

## 4.8 BIOLOGICAL RESOURCES

### 4.8.1 Approach to Impacts Analysis

The following sections describe the approach that was employed to analyze the potential for impacts to biological resources resulting from the construction and operation of the Mesaba Energy Project.

#### 4.8.1.1 *Region of Influence*

The region of influence for biological resources includes the alternative sites (West and East Range Sites) for the footprint of the Mesaba Generating Station and buffer land surrounding the plant. The region of influence also includes associated corridors and ROWs of the roads, rail lines, HVTLS, natural gas pipelines, process water lines, and cooling tower blowdown lines that would be necessary supporting structures for Mesaba Energy Project operations.

#### 4.8.1.2 *Method of Analysis*

The evaluation of potential impacts on biological resources considered whether the Proposed Action or an alternative would cause, either directly or indirectly, the loss, displacement, isolation or alteration (irreparable or irreversible) of:

- Vegetation and/or wildlife;
- Aquatic communities;
- Aquatic and/or terrestrial habitat; or,
- Federally or state-listed protected species and habitat.

**In response to Draft EIS comments by USACE and other agencies, the Final EIS was revised to address impacts to wildlife habitat based on the MNDNR ECS. Section 3.8 (Table 3.8-1) lists and describes the ECS categories included in the regions of influence for the West Range and East Range Sites and corridors along with the Species in Greatest Conservation Need (SGCN), as defined by the MNDNR, that typically utilize those habitat types.**

### 4.8.2 Common Impacts of the Proposed Action

This section describes impacts to biological resources that would be common to the implementation of the Proposed Action at either site, based on the descriptions of biological resources provided in Section 3.8. Section 4.8.3 describes site-specific impacts. Impacts to wildlife and Federally listed, protected species resulting from the implementation of the Proposed Action would be considered common to both potential sites and their associated transportation and utility corridors. Therefore, impacts to wildlife and Federally protected species (not including State of Minnesota-listed, protected wildlife) are included in this section and are not addressed for site- and corridor-specific impacts (Section 4.8.3).

No MNDNR WMAs, SNAs, designated Game Lakes, or Designated Trout Streams are within or immediately adjacent to the West or East Range Sites.

#### 4.8.2.1 *Impacts of Construction*

##### ***Flora***

At either the West Range Site or the East Range Site, construction of the Mesaba Generating Station would cause loss of vegetation **for the power plant footprint and associated structures. Surrounding wooded vegetation would be preserved to the extent practicable to serve as buffer areas reducing visual and noise impacts of the power plant facilities.** Section 3.8.1 describes vegetation types that may be affected by construction at the West Range and East Range Sites and corridors.

Construction of the HVTLs and pipelines would result in permanent loss of forest resources and a temporary loss of grasslands. Forest areas within the disturbed utility ROWs would be converted to grasslands and any areas of existing grassland disturbed during construction would be restored and stabilized with native grasses. These grassy areas would experience periodic maintenance to control the growth of woody vegetation to ensure access and maintain the integrity of the utilities; therefore, the conversion of forest into grasslands would be permanent. Placement of underground pipelines would temporarily affect vegetation; however, these areas would be restored after construction.

Construction of railways and access roads at either the West Range Site or East Range Site would also result in the permanent loss of vegetation in areas falling within the footprint of the roads and rails. Forest areas would be converted into grasslands alongside the slopes and shoulders of these corridors.

**Invasive species are species that have been introduced or moved by human activities to a location where they do not naturally occur and are termed “exotic,” “non-native,” “alien,” and “nonindigenous.” Oftentimes, these species become dominant in disturbed areas and outcompete native species, lower biological diversity, and alter ecosystem function.** Earth disturbance associated with the removal of woody and herbaceous vegetation provides an opportunity for non-native or invasive plants to colonize disturbed areas. Invasive or non-native plants alter plant diversity and affect ecosystem function by displacing native flora. Native floral communities generally provide food, cover, or shelter for a wide variety of wildlife at different times of year. In contrast, non-native or invasive plant species typically alter wildlife habitat structure, forming monotypic vegetation communities by out-competing native plant species for resources such as water and light. Some invasive species also secrete toxic chemicals into the soil (allelopathy), which can prevent native plants from re-colonizing disturbed areas. The result could be creation of a structurally impaired, low quality habitat that benefits one or two faunal species instead of a highly diverse plant community benefiting a greater diversity of wildlife.

**The potential for invasive species, primarily invasive plant species, would increase within the project area through construction and clearing activities. Natural areas around the power plant site as well as along utility corridors would be susceptible to invasive species introduction. Both the presence of vehicles and human traffic, which can inadvertently carry invasive plant seeds from other locations, would increase. Construction equipment could inadvertently carry invasive plant seeds into the area, and continued maintenance (i.e., vegetation clearing) along the utility ROWs would potentially allow for the spread and dominance of these species. Impacts to the overall ecosystems would be reduced, as these species would be located within lower quality habitat areas that would experience periodic human disturbance. Invasive species control measures, such as spraying and manual removal, could be implemented in areas dominated by invasive species to minimize impacts and prevent spreading.**

Though no invasive or non-native species were noted in disturbed areas at the sites, the likelihood exists for invasive plant species to colonize and express dominance in areas disturbed by construction and maintenance activities. BMPs to stabilize the areas of ground disturbance, which would be required for erosion and sedimentation control described in Sections 4.4 and 4.5, along with the planting of native vegetation, would help avoid the establishment and dominance of invasive plant species in disturbed areas resulting from the Proposed Action.

**Locations where temporary impacts to vegetation would occur would be restored following construction activities. In wetlands, excavated soils would be stockpiled and segregated from upland soils; then replaced in the opposite order from which they were excavated. This would insure replacement of subsurface soils at the appropriate lower depths and replacement of surface organic soils at the top, which would be more effective for wetland vegetation restoration. In upland areas, soil amelioration would be performed to alleviate compaction, which could include scarification, harrowing, disking, or other measures. Where possible, upland topsoil would be stockpiled and replaced in disturbed uplands. In some instances, additional clean, certified weed-**

**free topsoil may be required. Revegetation of wetland and upland habitats would be accomplished through reseeding with native grasses and forbs appropriate to the region and would follow standard practices acceptable to the local, state, and Federal agencies that authorize work within wetland and upland habitats. Following reseeding, these areas would be covered with weed-free certified mulch and, in upland habitats, would be covered with erosion control blankets/fabrics per site conditions.**

### **Fauna and Habitat**

In general, construction and operation of the Mesaba Generating Station and supporting infrastructures (i.e., HVTLs, gas and water pipelines, and transportation corridors) at either potential site could cause animal mortality and disrupt wildlife (mammals, birds, reptiles, and amphibians) movement through the West Range or East Range Sites. Section 3.8.1 describes wildlife species that may be affected by construction at the West Range and East Range Sites and corridors. Direct impacts on terrestrial habitats would not differ greatly between the West Range and East Range Sites.

Impacts to wildlife from the construction of the Mesaba Energy Project at either of the potential sites would occur due to vegetative clearing and habitat conversion resulting in permanent loss of potential habitat for mammals, birds, amphibians, and reptiles that either inhabit one of the sites or use a site transiently for food and shelter. Habitat loss and habitat degradation are influencing factors that contribute to the decline of wildlife species (MNDNR, 2007). Consequently, wildlife using the natural resources within the region of influence for the Mesaba Generating Station may be adversely affected. **Individual animals would be forced either to find suitable available habitat from relatively large amounts of comparable habitat in the area or to perish. As birds are more mobile than terrestrial species, they would be better equipped for relocating.**

**The construction of the Mesaba Generating Station would cause the elimination of a small fraction of the total habitat near either the West Range Site or the East Range Site. Therefore, these losses would not be expected to cause population-level adverse effects.** The potential impacts on wildlife travel corridors have been evaluated in a cumulative impacts analysis in Section 5.2.6 that takes into consideration the effects of the Mesaba Energy Project in conjunction with other potential projects in the Iron Range area. **Based on the cumulative impacts analysis, the loss of total existing habitat in the West Range and East Range from the Mesaba Energy Project would be 0.2 percent and 0.5 percent, respectively, within the study areas for the analysis.**

**Noise from construction may disturb animals or displace them to less favorable habitat; however, wildlife responses to noise may be species-specific, and could result in either avoidance or habituation. Avoidance could cause species to underuse high-quality habitat near disturbance areas, resulting in decreased fecundity and survival. Noise impacts due to construction would be temporary and localized in nature.**

Certain species with limited range or mobility such as small rodents, reptiles, and amphibians would be more susceptible to construction impacts than mobile, larger-ranging wildlife. Mortality of these species would most likely occur during grading and clearing activities. Other species, including birds and mammals, would be more susceptible if impacts occurred during the nesting/rearing season when nests and nurseries of various species may be destroyed during clearing and grading activities. Coordination with the MNDNR would determine the best time period to conduct grading or clearing activities.

Clearing of forest areas related to the power plant and transmission corridors may benefit some wildlife species such as deer, which use the transition zones between differing vegetative cover types for foraging or migration corridors. However, wildlife habitat fragmentation and the creation of the edge effect would increase predatory and parasitic prospects for a variety of opportunistic wildlife species. For example, small mammals (i.e., raccoon [*Procyon lotor*]) would exploit the newly created environment to satisfy their dietary needs by preying on avifauna **and herpetofauna** nest eggs. Similarly, parasitic

avifauna, such as the cowbird (*Molothrus ater*) or swallows (*Tachycineta* spp.), can affect a brood of fledgling birds. Parasitic birds lay their eggs in the nests of other bird species and leave the chick-rearing responsibility to other parents. The parasitic chick out-competes the host chicks for food, and in some cases, the parasitic chick may eliminate its competition by pushing the host chick out of the nest.

**Predation of ground-nesting birds would increase along the newly cleared utility corridors primarily due to the increased presence of edge species such as raccoons. However, the overall amount of forest edge created and the vast amount of interior forest habitat would not create a noticeable decline in these bird populations. Studies have shown that nesting success rates of ground-nesting birds increase within 328 feet of the forest edge. In addition, studies have shown that predation due to edge effect is lower in forested dominated landscapes compared to agricultural dominated landscapes, as factors such as brood parasitism by brown-headed cowbirds is lessened (Manolis et al., 2002).**

More generally, habitat fragmentation may inhibit gene flow between groups of individuals within a population due to geographic isolation. Although road and utility corridors do not necessarily create impassable barriers to wildlife movement, from a behavioral perspective, some species may not cross a location because the area was disturbed, habitat was altered, etc. This can ultimately result in a diminishing of genetic diversity and amplification of inbreeding within populations that become geographically isolated, which may result in the accumulation of deleterious genetic traits that can reduce individuals' ability to survive and reproduce. In addition, habitat fragmentation reduces the overall size of accessible habitat to a population, which may result in the area no longer being viable to support that population at its existing size (e.g., food resources could become too limited). In some instances, fragmented habitats may not be able to support any individuals of a particular species at all, considering some species require certain amounts of contiguous habitat to perform necessary survival functions (e.g., foraging and breeding) (EPA, 1994b).

Seeding the transmission or utility corridors with an appropriate seed mixture could benefit an assortment of wildlife species that thrive within a forest edge. Additionally, the grassy areas created by the transmission corridors would provide nesting habitat for a variety of grassland dependant avifauna.

**Wetland habitat conversions on the respective site and corridors would occur as described in Section 4.7. Forested wetland areas would be maintained as herbaceous or shrub dominated communities, which in turn would affect migratory birds as well as amphibians that utilize the area for reproduction.**

Impacts to game species, such as moose, deer, and grouse would be expected to be similar between the two site alternatives. These species may encounter some mortality during site preparation activities; however, these species are highly mobile making them some of the least susceptible in terms of collisions with vehicles and equipment. The primary impact to game species would be in the form of lost habitat; however, as previously stated, these are highly mobile species that would be expected to move to habitats adjacent to locations that would be affected by the Proposed Action. Also, as previously stated, forest clearing for utility ROWs would create open areas that could be utilized by larger game species as movement corridors, which could be a benefit during foraging activities. Therefore, impacts to game species would be expected to be small considering that there is ample habitat for these species surrounding the potential site locations.

The MNDNR NHIS database shows no bald eagle nesting areas within the West Range Site or the East Range Site or within a 2-mile radius of each site's boundary. The MNDNR NHIS database does show five bald eagle nesting areas within a 1-mile radius of the various transportation and utility corridors associated with the East Range Site. Though the bald eagle has been delisted under the Federal Endangered Species Act, the eagles are still regulated by the USFWS and are still listed as species of special concern by the MNDNR. The USFWS and the MNDNR are cooperating to monitor and protect

this species in Minnesota. The USFWS bald eagle protection measures include buffer zones and construction/activity limitations within these zones that are applicable during the nesting season to protect the nest trees from destruction. In addition, bald eagle nests are dynamic and can change geographically through time, resulting in the continuous updating of nest location data by the USFWS and MNDNR. In a letter dated March 6, 2007 (Appendix E), the USFWS agreed to consult with DOE on the West Range Site and concurred with DOE's determination that the Proposed Action would not likely adversely affect the bald eagle. In addition to complying with the protection measures, ongoing coordination with these agencies would be performed to receive updated information on new bald eagle nesting locations prior to construction.

### **Aquatic Communities**

The water crossings that would occur under the various alternative utility and rail alignments, as described in Section 4.7, can generally be broken down into two categories: small perennial streams and lakes. None of the water bodies proposed to be crossed is designated as a trout stream or would be considered a cold-water stream, although it is possible that trout are occasionally present in some of the area waterways not designated. Section 3.8.2 describes aquatic communities in the West Range and East Range.

