy Services Inc. 2012a.

^a This information was compiled from federal and state websites listing the declared noxious weed lists for each state. For specific state designations see the following USDA NRCS 2012 website: <http://plants.usda.gov>; Montana Department of Agriculture (MDA) 2012 Website: <http://agr.mt.gov/agr/Producer/Weeds/>, South Dakota Department of Agriculture (SDA) 2012 Website: <http://www.state.sd.us/daa/das/hp-w&p.htm>, Nebraska Department of Agriculture (NDA) 2012 Website: http://www.agr.ne.gov/noxious_weed/index.htm.

^b Introduced, invasive, or noxious weed observed by exp Energy Services, Inc. during field surveys within counties crossed by proposed Project route or within state.

^c Species in bold are federal noxious weeds (USDA NRCS 2012). Common and species synonyms in square brackets [] are as listed on state noxious weed or plant lists.

^d Ancillary facilities in North Dakota and Kansas are not adjacent to the proposed Project's pipeline route, and are therefore not included in this table.

3.5.7 Connected Actions

The proposed Project would also include several connected actions including: 1) the Bakken Marketlink Project, 2) the Big Bend to Witten 230-kilovolt (kV) Transmission Line, and 3) Electrical Distribution Lines and Substations. Connected actions are more fully addressed in Section 4.5.6, Connected Actions, but described briefly here. The Bakken Marketlink Project would involve the construction and operation of metering systems, three new storage tanks near Baker, Montana, and two new storage tanks within the boundaries of the proposed Cushing tank farm. The Big Bend to Witten 230-kV Transmission Line would provide upgrades to the power grid in South Dakota to support power requirements for pump stations in South Dakota. The third connected action is associated with the electrical distribution lines and substations that would be required throughout the length of the proposed Project corridor to support pump stations and other integral Project-related ancillary facilities. All three of the connected actions will affect terrestrial vegetation and land cover types described in Section 3.5.3, General Vegetation Resources, above. Additional impact information associated with the connected actions is provided in Section 4.5.6, Connected Actions.

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