

**Bulavinetz, Richard**

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**From:** Bulavinetz, Richard  
**Sent:** Wednesday, August 18, 2010 2:06 PM  
**To:** 'Dillard, Steve'  
**Subject:** Cumulative Template - Cooper  
**Attachments:** Cooper Cumulative Impacts on Terrestrial Resources - Template.docx

- Sorry I could not get this to you sooner.  
Since each plant will have specific issues unique to the plant/region,  
take a look at the slightly bigger picture for cumulative at Salem  
(don't forget to look at t-line corridors):

Not too far from metro areas  
Previous marsh impacts in region – harvesting for bedding; filled/drained for agri(?)  
Major development/industry in vicinity of Delaware Memorial Bridge  
    →Water impacts – possibly less impact to terrestrial down by Salem  
Marsh restoration projects – improvements, to name a few.

How are updates going?

Thanks,

Rich

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D-139

### 1.1.1 Cumulative Impacts on Terrestrial Resources

This section addresses past, present, and future actions that could result in adverse cumulative impacts to terrestrial resources, including wildlife populations, upland habitats, wetlands, riparian zones, invasive species, protected species, and land use. For purposes of this analysis, the geographic area considered in the evaluation includes the CNS site, including the land on both the Nebraska and the Missouri sides of the Missouri River, the wetlands on and in the vicinity of the CNS site, and the 145-mi long (233-km) transmission line corridor identified in Section 2.1.5 of this report.

Prior to construction of the CNS facilities and before its conversion to cropland, the region surrounding the CNS property in Nemaha County, Nebraska, and Atchison County, Missouri, was historically part of a dynamic Missouri River floodplain system, located within the Missouri alluvial plain ecoregion (USGS, 2001). Historically, the Missouri River meandered across the width of this relatively flat, 6-mi (10-km) wide alluvial floodplain along the border of eastern Nebraska and western Missouri. The CNS facilities are located near the western edge of this floodplain and adjacent to the western bank of the Missouri River. The vegetation within this floodplain and its vicinity was historically dominated by tallgrass prairie and wooded wetlands along the riparian corridors (NGPC, 2005). Before the completion in 1950 of the Federal levee system along the Missouri River, most of the Missouri River floodplain was subjected to frequent overbank flooding and much soil deposition occurred over the entire width of the floodplain (NPPD, 2008a), (USGS, 2001). Wooded wetlands dominate the 239 ac of CNS property on the Missouri side of the property, both today and prior to conversion of approximately 40 ac of the property to agriculture (NPPD, 2008a). The Missouri CNS property is also part of the Missouri alluvial plain ecoregion and much of the wooded wetland habitat historically flooded and continues to experience overbank flooding from the Missouri River (USGS, 2001).

Historically, over 70 percent of the land encompassing the 145-mi long (233-km) transmission line corridor was comprised primarily of prairie grasses of the tallgrass prairie ecoregion (NPPD, 2008a), (NGPC, 2005). The remaining 30 percent of the land traversed by the transmission line corridor was historically comprised of numerous narrow stream valleys with woody vegetation and shallow intermittent streams with small pockets of wetlands (NPPD, 2008a). The western half of the transmission line corridor traverses the Rainwater Basin Plains and historically contained the largest concentrations of natural wetlands found in Nebraska. Most of these wetlands have now been drained and converted to cropland and the historic prairie grass regions in the counties surrounding the transmission line corridor have likewise been converted to cropland (NGPC, 2005), (USGS, 2001). Most of the noted stream valleys were too steep or too saturated to allow agriculture and still remain vegetated.

Currently, over 97 percent of the land in Nemaha County, Nebraska, is used for agriculture. In the adjacent Richardson County and Otoe County in Nebraska, and Atchison County in Missouri, over 90 percent of the land on average is used for agriculture. Very little residential, commercial, or industrial development has occurred in the counties surrounding the CNS site, and cumulative impacts from such types of development are considered minor.

Current land use on the Nebraska CNS property outside of the actual power plant facilities reflects the regional agricultural use. Approximately 900 ac (364 hectares (ha)) of the 1,120-ac (453-ha) CNS site is used for agriculture (NPPD, 2008a). Much of the 55 ac (22 ha) of land where the CNS facilities have been constructed was cropland prior to construction of the facility, so disturbance to wildlife habitat had occurred prior to construction of CNS. Construction on

some of the CNS facility led to the loss of riparian habitat along the shoreline, as well as the loss of some wetlands habitat, which may have impacted wildlife habitat and water quality. NPPD was recently required by the USACE to restore approximately 1.5 ac (0.6 ha) of disturbed wetlands habitat on a 55-ac (22-ha) parcel of ground as mitigation for NPPD filling in other disturbed wetlands for construction of CNS parking facilities.

Surface water drainage patterns have changed on the Nebraska CNS property as a result of construction of the Federal levee system and from construction of the CNS facility. A dike and ditch system was created on the Nebraska side of the CNS site during initial construction of the facilities to protect them from flooding events of the Missouri River (NPPD, 2008a). Over 120 ac (49 ha) of the CNS site on the Nebraska side contain wooded, scrub-shrub, and emergent wetlands, riparian habitat along the Missouri River, and several small intermittent streams (NPPD, 2008a). Construction of the ditch, dike, and levee systems on the CNS site have in some cases led to additional flooding on portions of the farm fields, forested areas, and these wetland areas. The intermittent streams and some surface water drains south into the adjacent USACE Langdon Bend Wetlands Restoration Project, which may benefit wetlands restoration on the USACE site (NDNR, 2009) (USACE, 2004b).