**The crossing of streams for construction of rail lines could directly affect fisheries and aquatic life. Fish mortality may occur by temporary alteration of fish passage, causing incidental mortality. Fisheries and aquatic life may also be affected through habitat fragmentation and conversion. Uncontrolled sedimentation could enter the streams causing increased turbidity and biochemical oxygen demand and armoring the substrate of the stream channels. Armoring of the stream channels could affect the benthic community and the aquatic fauna that are dependent on macroinvertebrates as a food source. The removal of the riparian vegetation could also result in a temporary loss of habitat and shading, thereby resulting in increased water temperatures.**

Water crossing impacts would be temporary for utility installations. Directional drilling is the preferred means, because it would avoid or minimize impacts to aquatic resources, and it could be used for short crossings lacking bedrock. In the event that directional drilling is not feasible, an open cut trench would be used, which would result in temporary impacts to aquatic communities. Potential impacts from open cut trenching could include a temporary increase in sedimentation of the water column, a short-term increase in the biochemical oxygen demand, armoring of the stream substrate that would affect the macroinvertebrate community, and an increase in water temperatures due to the loss of shading provided by riparian vegetation. This means of construction could be timed to coincide with low water levels, and accomplished using cofferdams, bypass flumes, diversionary channels, or other short-term methods of allowing work to be done in a dry channel. These measures would allow minimally invasive construction to be used depending on the type of crossing needed. It is assumed that fish species would temporarily relocate in open-trenched areas during construction. State in-stream construction restrictions would help reduce impacts to these species.

Construction would comply with all applicable state regulations pertaining to construction in surface waters. Guidance published by the USFWS, USACE, FERC, and MNDNR would be consulted and evaluated once final alignments have been determined. The cross sections and contours of the waters would be restored to their original grade and vegetated after construction to ensure continued water flow, habitat re-establishment, and adequate faunal movement, as required by applicable regulations and standards. **Therefore, construction would cause some temporary impacts to fisheries and other aquatic biota primarily from disruptions in water levels and increased sedimentation; however, these impacts would be construction-related and would not be permanent.**

### **Protected Species**

There are no Federally listed plant species identified by the USFWS within either of the sites or any of the proposed utility or transportation corridors. Therefore, no adverse effects would be expected for any Federally protected plant species due to the implementation of the Proposed Action at either of the alternative sites.

As discussed in Section 3.8.3.1, both the West and East Range Sites and their associated utility and transportation corridors have potential habitat for and are within the distributional range of the Canada lynx (*Lynx canadensis*) **and the gray wolf (*Canis lupus*) both Federally listed as threatened.**

Preliminary discussions between DOE and USFWS on listed species began in September 2005, and subsequent discussions have been held. DOE initiated formal consultation with USFWS in accordance with Section 7 of the Federal Endangered Species Act in a letter dated December 18, 2006 (Appendix E), which requested a biological opinion regarding potential impacts and mitigation for listed species on both sites. In a letter dated March 6, 2007 (Appendix E), the USFWS agreed to consult with DOE on the West Range Site. USFWS concurred with DOE's determination that the Proposed Action may affect the Canada lynx and expressed concerns that the vulnerability of lynx to vehicle collisions when crossing roads would be the most pressing challenge. USFWS stated that activities resulting in new roads, new road alignments, widened ROWs, or increased vehicle speeds in habitat occupied by the Canada lynx might affect this species.

Since Canada lynx **and gray wolf are** highly mobile, the direct take (loss of a species, or significant habitat modification or degradation that results in the loss of a species by significantly impairing essential behavioral patterns) due to construction activities would not be likely if clearing and grading activities are restricted during breeding times. Harassment of this species would likely occur within the project area through permanent loss of habitat and temporary noise disruption from construction. The potential for impacts to occur to Canada lynx would be greater at the East Range Site as compared to the West Range Site because, based on the distribution of verified lynx records since 2000 (Sullins, 2007), the East Range Site is well within the range of the lynx while the West Range Site is located toward the southwest periphery of the lynx's range.

**On August 15, 2008, DOE submitted a BA for the Canada lynx and a determination that the proposed action may affect, but is unlikely to adversely affect, Canada lynx or their critical habitat. In subsequent discussions, the USFWS requested that, due to uncertainty over the listing of the gray wolf, the BA be revised to include potential effects on the gray wolf. On February 25, 2009, DOE submitted the revised BA addressing impacts to both the Canada lynx and the gray wolf. As stated in this version of the BA (ENSR, 2009) (see Appendix E), "impacts associated with project habitat loss and disturbance, and collisions with vehicles and trains, could impact lynx and gray wolf. Using worst case assumptions, 618 acres of wildlife habitat would be lost within the West Range Site and associated utility and transportation corridors; 929 acres of habitat would be lost within the East Range Site and its associated corridors. Noise, light, and glare from the generating facility could cause lynx and wolves to avoid either area. Lynx and gray wolf could be hit by vehicles or trains. Other potential impacts include human encroachment in the backcountry, and increased interspecific competition facilitated by snow compaction." However, the BA concluded that given the large amount of similar habitat in the region and the low predicted density of Canada lynx and gray wolf in the area, these species and their critical habitat may be affected, but are unlikely to be adversely affected by the Mesaba Energy Project. In a letter sent on May 1, 2009, the USFWS concurred with DOE's conclusion that the proposed action may affect, but is unlikely to adversely affect, Canada lynx, gray wolf or their critical habitat at the West Range Site (Appendix E). In the event that the East Range Site were selected for the Proposed Action, DOE would reopen consultation under Section 7 of the Endangered Species Act and resubmit the BA for USFWS review and concurrence at the East Range Site.**

There are no MNDNR NHIS rare, threatened, or endangered animal species known to exist at either the West Range or East Range Sites. Sections 4.8.3 and 4.8.4 discuss Minnesota protected plant species and potential habitats, which potentially occur at respective sites.

#### **4.8.2.2 Impacts of Operation**

The impacts of Mesaba Generating Station operations on biological resources would be comparable for either site. Therefore, the descriptions of impacts for the West Range and East Range below focus primarily on construction-related impacts to the sites and corridors.

Once operational, the Mesaba Generating Station at either alternative site would require maintenance of landscaping; however, no additional direct impacts to vegetation would be expected following construction. An indirect impact from both the introduction of access roads and railways and increased traffic would include the potential for increased stress to vegetation from particulate matter and dust, **which could injure leaves, stems, and roots and increase vulnerability to diseases or insects (Delphi, 2004)**. Salt or deicers used on roads may cause additional stress to vegetation during the winter season.

The siting of the Mesaba Generating Station would cause the elimination of a small fraction of the total habitat in the areas of the West Range Site or the East Range Site; though similar habitat types are common in the region (**see Section 5.2.6**). Impacts to wildlife from the operation of the Mesaba Generating Station at either of the potential sites would occur due to the placement of security fences and other barriers that would particularly affect the movement of larger animals in wildlife travel corridors. The potential impacts on wildlife travel corridors were evaluated in a cumulative impacts analysis in Section 5.2.6 that takes into consideration the effects of the Mesaba Energy Project in conjunction with other potential projects in the Iron Range area. Road and rail traffic near either site would increase during operation of the Mesaba Generating Station as described in Section 4.15, which would potentially result in increased collisions involving wildlife. This effect would be of particular concern with respect to Federally listed species as described further below.

**Bird and bat mortality from collisions with exhaust stacks, transmission lines, and towers would be expected to occur, though this would not likely have a significant impact on bird populations within or migrating through the area. Collisions would typically peak seasonally during the spring and fall migrations and during night time hours. See Appendix D5 for further information.**

The operation of the proposed Mesaba Generating Station at either location would have minimal impact on aquatic species and their prey caused by the bioaccumulation of heavy metals. The concentration of mercury in air emissions would be lower than background concentrations and would not be expected to directly increase the potential for bioaccumulation of mercury in fish or other aquatic species present in receiving waters (see also Sections 4.3, Air Quality, and 4.17, Safety and Health). **In general, mercury exposure can cause negative impacts to terrestrial and avian wildlife species including adverse effects to neurological, endocrine, and reproductive processes. There are two major guilds of wildlife that have the potential to act as a baseline for bioaccumulation: fish and insects. Therefore, species that prey on fish or insects have the potential to be affected as well (Colman, 2007).**

**With the proposed use of an enhanced ZLD system at either plant site, as well as the collection and reuse of stormwater runoff, the Mesaba Generating Station would not discharge any process effluents or cooling tower blowdown to surface water bodies. However, large quantity water withdrawals for plant process and cooling water requirements could alter lake or stream temperatures and reduce the quality and quantity of aquatic habitat. Refer to Section 4.5, Water Resources, for surface water withdrawal predictions. Consequently, withdrawals could affect the lake or stream's ability to support certain types of fish, potentially leading to a decline in biodiversity in source waters for the project. Significant water level reductions could interfere with lake trout natural reproduction in the CMP (for the West Range Site), as this species deposits eggs**

in the fall on boulder or cobble habitats in depths usually less than 40 feet and incubation lasts 4 to 6 months after spawning (Snyder and Oswald, 2005). Potentially affected fisheries would be the CMP and Prairie River on the West Range and Colby Lake and White Water Reservoir on the East Range. Withdrawals from the Prairie River may not be necessary and would be less than the state limit of 25 percent of 7Q10 flows, which is set to protect the river from excessive withdrawals. For the CMP, water level fluctuations are the only potential impact on fisheries.

For the East Range, fluctuations in the mining pits could be extreme, but such pits are privately owned, inaccessible to the public except through illegal trespass, and are neither protected waters nor established fisheries. Water levels in Colby Lake and White Water Reservoir would be controlled by the MNDNR to protect Hoyt Lake's potable water supply and local landowners' property interests, respectively. As part of the water appropriation permit process, the project proponent would be required to provide further hydrologic modeling to ensure that the Mesaba Generating Station would not result in any significant adverse impacts to regional water resources at the East Range Site.

As described in Section 4.5, Water Resources, the intake structures for process water pumping stations at the various mine pits would be designed to prevent the entrainment of fish species, which would preclude the transfer of live fish between surface waters. This situation is of particular concern for the West Range Site, because the CMP has a non-native population of rainbow smelt (see Section 3.8.2) that the USFWS and MNDNR do not want introduced into other local surface waters. **Water intake flow velocities would be less than 0.5 feet per second, as required by applicable regulations to minimize the potential for the entrainment of aquatic species within the structures (Barr, 2008).**

The greater challenge to listed species, as stated by USFWS in its letter of March 6, 2007, is the vulnerability of the Canada lynx to vehicle collisions when crossing roads. Therefore, the realignment of CR 7 for the West Range Site, which is a separate but connected action under consideration by Itasca County, could potentially affect this species by creating a new road with a new alignment, widened ROW, and potentially increased vehicle speeds in habitat occupied by the lynx. **However, as stated in Section 2.3.1.2, Itasca County has deferred its proposed project to realign CR 7 due to changes in state funding priorities.** These potential impacts will be addressed in the biological opinion to be prepared by USFWS. Other potential impacts from project operations on the lynx would be comparable to the impacts on fauna as described above. Also, this species may be affected by permanent noise disruption from facility and rail operations.

### **4.8.3 Impacts on West Range Site and Corridors**

The construction-related impacts of the Mesaba Generating Station on the West Range Site and corridors are described in this section. The impacts of operations on biological resources would be comparable for either site and have been described in Section 4.8.2.2 unless otherwise appropriate. **This section as published in the Draft EIS was revised to address impacts to wildlife habitat based on the ECS habitat types in response to comments and requests by USACE and MNDNR. Therefore, tables that were included in the Draft EIS listing affected acreages by respective land cover were eliminated and replaced with tables based on the ECS System categories.**

During construction for the Phase I power plant, the Phase II footprint would be prepared and used as a staging and laydown area for stockpiling of materials and storage of equipment as well as for a concrete batch plant. Therefore, much of the footprint would be cleared during Phase I construction with the exception of wetlands and sensitive areas that would be avoided. For Phase II construction, Excelsior would establish off-site construction staging and laydown areas on 85 acres of land selected from among four potential sites as described in Chapter 2 (see Sections 2.2.4.1 and 2.3.1.1). All of the sites are located on lands that have been disturbed or cleared during prior uses by mineral extraction companies, and all have access to local roadways. Excelsior would select appropriate sites for the necessary acreage prior to construction of Phase II taking into

consideration potential effects on biological resources. Following completion of Phase II construction, sites used for staging and laydown would be restored to pre-existing conditions.

#### **4.8.3.1 West Range Site and Power Plant Footprint**

See Figure 2.3-1 in Section 2.3.1, which shows the West Range Site and plant footprint.

##### **Vegetation and Habitat**

A description of vegetation types found at the West Range Site is included in Section 3.8.1.1.

**Because of concerns raised by the USACE and other agencies, regarding the need to avoid and minimize impacts to wetland habitats the footprint for the proposed IGCC power plant was shifted to the northwest as described in Section 2.3.1. This move would result in deciduous forest incurring** the highest acreage of impact from the construction of the Mesaba Generating Station at the West Range Site.

The impacts of construction on vegetation at the West Range Site generally would be as described in Section 4.8.2.1. Though the construction of the Mesaba Generating Station at the West Range Site would require a relatively large amount of vegetation clearing, resulting in habitat loss and fragmentation, these resources are common in the region, and the construction of the Mesaba Generating Station at the West Range Site would degrade only a small fraction of the total amount of these plant communities in the area (see Section 5.2.6). The potential introduction of non-native or invasive flora would be minimized as described for common impacts in Section 4.8.2.

Section 3.8.1.1 describes wildlife species likely to inhabit the West Range Site. Habitat loss and habitat degradation are influencing factors that contribute to the decline of wildlife species (MNDNR, 2007). Consequently, wildlife using the natural resources within the region of influence for the Mesaba Generating Station may be adversely affected. However, comparable habitat types are common in the region, and the placement of the Mesaba Generating Station would cause the elimination of a small fraction of the total habitat near the West Range Site. Refer also to the discussion of cumulative impacts on wildlife habitat in Section 5.2.6.

**Table 4.8-1 (added for the Final EIS) provides a summary of impacts to vegetation and wildlife habitats by ECS category. Section 4.8.2.1 generally describes impacts to wildlife. Table 3.8-1 (Chapter 3) lists the SGCN species, as defined by the MNDNR, that typically utilize the habitat types identified in Table 4.8-1. The plant site would convert existing wildlife habitat into industrial land use. The main habitat type that would be affected is northern mesic hardwood forest, which would experience over 150 acres of direct habitat loss as well as fragmentation for construction of Phases I and II. The impacts that would result from the original plant footprint are shown for comparison. The shifted plant footprint would affect slightly more forest, but less wetland cover. The difference in total footprint cover is attributed to grading outside the limits of the IGCC Power plant facility and equipment.**

**Table 4.8-1. Vegetation and Habitat Impacts (acres), Mesaba IGCC Power Plant Footprint (West Range Site)**

ECS Codes <sup>1</sup>	West Range Site (acres)	Shifted Plant Footprint <sup>2</sup> Impacts (acres)			Original Plant Footprint <sup>2</sup> Impacts (acres)		
		Phase I	Phase II	Total	Phase I	Phase II	Total
AFXXXX - Aspen Forest <sup>1</sup>	185.4	-0.5	-7.1	-7.6	-1.8	—	-1.8
MHn35 - Northern Mesic Hardwood Forest	682.4	-84.2	-66.6	-150.8	-83.1	-64.4	-147.5
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	468.9	-12.3	—	-12.3	—	-18.4	-18.4
MRn83 - Northern Mixed Cattail Marsh	12.6	—	-0.5	-0.5	-0.2	—	-0.2
WFn55 - Northern Wet Ash Swamp	209.7	-6.1	-17.2	-23.3	-19.5	-2.1	-21.6
WMn82 - Northern Wet Meadow/Carr	79.2	-7.5	—	-7.6	-1.2	-11.6	-12.7
APn80 – Northern Spruce Bog	4.0	—	—	—	—	—	—
APn90 – Northern Open Bog	0.4	—	—	—	—	—	—
FPn73 – Northern Rich Alder Swamp	34.0	—	—	—	—	—	—
Fpn82 – Northern Rich Tamarack Swamp	0.2	—	—	—	—	—	—
LKi54 – Inland Lake Clay/Mud Shore	0.6	—	—	—	—	—	—
OW – Other Water Body	0.1	—	—	—	—	—	—
XDXXPF – Old Field <sup>1</sup>	31.2	—	—	—	—	—	—
<b>Total</b>	<b>1708.4</b>	<b>-110.6</b>	<b>-91.5</b>	<b>-202.1</b>	<b>-105.8</b>	<b>-96.5</b>	<b>-202.3</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Phase I and Phase II are reversed between Original and Shifted Plant Footprints.  
 Note: Negative values indicate a loss of habitat.

**Aquatic Communities**

No direct impacts to aquatic species would occur from construction of the Mesaba Generating Station at the West Range Site. Section 4.8.2.2 describes the impacts of plant operations on aquatic communities. Section 4.8.3.2 discusses potential impacts that may result from the construction and operation of supporting infrastructure (e.g., natural gas pipelines, process water pipelines).

**Protected Species**

**As described in Section 4.8.2.1, potential adverse impacts on Canada lynx and gray wolf would not be expected (see BA in Appendix E).**

As discussed in Section 3.8.3.2, no MNDNR NHIS threatened, endangered or other species of concern inhabit or occur within the West Range Site. There are eight plant species (17 occurrences) of state-listed rare or protected plant species identified by the MNDNR NHIS within the Nashwauk, Taconite, and Bovey areas near the site (see Section 3.8). One plant species, moonwort (*Botrychium* sp.), is listed as occurring within a 1-mile radius of the West Range Site boundary. This species is located off site southeast of the West Range Site.

Records for the state-listed endangered orchid species, *Platanthera flava* var. *herbiola* (tuberclad-rein orchid), indicate that the orchid can colonize in disturbed mine spoil areas (**it is not fully understood how this species was recruited into these highly disturbed areas**). Typical habitat for this species occurs in wet meadow habitats dominated by native graminoids and sedges, which are present within the West Range Site boundary. Due to the rarity of tuberclad-rein orchid in the state, the probability is low for encountering this species in wet meadow habitat within the West Range Site; however, it is not without possibility.

Two plant species records from the NHIS database in areas other than disturbed mine refuse areas, include the leafless water milfoil (*Myriophyllum tenellu* – non-status) and Torrey’s manna grass

(*Torreyochloa pallida* – special concern). The leafless water milfoil is associated with the littoral zones of surface waters. Dunning Lake, adjacent to the site, is likely the only area within the West Range Site boundary that may provide potential habitat for this species. However, Dunning Lake and its associated aquatic habitats would be avoided for construction of the West Range Site facility and associated utility and transportation corridors.

*T. pallida* occurs in shallow marsh habitats in mixed hardwood forests. This type of habitat is common throughout the West Range Site, although this species was not observed during the habitat field reconnaissance or the wetland surveys. Shallow marsh habitat that could contain this plant would be affected by construction at the West Range Site and associated transportation and utility corridors. During the field reconnaissance in June 2005, a plant species that closely resembled moonwort (*B. minganense*), a state-listed species of special concern, was observed in the mixed-hardwood conifer forest. Only one individual was observed, and no voucher specimens were collected. This area of forest may require a more thorough review for potential occurrences of state-listed *Botrychium* spp., and to determine if these resources could be affected. If the West Range Site were selected, a survey for *T. pallida* and *B. minganense* may be requested by the MNDNR. State-listed species of special concern and non-status species and their habitats are not regulated under the Minnesota Endangered Species Statute (Minnesota Statutes § 84.0895). However, coordination with MNDNR would be completed to determine if any impacts would occur and to avoid or minimize the potential for impacts should these species occur at the West Range Site.

#### **4.8.3.2 HVTL, Pipeline, and Transportation Corridors**

See Section 2.3.1 for descriptions of alternative alignments and Figures 2.3-2, 2.3-3, and 2.3-4 showing corridor alignments for the West Range Site.

##### **HVTL Alternatives (West Range Site)**

Section 2.3.1.5 describes HVTL alternatives and Figure 2.3-3 (Chapter 2) shows the alignments. Table 4.8-2 (added for the Final EIS) summarizes the impacts from construction of the alignments on vegetation and habitat acreage by ECS category based on a 100-foot permanent ROW and an additional 50-foot temporary ROW. Each alternative is described individually and does not consider habitat that would be impacted by other HVTL alignment alternatives. The table also does not reflect impacts attributed to the Power Plant Footprint or shared alignments with Rail Lines, Access Roads, Process Water Pipelines, or Natural Gas Pipelines. The following subsections describe the impacts from construction of respective alignments.

**Table 4.8-2. Vegetation and Habitat Impacts (acres), HVTLs (West Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area			Temporary ROW Impact <sup>2</sup>			Permanent ROW Change <sup>3</sup>		
	HVTL 1	HVTL 1A	PH 2 B	HVTL 1	HVTL 1A	PH 2 B	HVTL 1	HVTL 1A	PH 2 B
AFXXXX - Aspen Forest <sup>1</sup>	18.8	11.8	4.4	3.1	0.3	—	-18.8	-11.8	-4.4
APn80 - Northern Spruce Bog	0.4	2.8	0.4	—	1.2	—	-0.4	-2.8	-0.4
APn90 - Northern Open Bog	10.3	5.8	—	4.2	2.2	—	+4.2	+2.8	+6.1
FPh73 - Northern Rich Alder Swamp	7.7	9.4	17.2	1.8	2.8	—	-7.7	-9.4	-17.2
FPh82 - Northern Rich Tamarack Swamp (Western Basin)	3.8	—	5.7	1.9	—	—	-3.8	—	-5.7
LKi54 - Inland Lake Clay/Mud Shore	—	0.2	0.3	—	0.2	—	—	—	—
MHn35 - Northern Mesic Hardwood Forest	19.5	11.2	1.2	5.3	4.1	0.7	-19.5	-11.2	-1.2
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	14.7	30.7	6.9	3.2	12.3	3.7	-14.7	-30.7	-6.9
MRn83 - Northern Mixed Cattail Marsh	2.0	2.0	27.8	—	—	—	—	—	—
MRn93 - Northern Bulrush-Spikerush Marsh	—	—	0.2	—	—	—	—	—	—
WFn55 - Northern Wet Ash Swamp	5.5	4.1	0.7	1.3	0.9	—	-5.5	-4.1	-0.7
WMn82 - Northern Wet Meadow/Carr	3.5	4.9	16.2	1.5	2.3	1.1	+13.3	+13.5	+17.9
XDXXOF - Old Field <sup>1</sup>	24.9	21.0	100.8	0.1	1.8	—	+53.0	+53.7	+12.5
XDXXXX - Disturbed Land <sup>1</sup>	0.6	2.9	3.2	0.1	1.0	—	—	—	—
<b>Total</b>	<b>111.9</b>	<b>106.8</b>	<b>184.9</b>	<b>22.4</b>	<b>29.1</b>	<b>5.4</b>	<b>—</b>	<b>—</b>	<b>—</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

**HVTL Alternative 1**

**Vegetation and Habitat**

The area of an existing HVTL ROW (**MP 45L**) that extends from the West Range Site boundary southward to US 169, is classified by the LandSat-Based Land Use-Land Cover (Raster) data as “other rural developments,” which means the existing ROW has been identified as land use other than a terrestrial vegetative community. In this area, no additional land clearing (beyond what is already cleared for the existing ROW) would be expected for installation of HVTL Alternative 1. **The remainder of the alignment would consist of new ROW (see Section 2.3.1.5) to be cleared of trees and shrubs.** Deciduous and regeneration/young forest are the most common vegetation/habitats within the corridor proposed for HVTL Alternative 1. **Table 4.8-2 summarizes the impacts to vegetation and wildlife habitats by ECS category that would result from construction of the proposed HVTL Alternative 1 route. Installation of HVTL Alternative 1 would convert existing wooded vegetation to grassland habitat within the permanent 100-foot ROW. Habitat cleared during construction activities within the additional temporary ROW would be allowed to regenerate following construction and would eventually recover over several years of natural succession. The habitat cleared within the permanent ROW would be maintained as grassland in perpetuity by vegetation management activities to keep the HVTL ROW cleared of trees and woody vegetation. The losses and gains in**

**acreage by habitat type are listed in Table 4.8-2 in the column for the permanent ROW change. The main habitat types that would be affected are northern mesic hardwood forest and regrowth aspen forest, which would experience about 20 acres each of direct habitat loss as well as fragmentation. Impacts to wildlife would be as described in Section 4.8.2.1.**

#### *Aquatic Communities*

There would be multiple surface water crossings associated with HVTL Alternative 1 as described in Section 4.7; however, the HVTL corridor would be suspended over the waterways, and the alignments would be designed to preclude the placement of towers within surface waters. Therefore, no direct impacts to aquatic communities would be expected.

#### *Protected Species*

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected based on the results of the BA.**

There are seven known occurrences of state-listed **plant** species within 1 mile of HVTL Alternative 1 (see Section 3.8). Records for the endangered tubercled-rein orchid indicate it occurs within 1 mile of HVTL Alternative 1 in mine spoil areas, but there are no mine spoil areas that are within the alignment for HVTL Alternative 1. Although there is wet meadow habitat within HVTL Alternative 1, the probability is low, but not impossible, for encountering this species in wet meadow habitat along HVTL Alternative 1.

The remaining records of state-listed species observed within 1 mile of HVTL Alternative 1 are listed as species of special concern or non-status species. These species were all recorded within mine spoil areas, which are not found within the proposed alignment for HVTL Alternative 1.

**If the West Range Site were selected for permitting, prior to construction Excelsior would coordinate with MNDNR to determine if a plant survey would be warranted for the tubercled-rein orchid along HVTL Alternative 1, as well as to determine potential effects on the state-listed species or their habitats within or near HVTL Alternative 1.**

#### ***HVTL Alternative 1A***

##### ***Vegetation and Habitat***

The segment of HVTL Alternative 1A **shared** in common with HVTL Alternative 1 from the West Range Site boundary south to US 169 **was described for Alternative 1. The remainder of the alignment would consist of new ROW (see Section 2.3.1.5) to be cleared of trees and shrubs.** Deciduous and regeneration/young forest are the most common vegetation within the corridor proposed for HVTL Alternative 1A. **Table 4.8-2 summarizes the impacts to wildlife habitats by ECS category that would result from construction of the proposed HVTL Alternative 1A route. The impacts on temporary and permanent ROWs would be as described for HVTL Alternative 1. The main habitat type that would be affected is northern wet mesic boreal hardwood conifer forest, which would experience about 31 acres of direct habitat loss as well as fragmentation. Impacts on wildlife would be as described in Section 4.8.2.1.**

#### *Aquatic Communities*

There would be multiple surface water crossings associated with HVTL Alternative 1A as described in Section 4.7; however, no direct impacts to aquatic communities would be expected **for the same reasons as described for Alternative 1.**

#### *Protected Species*

**Because the alignment for HVTL Alternative 1A is within 1 mile of the alignment for HVTL Alternative 1, and contains comparable vegetation, the potential for encountering state-listed plant species would be as described for HVTL Alternative 1. The same coordination with MNDNR would**

**apply. As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.**

### ***HVTL Phase II Plan B***

#### ***Vegetation and Habitat***

The existing ROWs for MP HVTLs, including the 45L/28L and 62L/63L (see Section 2.3.1.5) that extend eastward from the West Range Site and then southward toward US 169, have been cleared of tree and shrub vegetation for establishment and maintenance of the ROWs. Although the LandSat-Based Land Use-Land Cover (Raster) data classify the areas within the Phase II Plan B ROW as a mix of terrestrial and wetland habitats, and other developed uses, aerial photographs show that it is clear of trees and shrubs. No additional land clearing (beyond what is already cleared for the existing ROW) would be expected for the installation of HVTLs during Phase II Plan B.

**Table 4.8-2 summarizes impacts to wildlife habitats by ECS categories calculated utilizing GIS mapping. The mapping did not take into account the current condition of the land and therefore shows impacts to vegetation and habitat that do not currently exist. Because the route would follow existing ROWs there would be no change in vegetation and no effect on wildlife.**

#### ***Aquatic Communities***

There would be multiple surface water crossings associated with HVTLs for Phase II Plan B as described in Section 4.7; however, no impacts to aquatic communities would be expected **for the same reasons as described for HVTL Alternative 1. Pickerel Creek, a designated trout stream located 2,500 feet east of HVTL Phase II Plan B Alternative, would not be crossed by the HVTL; therefore, no impact would be expected on this stream.**

#### ***Protected Species***

There are 12 known occurrences of state-listed **plant** species within 1 mile of HVTLs proposed for Phase II Plan B, which are detailed in Section 3.8. The known record for the tubercled-rein orchid near HVTL Phase II Plan B is within a mine spoil area, but there are no mine spoil areas or wet meadow habitat within the alignment for HVTL Phase II.