Approximately 40 ac (16 ha) of the 239-ac (97-ha) CNS property on the Missouri side are cropland, and the remaining acres are primarily wooded wetlands. Two transmission line corridors that are not in scope cut through this land and contain emergent vegetation. The Federal levee is located along the eastern border of this land, and reduces the threat of flooding of the farm fields beyond the CNS property while retaining more water on the CNS property. This CNS property is still subject to occasional overbank flooding, as evidenced by water marks located several feet up on the trunks of trees. Thus, some flooding events on this land may be similar in degree of inundation to historic flooding events, helping to maintain this area as a bottomland hardwood, forested wetland. A conservation deed restriction has been placed upon the 239 ac of land located on the Missouri side of the river to provide for long-term protection of this land from any development as well as agricultural production. A pair of bald eagles has been actively nesting on this property for the past several years (NPPD, 2008a).

Several exotic invasive plant species are located along the riverbank or in the vicinity of the CNS site, and include purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), and the common reed (*Phragmites australis*) (NRCS, 2007), (NDA, 2008). NPPD does not manage invasive vegetative species on the CNS site; therefore, a potential exists for these invasive species to increase in population on the CNS site and compete with native vegetation for resources and degrade areas of terrestrial habitat. Invasive species may also be introduced on the associated transmission line ROW, with potentially similar impacts.

The land traversed by the transmission line corridor and most of the land in the surrounding counties has been converted primarily from prairie grasses to cropland. There is currently less than 2 percent remaining of the historic prairie grass habitat in Nebraska (NGPC, 2005), (USGS, 2001). Conversion from prairie grassland to cropland will affect wildlife species composition and behavior, and may have a cumulative adverse impact on nutrient discharges into the Missouri River and its tributaries. Farming occurs under the transmission lines and immediately adjacent to the transmission line poles, so little land is lost from agricultural production. Most of the narrow stream valleys now traversed by the transmission line corridor remain as vegetated riparian corridors annually maintained by NPPD, primarily as scrub-shrub wooded areas (NPPD, 2008a). ROW maintenance of these riparian corridors has likely had some minor impacts in the past and is likely to have present and future impacts on these areas from their conversion from primarily forested riparian communities to scrub-shrub riparian

communities; however, any future maintenance activities are estimated to be minor based on NPPD's plan to conduct only necessary clearing to prevent obstruction of the lines.

NPPD has consulted with the USFWS to address the potential risk of bird collisions with NPPD transmission line NPPD TL3502 which crosses the Platte River near the end of the CNS transmission line corridor, approximately 4 mi (6 km) east of Grand Island, Nebraska. The Federally-endangered whooping crane (*Grus americana*) and interior least tern (*Sterna antillarum athalassos*), and the Federally-threatened piping plover (*Charadrius melodus*) use the Platte River and associated wetlands around Grand Island for different portions of their life cycle (e.g., for migration, resting, feeding, and nesting) and risk collisions with the NPPD transmission line. The USFWS has indicated that collisions with transmission lines are the main cause of whooping crane mortality during their migrations (USFWS, 2009a); however, there are no data to indicate that transmission line NPPD TL3502 has caused any injury or mortality to whooping cranes, least terns, piping plovers, or to other species of Federally-protected migratory birds where the transmission line crosses the Platte River. On May 8, 2009, the NPPD informed the USFWS that NPPD had agreed to mark that portion of the NPPD transmission line that crosses the Platte River with bird flight diverters to increase the visibility of the transmission line and reduce the risk of collisions (NPPD, 2009b). The USFWS replied to NPPD on June 8, 2009, informing them that NPPD had satisfactorily addressed the concerns of the USFWS regarding bird collisions (USFWS, 2009b). This voluntary mitigation measure by NPPD will help to reduce current and future potential impacts to whooping cranes, interior least terns, piping plovers, and other migratory birds that use the Platte River and associated wetlands of the Rainwater Basin Wetland Management District (USFWS, 2009c).

The Missouri River ecosystem has been dramatically transformed since the beginning of the 20th century. Historically, the Missouri River was free-flowing with regular overbank flooding along its entire length, and the channel meandered across the entire floodplain. The construction of seven dams upriver from CNS, bank stabilization, channelization of the river for improved navigation by barge traffic, and a levee and dike system constructed along most of the entire length of the floodplain have led to significant changes to the terrestrial habitat of the ecosystem. There has also been a reduction of the amount and type of deciduous vegetation, grasslands, and wetlands present within the floodplain. Within the Missouri River itself, there has also been a reduction in the number of river islands (89 percent), a reduction in the surface area of these islands (98 percent), and a reduction in the number of sandbars (97 percent) along the river (NPPD, 2008a). With the implementation of Federal aquatic and terrestrial habitat restoration projects along the entire Missouri River ecosystem and the adjacent USACE Langdon Bend Wetlands Restoration Project, restoration of Missouri River terrestrial habitat is beginning to improve ecological conditions from their current state (USACE, 2004b):

Agriculture continues to be the overwhelming dominant land use in the region and with a declining human population in Nemaha County, additional impacts from new residential, commercial, or industrial development are not anticipated to increase terrestrial impacts. Continued runoff of nutrients from agricultural fields and bioaccumulation of pesticides or herbicides poses a threat to terrestrial and riparian habitats as well as to wildlife species; however, the Federal wetlands mitigation projects discussed above and in Section 2.2.6 will help to reduce impacts to both the aquatic and terrestrial environment.

The NRC staff concludes that the minimal terrestrial impacts expected from the continued CNS operations, including the operation and maintenance of the 145-mi (233-km) long transmission line corridor, would not contribute to the overall decline in the condition of terrestrial resources; however, while the level of impact due to direct and indirect impacts of CNS on terrestrial

communities is SMALL, the cumulative impact when combined with all other sources, even if CNS was excluded, would be MODERATE.