There are two known occurrences of pale moonwort (*B. pallidum* – state listed as endangered) within 1 mile of HVTL Phase II. However, this species would not be affected by HVTL Phase II because the records are within mine spoil areas, which would not be crossed by the HVTL. The remaining records of state-listed species within 1 mile of HVTL Phase II are listed as species of special concern or non-status.

Coordination with MNDNR would be completed to determine if a plant survey would be warranted for the tubercled-rein orchid along HVTL Phase II. Coordination would also be held with the MNDNR to determine potential effects on the state-listed species or their habitats within or near HVTL Phase II, particularly for state-listed endangered tubercled-rein orchid and pale moonwort.

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.**

#### **Natural Gas Pipeline Alternatives (West Range Site)**

**Section 2.3.1.4 describes Natural Gas Pipeline alternatives and Figure 2.3-4 (Chapter 2) shows the alignments. Table 4.8-3 (added for the Final EIS) summarizes the impacts from construction of the alignments on vegetation and habitat acreage by ECS category based on a 70-foot permanent ROW and an additional 30-foot temporary ROW during construction. Each line is described individually and does not consider habitat that would be impacted by other gas pipeline alignment alternatives. The table also does not reflect impacts attributed to the Power Plant Footprint or shared alignments with Rail Lines or Access Roads. The impacts from construction of respective alignments are described in the following subsections.**

**Table 4.8-3. Vegetation and Habitat Impacts (acres), Natural Gas Pipeline (West Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area			Temporary ROW Impact <sup>2</sup>			Permanent ROW Change <sup>3</sup>		
	Alt 1	Alt 2	Alt 3	Alt 1	Alt 2	Alt 3	Alt 1	Alt 2	Alt 3
AFXXXX - Aspen Forest <sup>1</sup>	10.4	9.8	12.8	1.7	1.4	5.5	-10.4	-9.8	-12.8
APn80 - Northern Spruce Bog	1.0	0.5	—	0.3	—	—	-1.0	-0.5	—
APn90 - Northern Open Bog	1.2	0.9	1.2	0.4	—	0.1	+1.0	+0.5	—
FpN73 - Northern Rich Alder Swamp	4.0	6.3	1.0	1.9	0.4	0.3	-4.0	-6.3	-1.0
MHn35 - Northern Mesic Hardwood Forest	38.6	13.2	1.4	14.3	3.5	0.5	-38.6	-13.2	-1.4
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	12.5	4.5	14.2	3.6	0.1	6.2	-12.5	-4.5	-14.2
MRn83 - Northern Mixed Cattail Marsh	1.2	1.1	1.0	0.1	—	—	—	—	—
MRn93 - Northern Bulrush-Spikerush Marsh	—	0.2	2.9	—	—	0.9	—	—	—
WFn55 - Northern Wet Ash Swamp	9.0	1.4	0.3	3.2	—	0.1	-9.0	-1.4	-0.3
WMn82 - Northern Wet Meadow/Carr	3.9	2.7	5.1	0.9	0.4	1.6	+13.0	+7.7	+1.3
XDXXOF - Old Field <sup>1</sup>	19.9	35.7	31.1	5.1	0.3	2.5	+61.5	+27.5	+28.4
XDXXXX - Disturbed Land <sup>1</sup>	1.2	1.1	7.3	0.3	—	2.6	—	—	—
<b>Total</b>	<b>102.8</b>	<b>77.5</b>	<b>78.2</b>	<b>31.8</b>	<b>6.2</b>	<b>20.4</b>	<b>—</b>	<b>—</b>	<b>—</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

As explained in Section 2.3.1.4, construction of the Nashwauk Natural Gas Pipeline was approved by the Minnesota PUC after publication of the Mesaba Draft EIS. Excelsior has stated its intent to negotiate with the Nashwauk PUC for purchase of natural gas from the Nashwauk pipeline, which will be constructed along the same corridor as the alignment for Natural Gas Pipeline Alternative 1 proposed for the Mesaba Energy Project. In the event that Excelsior would reach favorable terms for the purchase of natural gas from Nashwauk PUC, the construction of a separate natural gas pipeline for the Mesaba Generating Station would not be necessary, and the impacts described for Alternative 1 would not be directly attributable to the Mesaba Energy Project.

**Natural Gas Pipeline Alternative 1**

**Vegetation and Habitat**

Table 4.8-3 provides a summary of impacts to vegetation and wildlife habitats by ECS category that would result from the construction of the Natural Gas Pipeline along the Alternative 1 route. Installation of the pipeline would convert existing vegetation to grassland habitat within a permanent 70-foot ROW. Habitat cleared during construction activities within the additional temporary ROW would eventually regenerate over several years of natural succession. The habitat cleared within the permanent ROW would be maintained as grassland in perpetuity by ROW vegetation management activities to keep the HVTL ROW cleared of trees and woody vegetation. The losses and gains in acreage by ECS category are listed in the table column for the permanent ROW change. The main habitat type that would be affected is northern mesic hardwood forest, which would experience almost 39 acres of direct habitat loss as well as fragmentation. Impacts on wildlife would be as described in Section 4.8.2.1.

### *Aquatic Communities*

Section 4.7 describes surface water crossings associated with Natural Gas Pipeline Alternative 1. Wherever practicable, the gas pipeline would be directionally drilled beneath surface waters to a distance of about 100 feet beyond the aquatic community, which would minimize the potential for impacts on aquatic resources.

### *Protected Species*

There are nine known occurrences of state-listed **plant** species within 1 mile of Natural Gas Pipeline Alternative 1 (see Section 3.8). One species, is a state-listed endangered species, the others are listed as species of special concern or non-status. Records for the endangered tubercled-rein orchid, indicate it has colonized in disturbed mine spoil areas near Natural Gas Pipeline Alternative 1, but there are no mine spoil areas within the alignment. Due to the rarity of *P. flava* var. *herbiola* in the state, the probability is low, but not impossible, for encountering this species in wet meadow habitat within the alignment.

**If the West Range Site were selected for permitting, before construction Excelsior would coordinate with MNDNR to determine if a plant survey would be warranted for the tubercled-rein orchid along Natural Gas Pipeline Alternative 1, as well as to determine potential effects on state-listed species or their habitats within or near the alignment.**

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.**

### **Natural Gas Pipeline Alternative 2**

#### ***Vegetation and Habitat***

Deciduous, mixed wood and regeneration/young forests would be the most common **vegetation** cleared for the **Natural Gas Pipeline along the Alternative 2** alignment. **Existing** grassland habitats would be used for access and staging of construction equipment as the pipeline is installed.

**Table 4.8-3 summarizes impacts to vegetation and wildlife habitats by ECS category for construction of Natural Gas Pipeline along the Alternative 2 alignment. The impacts on temporary and permanent ROWs would be as described for the Alternative 1 route. The main habitat type affected is northern mesic hardwood forest, which would experience about 13 acres of direct habitat loss as well as fragmentation. Impacts on wildlife would be as described in Section 4.8.2.1.**

### *Aquatic Communities*

Section 4.7 describes surface water crossings associated with Natural Gas Pipeline Alternative 2. Construction methods to reduce impacts would be the same as described for Alternative 1.

### *Protected Species*

There are three known occurrences of one state-listed **plant** species within 1 mile of Natural Gas Pipeline Alternative 2, which are detailed in Section 3.8. These three records are for the endangered tubercled-rein orchid. However, the known records for this species near Natural Gas Pipeline Alternative 2 are within mine spoil areas, and there are no mine spoil areas within the alignment.

Because of the rarity of *P. flava* var. *herbiola* in the state, the probability is low, but not impossible, for encountering this species in wet meadow habitat within Natural Gas Pipeline Alternative 2. **If the West Range Site were selected for permitting, prior to construction Excelsior would coordinate with MNDNR to determine potential effects on the state-listed species or their habitats.**

**Based on the results of the BA, adverse impacts on Canada lynx and gray wolf are not expected.**

### **Natural Gas Pipeline Alternative 3**

#### ***Vegetation and Habitat***

Deciduous forest is the most common vegetation that would be cleared for the Natural Gas Pipeline Alternative 3 alignment. Existing grassland habitats would be used for access and staging of construction equipment as the pipeline is installed.

**Table 4.8-3 summarizes impacts to vegetation and wildlife habitats by ECS category that would result from construction of the proposed Natural Gas Pipeline along the Alternative 3 route. The impacts on temporary and permanent ROWs would be as described for the Alternative 1 route. The main habitat type that would be affected is northern wet mesic boreal hardwood conifer forest, which would experience about 14 acres of direct habitat loss as well as fragmentation. Impacts on wildlife would be as described in Section 4.8.2.1.**

#### ***Aquatic Communities***

Section 4.7 describes surface water crossings associated with Natural Gas Pipeline Alternative 3. Construction methods to reduce impacts would be the same as described for Alternative 1.

#### ***Protected Species***

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of Natural Gas Pipeline Alternative 3. **Adverse impacts on Canada lynx and gray wolf are not expected based on the results of the BA.**

#### **Process Water Supply Pipelines (West Range Site)**

Process Water Supply Pipeline Segments 1, 2, and 3 described in this subsection would all be included in the process water supply plan for the West Range Site (see Section 4.5) and would all be constructed during Phase I of the Mesaba Energy Project. Section 2.3.1.3 discusses the alignments, as shown in Figure 2.3-3 (Chapter 2). Table 4.8-4 (added for the Final EIS) summarizes the impacts from construction of the pipelines on acreage by ECS category. Collectively, the pipeline segments would convert about 42 acres of wooded vegetation types to grassland types in the permanent ROWs. The table also does not reflect impacts attributed to Power Plant Footprint or shared alignments with Rail Lines or Access Roads.

#### ***Segment 1 (Lind Pit to Canisteo Pit)***

##### ***Vegetation and Habitat***

Table 4.8-4 provides a summary of impacts to vegetation and wildlife habitats by ECS category that would result from construction of the proposed Process Water Supply Pipeline Segment 1. Installation of the pipeline would convert existing vegetation to grassland habitat within a permanent 100-foot ROW. Habitat cleared during construction activities within an additional 50-foot temporary ROW would eventually regenerate over several years of natural succession. Maintenance of the permanent ROW would be as described for natural gas pipelines. The losses and gains in acreage by habitat type are listed in the table column for the permanent ROW change. The main habitat type that would be affected is aspen forest, which would experience about 6 acres of direct habitat loss as well as fragmentation. Aspen forests within the West Range Site are characterized as early successive, emerging after logging activities. Impacts on wildlife would be as described in Section 4.8.2.1.

**Table 4.8-4. Vegetation and Habitat Impacts (acres), Process Water Supply Pipelines (West Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area				Temporary ROW Impact <sup>2</sup>				Permanent ROW Change <sup>3</sup>			
	Segment 1	Segment 2	Segment 3	Total	Segment 1	Segment 2	Segment 3	Total	Segment 1	Segment 2	Segment 3	Total
AFXXXX - Aspen Forest <sup>1</sup>	6.3	1.5	—	7.8	4.3	1.1	—	5.4	-6.3	-1.5	—	-7.8
APn90 - Northern Open Bog	—	—	0.4	0.4	—	—	0.1	0.1	—	—	—	—
FPn73 - Northern Rich Alder Swamp	—	0.1	1.4	1.5	—	0.1	1.2	1.3	—	-0.1	-1.4	-1.5
FPn82 - Northern Rich Tamarack Swamp (Western Basin)	—	—	—	—	—	—	0.1	0.1	—	—	+4.1	+4.1
APn81 - Northern Poor Conifer Swamp	—	0.8	1.0	1.8	—	0.3	0.1	0.4	—	-0.8	-1.0	-1.8
LKi54 - Inland Lake Clay/Mud Shore	—	—	0.1	0.1	—	0.1	0.2	0.3	—	—	—	—
MHn35 - Northern Mesic Hardwood Forest	—	5.8	17.2	23	—	3.4	9.9	13.3	—	-5.8	-17.2	-23.0
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	—	1.6	9.9	11.5	—	1.2	5.7	6.9	—	-1.6	-9.9	-11.5
MRn83 - Northern Mixed Cattail Marsh	—	—	0.2	0.2	—	—	0.4	0.4	—	—	—	—
WMn82 - Northern Wet Meadow/Carr	—	—	—	—	—	—	—	—	—	+0.8	—	+0.8
MRn93 - Northern Bulrush-Spikerush Marsh	—	—	0.4	0.4	—	—	0.2	0.2	—	—	—	—
OW- Other Water Body	0.7	—	0.4	1.1	0.6	—	0.4	1.0	—	—	—	—
WFn55 - Northern Wet Ash Swamp	—	—	1.7	1.7	—	—	0.9	0.9	—	—	-1.7	-1.7
XDXXOF - Old Field <sup>1</sup>	8.8	4.5	3.4	16.7	7.5	0.9	1.0	9.4	+6.3	+8.9	+27.1	+42.3
XDXXXX - Disturbed Land <sup>1</sup>	10.9	0.2	11.4	22.5	1.0	1.3	4.0	6.3	—	—	—	—
<b>Total</b>	<b>26.6</b>	<b>14.3</b>	<b>47.6</b>	<b>88.7</b>	<b>13.4</b>	<b>8.3</b>	<b>24.1</b>	<b>46.0</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

### *Aquatic Communities*

There are no surface water crossings that would be associated with Process Water Supply Pipeline Segment 1; therefore, no impacts to aquatic communities would be expected during construction.

### *Protected Species*

There are four known occurrences of one state-listed **plant** species within 1 mile of Process Water Supply Pipeline Segment 1 (Lind Pit to Canisteo Pit), which are detailed in Section 3.8. These four records are for the state-listed *Botrychium* spp., which were documented through a field survey completed by Critical Connections Ecological Services, Inc. in 2005 (CCESR, 2005). It is assumed these records have been reported to the MNDNR and are now part of the NHIS database.

All four *Botrychium* spp. were recorded to occur in mine spoil areas, although it is not fully understood how these species were recruited into these highly disturbed areas. One species, *B. pallidum* (pale moonwort), is state-listed endangered. The remaining *Botrychium* spp. are listed as species of special concern or non-status species. All four species may be within the temporary or permanent ROWs for Process Water Supply Pipeline Segment 1 and could be directly affected due to construction activities.

Although impacts to species of special concern or non-status species and their habitats are not regulated by state law, the Proposed Action does not preclude the need for coordination or consultation with the MNDNR to determine significance of potential impacts. For these reasons, **Excelsior would coordinate** with MNDNR to determine the potential effects on these species or their habitats within or near Process Water Supply Pipeline Segment 1, particularly for state-listed endangered *B. pallidum*.

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.**

### **Segment 2 (Canisteo Pit to West Range Site)**

#### ***Vegetation and Habitat***

**The alignment for the Process Water Supply Pipeline Segment 2 (see Section 2.3.1.3) was relocated after publication of the Draft EIS to follow the alignment of Access Road 3 to the plant footprint. Table 4.8-4 summarizes the impacts on the permanent ROW for the Segment 2 realignment. The shifted alignment would affect slightly more aspen forest, but less northern wet-mesic boreal hardwood-conifer forest as compared to the original alignment. The impacts on temporary and permanent ROWs would be as described for Segment 1. Impacts on wildlife would be as described in Section 4.8.2.1.**

### *Aquatic Communities*

There are no surface water crossings that would be associated with Process Water Supply Pipeline Segment 2; **therefore**, no impacts to aquatic communities would be expected during construction.

Because the water level in the Canisteo Pit would be maintained in accordance with the water resources management plan for the Mesaba Generating Station at the West Range Site, and the process water intake structure would be designed to prevent entrainment of aquatic life as described in Section 4.5, impacts on lake trout would be minor. The design of the intake structure would preclude the transfer of live rainbow smelt to other surface waters during plant operation.

### *Protected Species*

There are no known occurrences of state-listed protected or otherwise rare **plant** species within 1 mile of Process Water Supply Pipeline Segment 2 (Canisteo Pit to West Range Site). **As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.**

### **Segment 3 (Gross-Marble Pit to Canisteo Pit)**

#### ***Vegetation and Habitat***

Table 4.8-4 summarizes the impacts on vegetation and wildlife habitats by ECS category that would result from Process Water Supply Pipeline Segment 3. The impacts on temporary and permanent ROWs would be as described for segment 1. The main habitat type that would be affected is northern mesic hardwood forest, which would experience about 17 acres of direct habitat loss as well as fragmentation. Impacts on wildlife would be as described in Section 4.8.2.1.

#### ***Aquatic Communities***

There are no surface water crossings that would be associated with Process Water Supply Pipeline Segment 3; therefore, no impacts to aquatic communities would be expected during construction.

#### ***Protected Species***

There is one known occurrence of a state-listed species within 1 mile of Process Water Supply Pipeline Segment 3 (Gross-Marble Pit to Canisteo Pit), which is detailed in Section 3.8. This record is for the state-listed threatened *B. rugulosum* (St. Lawrence grapefern), which was observed within a mine tailings basin among aspen trees. Although this record is not within the proposed alignment for Process Water Supply Pipeline Segment 3, there are mine spoil areas within the proposed alignment that may contain undocumented occurrences of this species. Consequently, coordination with MNDNR would determine whether a plant survey would be warranted. **As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.**

#### **Cooling Tower Blowdown Outfalls (West Range Site)**

[Text in the Draft EIS describing impacts from construction of Cooling Tower Blowdown Outfalls was eliminated at this point based on Excelsior's decision to use an enhanced ZLD system at the West Range Site as discussed in Section 2.3.1.3.]

#### **Potable Water and Sewer Pipelines (West Range Site)**

#### ***Vegetation and Habitat***

The alignment for the Potable Water and Sewer Pipelines was relocated after publication of the Draft EIS to follow the alignment of Access Road 3 to the plant footprint (see discussion in Section 2.3.1.3). Table 4.8-5 (added for the Final EIS) provides a summary of impacts to vegetation and wildlife habitats by ECS category that would result from construction of these pipelines. The shifted alignment would parallel the new access road to CR 7 and then continue south along CR 7 as originally proposed.

Installation of the pipeline would convert existing vegetation to grassland habitat within a permanent 40-foot ROW. An additional 60-foot temporary ROW would be cleared during construction but would eventually regenerate over several years of natural succession. Maintenance of the permanent ROW would be as described for Natural Gas Pipeline Alternative 1. Table 4.8-5 compares the impacts that would result from the revised alignment with those of the original alignment. The losses and gains in acreage by habitat type are listed in the table column for permanent ROW change. The impacts on wooded habitats would be slightly less for the revised alignment than the original alignment. The table does not reflect impacts attributed to the Power Plant Footprint or shared alignments with Rail Lines, Access Roads, or the Process Water Supply Pipelines. Impacts on wildlife would be as described in Section 4.8.2.1.

**Table 4.8-5. Vegetation and Habitat Impacts (acres), Potable Water and Sewer Pipelines (West Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area		Temporary ROW Impact <sup>2</sup>		Permanent ROW Change <sup>3</sup>	
	Revised Alignment	Original Alignment	Revised Alignment	Original Alignment	Revised Alignment	Original Alignment
AFXXXX - Aspen Forest <sup>1</sup>	—	—	—	—	—	—
FPn73 - Northern Rich Alder Swamp	—	—	—	—	—	—
FPn82 – Northern Rich Tamarack Swamp (Western Basin)	—	—	—	1.5	—	—
APn81 - Northern Poor Conifer Swamp	0.6	—	—	—	-0.6	—
MHn35 - Northern Mesic Hardwood Forest	—	0.9	1.8	2.8	—	-0.9
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	0.4	1.8	1.4	3.5	-0.4	-1.8
WMn82 – Northern Wet Meadow/Carr	—	1.0	—	—	+0.6	—
XDXXOF - Old Field <sup>1</sup>	—	—	0.8	0.3	+0.4	+2.7
XDXXXX - Disturbed Land <sup>1</sup>	2.3	2.3	1.9	1.7	—	—
<b>Total</b>	<b>3.3</b>	<b>6.1</b>	<b>5.9</b>	<b>9.9</b>	<b>—</b>	<b>—</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

***Aquatic Communities***

There are no surface water crossings that would be associated with the Potable Water and Sewer Pipelines.

***Protected Species***

As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected. There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of the Potable Water and Sewer Pipelines.

***Rail Line Alternatives (West Range Site)***

Section 2.3.1.2 describes the Rail Line Alternative alignments, as shown in Figure 2.3-2 (Chapter 2). Based on comments and recommendations from USACE and other agencies after publication of the Draft EIS, DOE conferred with Excelsior to identify additional alignments that would minimize and avoid impacts on wetlands (see also Section 4.7 and Appendix F2). This effort resulted in a new alignment preferred by Excelsior, Alternative 3B, which is compared to Excelsior’s original preferred Alternative 1A in this Final EIS. Table 4.8-6 (added for the Final EIS) summarizes the impacts from construction of the alignments on vegetation and habitat acreage by ECS category. The table does not reflect impacts already attributed to the Power Plant Footprint. The impacts of the alternative alignments are described in the following subsections.

**Table 4.8-6. Vegetation and Habitat (acres), Rail Line (West Range Site)**

ECS Codes <sup>1</sup>	Alternative 3B		Alternative 1A	
	Rail Line	Center Loop <sup>2</sup>	Rail Line	Center Loop <sup>2</sup>
AFXXXX - Aspen Forest <sup>1</sup>	3.5	23.1	0.7	—
FPn73 - Northern Rich Alder Swamp	2.0	0.2	1.7	—
MHn35 - Northern Mesic Hardwood Forest	29.4	145.1	31.1	29.8
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	42.0	25.4	32.3	—
MRn83 - Northern Mixed Cattail Marsh	0.1	2.0	—	—
OW- Other Water Body	0.6	—	0.2	—
WFn55 - Northern Wet Ash Swamp	10.2	3.5	18.5	49.8
WMn82 - Northern Wet Meadow/Carr	2.1	0.6	3.2	—
XDXXOF - Old Field <sup>1</sup>	1.9	12.6	2.2	—
XDXXXX - Disturbed Land <sup>1</sup>	2.3	—	2.2	—
<b>Total</b>	<b>93.8</b>	<b>212.4</b>	<b>92.0</b>	<b>79.6</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Depending on final design specifications for the center loop, habitat may not be impacted and would continue to exist in current form.

***Rail Line Alternative 1A and Center Loop***

***Vegetation and Habitat***

Table 4.8-6 summarizes impacts to vegetation and wildlife habitats by ECS category that would result from Rail Line Alternative 1A. The main habitat types that would be affected are northern wet-mesic boreal hardwood-conifer forest and northern mesic hardwood forest, which would experience, respectively, about 32 acres and 31 acres of direct habitat loss as well as fragmentation through construction of the rail line. Wetland habitat conversions would also occur as described in Section 4.7; however, unlike utility corridors, these wetland areas would be lost through construction of the rail line as opposed to being converted into herbaceous-dominated communities. Wetland habitats within the center loop, principally northern wet ash swamp, would be avoided during construction to the extent practicable and may not be permanently altered depending on the final design specifications.

Impacts on wildlife would be as described in Section 4.8.2.1. Impacts resulting from habitat fragmentation during construction and mortality due to collisions with trains during operations would be principal concerns.

***Aquatic Communities***

There are no surface water crossings that would be associated with Rail Line Alternative 1A; therefore, no impacts to aquatic communities would be expected as a result of the construction or operation of this structure.

***Protected Species***

As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected based on the results of the BA. During plant operation, the potential for collisions with trains would be the impact of most concern.

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of Rail Line Alternative 1A.

***Rail Line Alternative 1B and Center Loop***

[Text in the Draft EIS describing impacts from construction of Rail Line Alternative 1B was deleted at this point. Excelsior eliminated Rail Line Alternative 1B from further consideration

based on the evaluation in the Draft EIS and subsequent consideration of Rail Line Alternative 3B as discussed in Section 2.3.1.2.]

### ***Rail Line Alternative 3B and Center Loop***

#### ***Vegetation and Habitat***

As a result of concerns about potential wetland impacts raised by the USACE and other agencies following publication of the Draft EIS, Rail Line Alternative 3B was identified as Excelsior's new preferred alignment as described in Section 2.3.1.2. Alternative 3B would reduce impacts to wetlands, but would increase impacts to coniferous, deciduous, and mixed forest. Areas for the rail line are expected to be cleared and permanently altered for construction of the rail line. Wooded vegetation in the center loop would be avoided during construction to the extent practicable and may not be permanently altered depending on the final design specifications.

Table 4.8-6 summarizes impacts to vegetation and wildlife habitats by ECS category that would result from the proposed Rail Line Alternative 3B. The revised alignment would loop around the hill in the northeastern portion of the West Range Site and avoid encircling a substantial amount of wetland habitat as proposed under Alternative 1A. Alternative 3B would reduce impacts to northern wet ash swamp by about 8 acres for the rail alignment, and avoid about 46 acres of potential impacts to northern wet ash swamp encircled by the center loop of Alternative 1A. The main habitat type that would be affected is northern wet-mesic boreal hardwood-conifer forest, which would experience about 42 acres of direct habitat loss as well as fragmentation through construction of the rail line. The rail loop for Alternative 3B would encircle an upland area dominated by northern mesic hardwood forest.

Impacts on wildlife would be as described in Section 4.8.2.1. Impacts resulting from habitat fragmentation during construction and mortality due to collisions with trains during operations would be principal concerns.

#### ***Aquatic Communities***

There are no surface water crossings that would be associated with Rail Line Alternative 3B.

#### ***Protected Species***

As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected based on the results of the BA. During plant operation, the potential for collisions with trains would be the impact of most concern.

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of Rail Line Alternative 3B.

#### ***Access Road Alignments (West Range Site)***

Potential Access Road alternatives are described in Section 2.3.1.2, and the alignments are shown in Figure 2.3-2 (Chapter 2).

#### ***Vegetation and Habitat***

As discussed in Section 2.3.1.2, after publication of the Draft EIS, Itasca County deferred its proposed project to realign CR 7, which would have been the basis of Excelsior's proposed Access Road 1. Excelsior's proposed Access Road 2 would have connected Access Road 1 with the plant footprint and depended upon the realignment of CR 7 to be feasible. Also, as a result of concerns raised by the USACE and other agencies after the Draft EIS was published regarding the need to avoid and minimize impacts to wetland habitats, Excelsior identified a new preferred alignment, Access Road 3, which would connect the existing CR 7 with the plant footprint near the southwestern corner of the West Range Site boundary.

**Table 4.8-7 (added for the Final EIS) provides a summary of impacts to vegetation and wildlife habitats by ECS category that would result from construction of Access Road 3. The table also summarizes impacts that would result from the Access Roads 1 and 2 alignments for comparison. The revised alignment would shorten the length of the road and would reduce impacts in the permanent ROW by a total of about 8 acres. Habitat cleared during construction activities within the temporary ROW would eventually recover over several years of natural succession. The habitat cleared within the permanent ROW would be converted to roadway and grassland in roadside ditches. The ditches would be kept cleared of trees and woody vegetation through maintenance. Process Water Supply Pipeline Segment 2 and the Potable Water and Sanitary Sewer Pipelines would occupy the permanent ROW adjacent to the new roadway. The main habitat types that would be affected include aspen forest and northern mesic hardwood forest, which would experience, respectively, about 7 acres and 5 acres of direct habitat loss as well as fragmentation. Aspen forests within the West Range Site are characterized as early successive, emerging after logging activities. Impacts on wildlife would be as described in Section 4.8.2.1.**

**Table 4.8-7. Vegetation and Habitat Impacts (acres), Access Roads (West Range Site)**

ECS Codes <sup>1</sup>	Temporary ROW Impact <sup>2</sup>		Permanent ROW Change <sup>3</sup>	
	Access Road 3 Alignment	Access Roads 1 & 2 Alignment	Access Road 3 Alignment	Access Roads 1 & 2 Alignment
AFXXXX - Aspen Forest	4.3	0.6	-6.5	-0.7
FPn73 - Northern Rich Alder Swamp	0.1	—	-0.2	—
FPn82 - Northern Rich Tamarack Swamp (Western Basin)	—	—	—	—
MHn35 - Northern Mesic Hardwood Forest	3.3	5.2	-5.2	-7.8
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	—	3.1	—	-4.3
MRn83 - Northern Mixed Cattail Marsh	0.1	0.1	—	—
WMn82 - Northern Wet Meadow/Carr	—	2.7	—	-4.2
XDXXOF - Old Field <sup>1</sup>	0.3	1.9	-0.2	-2.5
XDXXXX - Disturbed Land <sup>1</sup>	0.1	0.2	-0.1	-0.9
<b>Total</b>	<b>8.2</b>	<b>13.7</b>	<b>-12.3</b>	<b>-20.4</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROWs as these habitats will be restored following construction.

<sup>3</sup> Negative values indicate a loss of habitat.

### ***Aquatic Communities***

There are no surface water crossings that would be associated with the road alignments.

### ***Protected Species***

As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected based on the results of the BA. During plant operation, the potential for collisions with vehicles would be the impact of most concern.

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of the road alignment.

## **4.8.4 Impacts on East Range Site and Corridors**

This section describes the construction-related impacts of the Mesaba Generating Station on the East Range Site and corridors. The impacts of operations on biological resources would be comparable for either site and are described in Section 4.8.2.2 unless otherwise appropriate. This

section as published in the Draft EIS was revised to address impacts to wildlife habitat based on the ECS habitat types in response to comments and requests by USACE and MNDNR. Therefore, tables that were included in the Draft EIS listing affected acreages by respective land cover have been eliminated and replaced with tables based on the ECS System categories.

During construction for the Phase I power plant, the Phase II footprint would be prepared and used as a staging and laydown area for stockpiling of materials and storage of equipment as well as for a concrete batch plant. Therefore, much of the footprint would be cleared during Phase I construction with the exception of wetlands and sensitive areas that would be avoided. For Phase II construction, Excelsior would establish off-site construction staging and laydown areas on 85 acres of land selected from two potential sites as described in Chapter 2 (see Sections 2.2.4.1 and 2.3.2.1). Both potential sites are located on lands that have been disturbed or cleared during prior uses by mineral extraction companies, and they have access to local roadways. Excelsior would select appropriate sites for the necessary acreage prior to construction of Phase II taking into consideration potential effects on biological resources. Following completion of Phase II construction, sites used for staging and laydown would be restored to pre-existing conditions.

#### **4.8.4.1 East Range Site and Power Plant Footprint**

See Figure 2.3-5 in Section 2.3.2, which shows the East Range Site and plant footprint.

##### **Vegetation and Habitat**

The impacts of construction on vegetation at the East Range Site generally would be as described in Section 4.8.2.1. Though the construction of the Mesaba Generating Station at the East Range Site would require a relatively large amount of vegetation clearing, resulting in habitat loss and fragmentation, these resources are common in the region, and the construction of the Mesaba Generating Station at the East Range Site would degrade a small fraction of the total amount of these plant communities in the area (see Section 5.2.6). The potential introduction of non-native or invasive flora would be minimized as described for common impacts in Section 4.8.2.

Section 3.8.1.2 describes wildlife species likely to inhabit the East Range Site. Habitat loss and habitat degradation are influencing factors that contribute to the decline of wildlife species (MNDNR, 2007). Consequently, wildlife using the natural resources within the region of influence for the Mesaba Generating Station may be adversely affected. However, comparable habitat types are common in the region, and the placement of the Mesaba Generating Station would cause the elimination of a small fraction of the total habitat near the East Range Site. Refer also to the discussion of cumulative impacts on wildlife habitat in Section 5.2.6.

Table 4.8-8 (added for the Final EIS) provides a summary of impacts to vegetation and wildlife habitats by ECS category. Impacts on wildlife would be as described in Section 4.8.2.1. Table 3.8-1 (Chapter 3) lists the SGCN species, as defined by the MNDNR, that typically utilize the habitat types identified in Table 4.8-8. The plant site would convert existing wildlife habitat into industrial land use. The main habitat type that would be affected is northern wet-mesic boreal hardwood-conifer forest, which would experience over 133 acres of direct habitat loss as well as fragmentation for construction of Phases I and II.

**Table 4.8-8. Vegetation and Habitat Impacts (acres), Mesaba IGCC Power Plant Footprint (East Range Site)**

ECS Codes	Total Area within East Range Site (acres)	Phase I Impacts (acres)	Phase II Impacts (acres)	Total Impacts (acres)
APn80 - Northern Spruce Bog	12.9	-4.8	—	-4.8
APn81 - Northern Poor Conifer Swamp	37.1	-0.7	-1.4	-2.1
FPn73 - Northern Rich Alder Swamp	181.2	-0.2	-0.9	-1.1
MHn35 - Northern Mesic Hardwood Forest	304.3	-2.8	-11.1	-13.9
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	416.4	-63.7	-69.4	-133.2
MRn83 - Northern Mixed Cattail Marsh	62.7	-1.9	-1.4	-3.3
WFn55 - Northern Wet Ash Swamp	249.4	-21.8	-0.3	-22.1
WMn82 - Northern Wet Meadow/Carr	12.1	-1.8	—	-1.8
XDXXOF - Old Field <sup>1</sup>	23.2	-0.3	-0.7	-1.0
AFXXXX - Aspen Forest <sup>1</sup>	21.4	—	—	—
XDXXXX - Disturbed Land <sup>1</sup>	0.9	—	—	—
<b>Total</b>	<b>1321.7</b>	<b>-97.9</b>	<b>-85.2</b>	<b>-183.1</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.  
 Note: Negative values indicate a loss of habitat.

**Aquatic Communities**

No direct impacts to aquatic species would occur from construction of the Mesaba Generating Station at the East Range Site. Section 4.8.2.2 describes the impacts of plant operations on aquatic communities. Section 4.8.4.2 discusses potential impacts that may result from the construction and operation of supporting infrastructure (e.g., natural gas pipelines, process water pipelines).

**Protected Species**

As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected (see BA in Appendix E).

No MNDNR NHIS threatened, endangered, or otherwise rare species inhabit or occur within the East Range Site. According to the MNDNR NHIS database, the closest occurrence is the wood turtle (*Clemmys insculpta*), which exists on the Partridge River, more than 2 miles from the East Range Site boundary and would not be affected by the project.

**4.8.4.2 HVTL, Pipeline, and Transportation Corridors**

See Section 2.3.2 for descriptions of alternative alignments and Figures 2.3-6, 2.3-7, and 2.3-8 showing corridor alignments for the East Range Site.

**HVTL Alternatives (East Range Site)**

Section 2.3.2.5 describes HVTL alternatives and Figure 2.3-8 (Chapter 2) shows the alignments. Table 4.8-9 (added for the Final EIS) summarizes the impacts from construction of the alignments on vegetation and habitat acreage by ECS category based on the clearing of additional permanent ROW in existing corridors and an additional 100-foot permanent ROW for corridors bridging between existing ROWs. Each alternative is described individually and does not consider habitat that would be impacted by other HVTL alignment alternatives. The table also does not reflect impacts attributed to the Power Plant Footprint or shared alignments with Rail Lines, Access Roads, Process Water Pipelines, or Natural Gas Pipelines. The impacts from construction of respective alignments are described in the following subsections.

**Table 4.8-9. Vegetation and Habitat Impacts (acres), HVTLs (East Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area		Permanent ROW Change <sup>2</sup>	
	Alternative 1	Alternative 2	Alternative 1	Alternative 2
AFXXXX - Aspen Forest <sup>1</sup>	2.9	9.0	-2.9	-9.0
APn80 - Northern Spruce Bog	44.4	46.4	-44.4	-46.4
APn81 - Northern Poor Conifer Swamp	8.8	7.3	-8.8	-7.3
APn90 - Northern Open Bog	11.3	15.7	+53.2	+53.7
FpN73 - Northern Rich Alder Swamp	60.8	69.3	-60.8	-69.3
FpN81 - Northern Rich Tamarack Swamp (Water Track)	0.7	0.7	-0.7	-0.7
LKi54 - Inland Lake Clay/Mud Shore	3.7	3.3	—	—
MHn35 - Northern Mesic Hardwood Forest	31.4	38.3	-31.4	-38.3
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	49.7	25.8	-49.7	-25.8
MRn83 - Northern Mixed Cattail Marsh	0.3	—	—	—
MRn93 - Northern Bulrush-Spikerush Marsh	0.7	0.8	—	—
OW- Other Water Body	1.1	1.0	—	—
WFn55 - Northern Wet Ash Swamp	20.2	19.2	-20.2	-19.2
WFn64 - Northern Very Wet Ash Swamp	0.2	2.8	-0.2	-2.8
WMn82 - Northern Wet Meadow/Carr	6.1	6.3	+81.8	+92.1
XDXXOF - Old Field <sup>1</sup>	475.8	478.4	+84.0	+73.1
XDXXXX - Disturbed Land <sup>1</sup>	35.0	39.2	—	—
<b>Total</b>	<b>752.8</b>	<b>763.5</b>	—	—

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

**HVTL Alternative 1**

**Vegetation and Habitat**

As described in Section 2.3.2.5, HVTL Alternative 1 would require the clearing of an additional 30-foot wide ROW alongside the existing ROW of the MP 38L that has been cleared of tree and shrub vegetation for maintenance. In addition, the HVTLs in the existing cleared ROWs for the MP 39L and MP 37L corridors would be upgraded with new poles and additional power lines, but no widening of the ROWs. Furthermore, two new ROW segments, each about 2 miles in length, would be required. One would extend alongside the existing MP 43L HVTL corridor to connect the Mesaba Generating Station with the initiation point of the 39L and 38L corridors. The second new ROW segment would be required to link the 39L and 37L corridors near the City of Eveleth. Table 4.8-9 summarizes the impacts to vegetation and wildlife habitats by ECS category that would result from construction for the proposed HVTL Alternative 1 routes. The main habitat types that would be affected are northern rich alder swamp and northern wet-mesic boreal hardwood-conifer forest, which would respectively experience about 61 acres and 50 acres of direct habitat loss as well as fragmentation. However, except in the new ROW segments, these losses would generally occur within a 30-foot corridor adjacent to an existing cleared ROW for the MP 38L. Impacts on wildlife would be as described in Section 4.8.2.1.

### *Aquatic Communities*

There would be multiple surface water crossings associated with HVTL Alternative 1 as described in Section 4.7; however, the HVTLs would be suspended and the alignments would be designed to avoid the placement of towers within surface waters. Therefore, no impacts to aquatic resources would be expected..

### *Protected Species*

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected. The HVTLs for Alternative 1 would be constructed in parallel to existing HVTLs in the same cleared ROWs, one alignment of which would be widened by an additional 30 feet.**

There are 16 known occurrences of state-listed species within 1 mile of HVTL Alternative 1, which are detailed in Section 3.8. Of greatest potential concern are records for the state-listed endangered floating marsh-marigold (*Caltha natans*) that inhabits a pond outlet and state-listed threatened wood turtle, which exists in habitats near the St. Louis and Partridge Rivers. Wood turtles prefer wetland habitats and water bodies. The HVTL would be suspended and poles could be placed up to 1,000 feet apart, which would allow the project to avoid particularly sensitive habitats that may contain state-listed species. If this alternative is chosen as the preferred alternative, a survey for these species may be requested by the MNDNR. Coordination with the MNDNR would be completed to determine significance of effect on these species.

The remaining records of state-listed species within 1 mile of HVTL Alternative 1 are listed as species of special concern or non-status species. Coordination with MNDNR would be completed to determine the potential effects on these species or their habitats within or near HVTL Alternative 1.

### ***HVTL Alternative 2***

#### ***Vegetation and Habitat***

**As described in Section 2.3.2.5, HVTL Alternative 2 (preferred by Excelsior) would require construction of an additional 30-foot wide ROW alongside the existing ROWs of the MP 39L and MP 37L that have been cleared of tree and shrub vegetation for maintenance. In addition, the HVTL in the existing cleared ROW for the MP 38L corridor would be upgraded with new poles and additional power lines, but no widening of the ROW. Furthermore, the same two new ROW segments, each about 2 miles in length, would be required as described for HVTL Alternative 1. Table 4.8-9 summarizes the impacts to vegetation and wildlife habitats by ECS category that would result from construction for the proposed HVTL Alternative 2 routes. The main habitat types that would be affected are northern rich alder swamp and northern spruce bog, which would respectively experience about 69 acres and 46 acres of direct habitat loss as well as fragmentation. However, except in the new ROW segments, these losses would generally occur within a 30-foot corridor adjacent to an existing cleared ROWs for the MP 39L and MP 37L. Impacts on wildlife would be as described in Section 4.8.2.1.**

### *Aquatic Communities*

There would be several surface water crossings associated with HVTL Alternative 2, as described in Section 4.7; however, the HVTLs would be suspended and the alignments would be designed to avoid the placement of towers within surface waters. Therefore, no impacts to aquatic resources would be expected.

### *Protected Species*

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected. The HVTLs for Alternative 2 would be constructed in parallel to existing HVTLs in the same cleared ROWs, one alignment of which would be widened by an additional 30 feet.**

There are 18 known occurrences of state-listed species within 1 mile of HVTL Alternative 2, which are detailed in Section 3.8. Of greatest potential concern are records for the state-listed threatened wood turtle, found in habitats near the St. Louis and Partridge Rivers. Wood turtles prefer wetland habitats and water bodies. The HVTL would be suspended and poles could be placed up to 1,000 feet apart, which would allow the project to avoid particularly sensitive habitats that may contain state-listed species. If this alternative is selected, a survey for this species may be requested by the MNDNR. Coordination with the MNDNR would be completed to determine significance of effect on this species.

The remaining records of state-listed species within 1 mile of HVTL Alternative 2 are listed as species of special concern or non-status species. Coordination with MNDNR would be completed to determine the potential effects on these species or their habitats within or near HVTL Alternative 2.

**Natural Gas Pipeline (East Range Site)**

**Vegetation and Habitat**

Section 2.3.2.4 describes the proposed alignment for the East Range Natural Gas Pipeline, as shown in Figure 2.3-8 (Chapter 2). Construction of the natural gas pipeline would take place entirely within the ROW of the existing NNG pipeline except for the segment of the pipeline extending from the existing ROW to the plant footprint. The land cover within the existing gas pipeline ROW has been cleared and contains no forested cover. Table 4.8-10 (added for the Final EIS) provides a summary of impacts to wildlife habitats by ECS category that would result from construction of the proposed natural gas pipeline. The table does not reflect impacts attributed to the Power Plant Footprint or shared alignments with other project elements. The impacts on the 30-foot temporary and 70-foot permanent ROWs would be as described for the West Range Natural Gas Pipeline Alternative 1 route. The main habitat types that would be affected are northern rich alder swamp and northern spruce bog, which would respectively experience about 9 acres and 8 acres of direct habitat loss as well as fragmentation. Impacts on wildlife would be as described in Section 4.8.2.1.

**Table 4.8-10. Vegetation and Habitat Impacts (acres), Natural Gas Pipeline (East Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area	Temporary ROW Impacts <sup>2</sup>	Permanent ROW Change <sup>3</sup>
APn80 - Northern Spruce Bog	7.9	—	-7.9
APn90 - Northern Open Bog	1.0	—	+8.1
FPn73 - Northern Rich Alder Swamp	9.0	—	-9.0
FPn81 - Northern Rich Tamarack Swamp (Water Track)	0.2	—	-0.2
LKi54 - Inland Lake Clay/Mud Shore	0.4	—	—
MHn35 - Northern Mesic Hardwood Forest	0.8	0.3	-0.8
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	1.4	0.6	-1.4
MRn83 - Northern Mixed Cattail Marsh	0.6	0.2	—
MRn93 - Northern Bulrush-Spikerush Marsh	0.1	—	—
OW- Other Water Body	0.1	—	—
WFn55 - Northern Wet Ash Swamp	4.4	0.2	-4.4
WMn82 - Northern Wet Meadow/Carr	1.8	—	+13.4
XDXXOF - Old Field <sup>1</sup>	95.6	0.1	+2.2
XDXXXX - Disturbed Land <sup>1</sup>	4.3	—	—
<b>Total</b>	<b>127.6</b>	<b>1.3</b>	<b>—</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

### ***Aquatic Communities***

**Section 4.7** describes surface water crossings associated with **the proposed** Natural Gas Pipeline. Wherever practicable, the gas pipeline would be directionally drilled beneath surface waters to a distance of about 100 feet beyond the aquatic community, which would minimize the potential for impacts on aquatic resources.

### ***Protected Species***

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected.**

There are 12 known occurrences of state-listed species within 1 mile of the proposed Natural Gas Pipeline, detailed in Section 3.8. Of greatest potential concern are those records for the state-listed threatened wood turtle, which exists in habitats near the St. Louis and Partridge Rivers. The preferred means of construction for the natural gas pipeline would be to directionally drill beneath rivers, streams, and other bodies of water, which could have temporary impacts on the wood turtle and its habitat in areas of disturbance. Impacted habitat would be restored to preconstruction conditions. **If the East Range Site were selected for permitting, prior to construction** a survey for wood turtles within this corridor may be requested by the MNDNR. Coordination with the MNDNR should be completed to determine potential impacts to this species.

The remaining records of state-listed species within 1 mile of the proposed Natural Gas Pipeline are listed as species of special concern or non-status species. Coordination with MNDNR would be completed to determine the potential effects on these species or their habitats within or near the Natural Gas Pipeline.

### **Process Water Supply Pipelines (East Range Site)**

#### ***Vegetation and Habitat***

**All Process Water Supply Pipeline segments would be included in the process water supply plan for the East Range Site (see Section 4.5.4.1 for a discussion of uncertainties associated with process water sources relating to other projects proposed in the vicinity), and all would be constructed during Phase I of the Mesaba Energy Project. Section 2.3.2.3 discusses the alignments, as shown in Figure 2.3-7 (Chapter 2). Table 4.8-11 (added for the Final EIS) summarizes the impacts from construction of the pipelines on acreage by ECS category. Installation of the pipeline would require the clearing of a permanent 100-foot ROW. Habitat cleared during construction activities within an additional 50-foot temporary ROW would eventually regenerate over several years of natural succession. Most of the pipeline segments traverse lands between mine pits that have been disturbed during prior mineral extraction activities and contain negligible to minimal vegetation. Only two segments, Area 2WX to the Plant Footprint and Area 6 and Stephens Mine to Area 2WX, contain more than a few acres of wooded vegetation. Collectively, the pipeline segments would convert about 20 acres of wooded vegetation types to grassland types in the permanent ROWs. Impacts on wildlife would be as generally described in Section 4.8.2.1. The impacts from Process Water Supply Pipeline segments do not include acreages already included in the Power Plant Footprint.**

**Table 4.8-11. Vegetation and Habitat Impacts (acres), Process Water Supply Pipelines (East Range Site)**

ECS Code <sup>1</sup>	Permanent ROW Area									Total Temporary Row Impact <sup>2</sup>	Total Permanent ROW Change <sup>3</sup>
	Area 2WX to Footprint	Area 2WX to 2W	Area 2W to 2E	Area 3 to 2E	Area Knox Mine to 2WX	Area 6 and Stephens Mine to 2WX	Area 9 south to Area 6	Area 9 North to Area 6	Total		
AFXXX - Aspen Forest <sup>1</sup>	—	—	—	—	—	0.6	—	—	0.6	0.8	-0.6
APn80 - Northern Spruce Bog	0.2	—	—	—	—	—	—	—	0.2	0.2	-0.2
FPn63 - Northern Cedar Swamp	0.5	—	—	—	—	0.3	—	—	0.8	0.5	-0.8
FPn73 - Northern Rich Alder Swamp	—	—	—	—	—	0.7	—	—	0.7	0.5	-0.7
LKi54 - Inland Lake Clay/Mud Shore	—	—	—	—	—	—	—	—	—	—	—
MHn35 - Northern Mesic Hardwood Forest	3.3	—	—	1.0	—	2.9	—	0.5	7.7	4.3	-7.7
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	1.4	0.3	—	—	0.6	8.5	—	—	10.8	6.6	-10.8
MRn93 - Northern Bulrush-Spikerush Marsh	—	—	—	0.2	—	—	0.3	—	0.5	0.4	—
OW- Other Water Body	—	0.1	0.7	—	0.1	0.3	0.5	0.2	1.8	1.5	—
WFn55 - Northern Wet Ash Swamp	0.1	—	—	—	—	—	—	—	0.1	0.1	-0.1
WMn82 - Northern Wet Meadow/Carr	0.2	—	—	—	—	—	—	—	0.2	0.2	+1.8
XDXXOF - Old Field <sup>1</sup>	1.5	0.4	0.3	—	—	2.9	1.0	—	6.1	4.0	+19.1
XDXXXX - Disturbed Land <sup>1</sup>	3.1	5.5	0.9	5.7	1.5	10.1	4.5	10.9	42.2	18.9	—
<b>Total</b>	<b>10.3</b>	<b>6.3</b>	<b>1.8</b>	<b>6.9</b>	<b>2.2</b>	<b>26.2</b>	<b>6.3</b>	<b>11.7</b>	<b>71.7</b>	<b>38.0</b>	<b>—</b>

<sup>1</sup> Codes were created for habitat not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

**Aquatic Communities**

The pipeline from Area 6 and Stephens Mine to Area 2WX would cross two streams; the pipeline from Area 9 South to Area 6 would cross one stream; and the pipeline from Area 9 North (Donora Mine) to Area 6 would cross one stream. Section 4.7 describes these stream crossings. In each case, construction of the pipeline is proposed to be conducted using open cut trenching. Construction methods and potential impacts would be as described in Section 4.8.2.1.

**Protected Species**

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of any of the Process Water Supply Pipeline segments. As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected. Having been disturbed extensively during mining activities, the area is devoid of habitat for these species.

**Potable Water and Sewer Pipelines (East Range Site)**

**Vegetation and Habitat**

Table 4.8-12 (added for the Final EIS) provides a summary of impacts to wildlife habitats by ECS habitat type that would result from the proposed Potable Water and Sanitary Sewer Pipelines. The temporary and permanent ROWs would be as described for the West Range Potable Water and Sewer Pipelines. The main habitat type that would be affected is northern wet mesic boreal hardwood conifer forest, which would experience about 1 acre of direct habitat loss as well as fragmentation. Impacts on wildlife would be as generally described in Section 4.8.2.1.

**Table 4.8-12. Vegetation and Habitat Impacts (acres), Potable Water and Sewer Pipelines (East Range Site)**

ECS Codes <sup>1</sup>	Permanent ROW Area	Temporary ROW Impact <sup>2</sup>	Permanent ROW Change <sup>3</sup>
LKi54 - Inland Lake Clay/Mud Shore	0.5	0.7	—
MHn35 - Northern Mesic Hardwood Forest	0.4	1.2	-0.4
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	1.3	2.8	-1.3
WFn55 - Northern Wet Ash Swamp	0.1	0.2	-0.1
WMn82 - Northern Wet Meadow/Carr	—	—	+0.1
XDXXOF - Old Field <sup>1</sup>	5.3	6.6	+1.7
XDXXXX - Disturbed Land <sup>1</sup>	0.7	0.7	—
<b>Total</b>	<b>8.1</b>	<b>12.2</b>	<b>—</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROW as these habitats will be allowed to regenerate following construction.

<sup>3</sup> Negative values indicate a loss of habitat and positive values indicate a gain of habitat.

**Aquatic Communities**

The Potable Water and Sewer Pipelines are proposed to cross a relatively narrow portion of Colby Lake. The pipelines would be directionally drilled beneath the lake unless bedrock is encountered, which would require the pipelines to be installed by microtunneling. The pipelines would emerge about 100 feet beyond the edges of both sides of the lake. Since the pipelines would be drilled beneath Colby Lake no impacts to aquatic communities would be expected. **Construction methods and potential impacts would be as described in Section 4.8.2.1.**

**Protected Species**

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of the Potable Water and Sewer Pipelines; therefore, impacts to these resources or their habitats are not

expected for this alternative. As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected.

***Rail Line Alternatives (East Range Site)***

Section 2.3.2.2 describes the Rail Line Alternative alignments, as shown in Figure 2.3-6 (Chapter 2). Table 4.8-13 (added for the Final EIS) summarizes the impacts from construction of the alignments on vegetation and habitat acreage by ECS category. The table does not reflect impacts already attributed to the Power Plant Footprint. The impacts of the alternative alignments are described in the following subsections.

**Table 4.8-13. Vegetation and Habitat (acres), Rail Line (East Range Site)**

ECS Codes <sup>1</sup>	Alternative 1		Alternative 2
	Rail Line	Center Loop <sup>2</sup>	Rail Line
APn80 - Northern Spruce Bog	0.9	0.1	0.4
APn81 - Northern Poor Conifer Swamp	0.5	—	0.3
FPn63 - Northern Cedar Swamp	—	—	11.7
FPn73 - Northern Rich Alder Swamp	0.7	—	0.7
MHn35 - Northern Mesic Hardwood Forest	24.2	35.2	23.8
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	13.6	20.0	10.9
MRn83 - Northern Mixed Cattail Marsh	2.7	22.9	5.3
WFn55 - Northern Wet Ash Swamp	8.6	25.3	1.1
WMn82 - Northern Wet Meadow/Carr	0.1	1.3	0.1
XDXXOF - Old Field <sup>1</sup>	0.8	—	1.8
XDXXXX - Disturbed Land <sup>1</sup>	1.2	—	2.0
<b>Total</b>	<b>53.2</b>	<b>104.8</b>	<b>58.0</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Depending on final design specifications for the center loop, habitat may not be impacted and would continue to exist in current form.

***Rail Line Alternative 1 and Center Loop***

***Vegetation and Habitat***

Table 4.8-13 summarizes impacts to vegetation and wildlife habitats by ECS category that would result from the proposed Rail Line Alternative 1. The main habitat types that would be affected are northern mesic hardwood forest and northern wet-mesic boreal hardwood-conifer forest, which would respectively experience about 24 acres and 14 acres of direct habitat loss, as well as fragmentation through construction of the rail line. Wetland habitat conversions would also occur as described in Section 4.7; however, unlike utility corridors, these wetlands areas will be lost through construction of the rail line as opposed to being converted into herbaceous dominated communities. Vegetation and habitat, including wetlands, which exist within the center loop would be avoided during construction to the extent practicable and may not be permanently altered depending on the final design specifications.

Impacts on wildlife would be as described in Section 4.8.2.1. Impacts resulting from habitat fragmentation during construction and mortality due to collisions with trains during operations would be principal concerns.

***Aquatic Communities***

The construction of Rail Line Alternative 1 would require crossing two streams, which could directly affect fisheries and aquatic life. The potential impacts on aquatic life would be as described in Section 4.8.2.1.

Upon the completion of construction, continued fish passage would be assured through the installation of culverts and the bridging of watercourses. The restoration of fish passage would adhere to the grades, habitat restoration, and other specifications established by the FERC, Mn/DOT, and the FHWA regulations.

#### *Protected Species*

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected based on the results of the BA. During plant operation, the potential for collisions with trains would be the impact of most concern.**

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of Rail Line Alternative 1.

#### ***Rail Line Alternative 2***

##### ***Vegetation and Habitat***

**Table 4.8-13 summarizes impacts to wildlife habitats by ECS category that would result from the proposed Rail Line Alternative 2. This alternative does not have a center loop as it would cross the site rather than looping within it. The main habitat type that would be affected is northern mesic hardwood forest, which would experience about 24 acres of direct habitat loss as well as fragmentation through construction of the rail line. Wetland habitat conversions would also occur as described in Section 4.7; however, unlike utility corridors, these wetlands areas will be lost through construction of the rail line as opposed to being converted into herbaceous dominated communities.**

**Impacts on wildlife would be as described in Section 4.8.2.1. Impacts resulting from habitat fragmentation during construction and mortality due to collisions with trains during operations would be principal concerns.**

##### *Aquatic Communities*

The construction of Rail Line Alternative 2 would require one stream crossing and would directly affect fisheries and aquatic life. **The potential impacts on aquatic life would be as described in Section 4.8.2.1.**

Upon the completion of construction, continued fish passage would be assured through the installation of culverts and the bridging of watercourses. The restoration of fish passage would adhere to the grades, habitat restoration, and other specifications established by the FERC, Mn/DOT, and FHWA regulations.

#### *Protected Species*

**As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf would not be expected. During plant operation, the potential for collisions with trains would be the impact of most concern.**

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of Rail Line Alternative 2.

#### **Access Road Alignments (East Range Site)**

##### ***Vegetation and Habitat***

**As a result of concerns raised by the USACE and other agencies regarding the need to avoid and minimize impacts to wetland habitats, the looped Access Road described in the Draft EIS was revised. Excelsior's current preferred Access Road for the East Range Site would connect the plant footprint with CR 666 directly to the east of the East Range Site as described in Section 2.3.2.2. The**

single Access Road would affect 10 acres less vegetation than the original looped Access Road. This change would result in mixed wood forests incurring the highest acreage of impact. Table 4.8-14 provides a summary of impacts to vegetation and wildlife habitats by ECS category that would result from the revised Access Road alignment in comparison to the original alignment. The revised alignment would cross the wetlands at the most narrow point to reduce impacts. The main habitat type that would be affected is northern wet-mesic boreal hardwood-conifer forest, which would experience about 8 acres of direct habitat loss as well as fragmentation. Impacts on Temporary and Permanent ROWs would be as described for West Range Access Road alignments. Impacts on wildlife would be as generally described in Section 4.8.2.1.

**Table 4.8-14. Vegetation and Habitat Impacts (acres), Access Road (East Range Site)**

ECS Codes <sup>1</sup>	Temporary ROW Impact <sup>2</sup>		Permanent ROW Change <sup>3</sup>	
	Revised Alignment	Original Alignment	Revised Alignment	Original Alignment
FPn73 - Northern Rich Alder Swamp	0.1	1.4	-0.1	-1.6
MHn35 - Northern Mesic Hardwood Forest	2.7	3.2	-4.8	-4.8
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	4.6	12.0	-8.2	-17.9
MRn83 - Northern Mixed Cattail Marsh	—	0.2	—	-0.1
WFn55 - Northern Wet Ash Swamp	1.7	1.4	-2.7	-2.1
WMn82 - Northern Wet Meadow/Carr	—	—	—	—
XDXXOF - Old Field <sup>1</sup>	0.2	0.4	-0.3	-0.8
XDXXXX - Disturbed Land <sup>1</sup>	0.2	0.3	-0.1	-0.4
<b>Total</b>	<b>9.5</b>	<b>18.7</b>	<b>-16.1</b>	<b>-27.7</b>

<sup>1</sup> Codes were created for habitats not included in ECS classification system.

<sup>2</sup> Temporary ROW acreages do not include the area within the permanent ROW. There would be no permanent impacts to the temporary ROWs as these habitats will be restored following construction.

<sup>3</sup> Negative values indicate a loss of habitat.

### ***Aquatic Communities***

There are no surface water crossings that would be associated with the Access Road.

### ***Protected Species***

As described in Section 4.8.2.1, adverse impacts on Canada lynx and gray wolf are not expected based on the results of the BA. During plant operation, the potential for collisions with vehicles would be the impact of most concern.

There are no known occurrences of state-listed protected or otherwise rare species within 1 mile of the Road Alignments.

## **4.8.5 Impacts of the No Action Alternative**

For the purposes of this EIS, as explained in Section 2.1.1.2, the DOE No Action Alternative is assumed to be equivalent to a “No Build” Alternative. Under the No Action Alternative, no project-related development would occur and there would be no impact or change in baseline conditions relating to biological resources.

## **4.8.6 Summary of Impacts**

Tables 4.8-15 and 4.8-16 (added for the Final EIS), respectively, compare the acreages of permanent vegetation and habitat change by ECS category for Mesaba Generating Station Phases I and II at the West Range and East Range Sites based on Excelsior’s preferred configurations for

**Table 4.8-15. Permanent Vegetation and Habitat Impacts (acres), West Range Site and Corridors**

<b>ECS Category</b>	<b>Power Plant Footprint</b>	<b>HVTL</b>	<b>Natural Gas Pipeline</b>	<b>Process Water Pipelines</b>	<b>Potable Water and Sewer</b>	<b>Rail Line</b>	<b>Access Road</b>	<b>Total</b>
<b>Preferred Alignment:</b>	<b>Both Phases (Shifted)</b>	<b>HVTL Alt 1</b>	<b>Alternative 1</b>	<b>All Segments</b>	<b>All ROW</b>	<b>Alternative 3B</b>	<b>Access Road 3</b>	
AFXXXX - Aspen Forest	-7.6	-18.8	-10.4	-7.8	—	-3.5	-6.5	<b>-54.6</b>
APn80 - Northern Spruce Bog	—	-0.4	-1.0	—	—	—	—	<b>-1.4</b>
APn81 - Northern Poor Conifer Swamp	—	—	—	-1.8	-0.6	—	—	<b>-2.4</b>
APn90 - Northern Open Bog	—	+4.2	+1.0	—	—	—	—	<b>+5.2</b>
FPn63 - Northern Cedar Swamp	—	—	—	—	—	—	—	—
FPn73 - Northern Rich Alder Swamp	—	-7.7	-4.0	-1.5	—	-2.0	-0.2	<b>-15.4</b>
FPn81 - Northern Rich Tamarack Swamp (Water Track)	—	—	—	—	—	—	—	—
FPn82 - Northern Rich Tamarack Swamp (Western Basin)	—	-3.8	—	+4.1	—	—	—	<b>+0.3</b>
LKi54 - Inland Lake Clay/Mud Shore	—	—	—	—	—	—	—	—
MHn35 - Northern Mesic Hardwood Forest	-150.8	-19.5	-38.6	-23.0	—	-29.4	-5.2	<b>-266.5</b>
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	-12.3	-14.7	-12.5	-11.5	-0.4	-42.0	—	<b>-93.4</b>
MRn83 - Northern Mixed Cattail Marsh	-0.5	—	—	—	—	-0.1	—	<b>-0.6</b>
MRn93 - Northern Bulrush-Spikerush Marsh	—	—	—	—	—	—	—	—
OW- Other Water Body	—	—	—	—	—	-0.6	—	<b>-0.6</b>
WFn55 - Northern Wet Ash Swamp	-23.3	-5.5	-9.0	-1.7	—	-10.2	—	<b>-49.7</b>
WFn64 - Northern Very Wet Ash Swamp	—	—	—	—	—	—	—	—
WMn82 - Northern Wet Meadow/Carr	-7.6	+13.3	+13.0	+0.8	+0.6	-2.1	—	<b>+18.0</b>
XDXXOF - Old Field	—	+53.0	+61.5	+42.3	+0.4	-1.9	-0.2	<b>+155.1</b>
XDXXXX - Disturbed Land	—	—	—	—	—	-2.3	-0.1	<b>-2.4</b>
<b>Total</b>	<b>-202.1</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>-93.8</b>	<b>-12.3</b>	<b>-308.4</b>

**Table 4.8-16. Permanent Vegetation and Habitat Impacts (acres), East Range Site and Corridors**

ECS Category	Power Plant Footprint	HVTL	Natural Gas Pipeline	Process Water Pipelines	Potable Water and Sewer	Rail Line	Access Road	Total
Preferred Alignment:	Both Phases	HVTL Alt 2	ROW	All Segments	All	Alternative 1	Revised Alignment	
AFXXXX - Aspen Forest		-9.0	—	-0.6	—	—	—	<b>-9.6</b>
APn80 - Northern Spruce Bog	-4.8	-46.4	-7.9	-0.2	—	-0.9	—	<b>-60.2</b>
APn81 - Northern Poor Conifer Swamp	-2.1	-7.3	—	—	—	-0.5	—	<b>-9.9</b>
APn90 - Northern Open Bog	—	+53.7	+8.1	—	—	—	—	<b>+61.8</b>
FPn63 - Northern Cedar Swamp	—	—	—	-0.8	—	—	—	<b>-0.8</b>
FPn73 - Northern Rich Alder Swamp	-1.1	-69.3	-9.0	-0.7	—	-0.7	-0.1	<b>-80.9</b>
FPn81 - Northern Rich Tamarack Swamp (Water Track)	—	-0.7	-0.2	—	—	—	—	<b>-0.9</b>
FPn82 - Northern Rich Tamarack Swamp (Western Basin)	—	—	—	—	—	—	—	—
LKi54 - Inland Lake Clay/Mud Shore	—	—	—	—	—	—	—	—
MHn35 - Northern Mesic Hardwood Forest	-13.9	-38.3	-0.8	-7.7	-0.4	-24.2	-4.8	<b>-90.1</b>
MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest	-133.2	-25.8	-1.4	-10.8	-1.3	-13.6	-8.2	<b>-194.3</b>
MRn83 - Northern Mixed Cattail Marsh	-3.3	—	—	—	—	-2.7	—	<b>-6.0</b>
MRn93 - Northern Bulrush-Spikerush Marsh	—	—	—	—	—	—	—	—
OW- Other Water Body	—	—	—	—	—	—	—	—
WFn55 - Northern Wet Ash Swamp	-22.1	-19.2	-4.4	-0.1	-0.1	-8.6	-2.7	<b>-57.2</b>
WFn64 - Northern Very Wet Ash Swamp	—	-2.8	—	—	—	—	—	<b>-2.8</b>
WMn82 - Northern Wet Meadow/Carr	-1.8	+92.1	+13.4	+1.8	+0.1	-0.1	—	<b>+105.5</b>
XDXXOF - Old Field	-1.0	+73.1	+2.2	+19.1	+1.7	-0.8	-0.3	<b>+94.0</b>
XDXXXX - Disturbed Land	—	—	—	—	—	-1.2	-0.1	<b>-1.3</b>
<b>Total</b>	<b>-183.3</b>	—	—	—	—	<b>-53.2</b>	<b>-16.1</b>	<b>-252.7</b>

the Power Plant Footprint, HVTLs, utility pipelines, Rail Lines, and Access Roads at the respective sites.

#### **4.8.7 Biological Resources Regulatory Implications and Mitigation**

The following sections describe the Federal and state regulatory issues that would be associated with the Proposed Action as well as mitigation measures that could be employed to minimize potential adverse impacts of the Proposed Action.

##### **4.8.7.1 Vegetation and Habitat**

No designated Federal Wildlife Refuges, Waterfowl Production Areas, or National Preserves are within or immediately adjacent to the West or East Range Sites or their associated utility or transportation corridors. No MNDNR WMAs, SNAs, designated Game Lakes, or Designated Trout Streams are within or immediately adjacent to the West or East Range Sites. There is a Designated Trout Stream located 2,500 feet east of the West Range HVTL Phase 2 alignment (east of Pengilly) that drains into Swan Lake. This Designated Trout Stream is not directly connected to any wetland or water bodies within the West Range Site or its associated utility or transportation corridors. Because of these findings, no violations under the Fish and Wildlife Coordination Act would be expected as a result of the project for the West or East Range Sites.

Proposed mitigation to comply with the provisions of the Federal Migratory Bird Treaty Act (MBTA) includes limiting timber and land clearing activities, in particular within woodland and forest habitats, to periods outside of the songbird-nesting season (approximately April 15 through August 15). This minimizes the potential for incidental taking of the thousands of potential songbird nests, which would be violating the provisions of the MBTA. Limiting land clearing and/or timber removal to the winter months is the most effective means to comply with this provision. Bird diverters could be used as a BMP along HTVL corridors, where necessary to reduce/avoid impacts to migratory birds.

Given that the West and East Range Sites and their associated utility and transportation corridors are located within timber production areas in the state, subject to frequent clear cutting, comprised entirely of secondary growth, and within the forest setting of northern Minnesota, trees are not rare and no significant impacts to trees are expected. No tree mitigation would occur nor would any mitigation for impacts to terrestrial vegetation, because these are abundant throughout the region (see Section 5.2.6).

For the various utility, pipeline, rail, and road alignments described for the West and East Range Sites, mitigation measures include compliance with the above-mentioned measures of the Federal MBTA to minimize impacts to nesting songbirds. Other mitigation for impacts to fauna would occur through the impact minimization and replacement standards set forth in the various Federal, state, and local permits that would be required when relevant requirements on fauna apply.

Impacts to fauna at the rivers, stream, and water body crossings would be mitigated through the requirements for the NPDES permit, wetland permits, and other environmental permits/approvals required for the respective utility corridors. Mitigation includes the compensatory replacement of wetlands through mitigation when permanent dredge and fill impacts are involved; implementation of erosion, sedimentation, and turbidity control standards specified in the NPDES permit and related erosion control plans; and restoration of grades and bottom contour topographies of water bodies that would be defined through the various permits required for the project. Section 4.7 describes in detail the compensatory mitigation that is expected for impacts to wetland communities based on the requirements set forth in state and Federal law.

##### **4.8.7.2 Protected Species**

The USFWS is the only agency that can make the final determination for significance of effects on the Federal resources it protects and determine the required avoidance, minimization, or mitigation

measures needed. The USFWS may consider public and other agency comments when making its determination of the significance of effects.

DOE initiated formal consultation with USFWS for the Proposed Action as described in Section 4.8.2.1. USFWS concurred with DOE's determination that the Proposed Action would not likely adversely affect the bald eagle. **On August 15, 2008, DOE submitted a BA for the Canada lynx and a determination that the proposed action may affect, but is unlikely to adversely affect, Canada lynx or their critical habitat. In subsequent discussions, the USFWS requested that, due to uncertainty over the listing of the gray wolf, the BA be revised to include potential effects on the gray wolf. On February 25, 2009, DOE submitted the revised BA addressing impacts to both the Canada lynx and the gray wolf. As stated in this version of the BA (ENSR, 2009) (see Appendix E), "impacts associated with project habitat loss and disturbance, and collisions with vehicles and trains, could impact lynx and gray wolf. Using worst case assumptions, 618 acres of wildlife habitat would be lost within the West Range Site and associated utility and transportation corridors; 929 acres of habitat would be lost within the East Range Site and its associated corridors. Noise, light, and glare from the generating facility could cause lynx and wolves to avoid either area. Lynx and gray wolf could be hit by vehicles or trains. Other potential impacts include human encroachment in the backcountry, and increased interspecific competition facilitated by snow compaction." However, the BA concluded that given the large amount of similar habitat in the region and the low predicted density of Canada lynx and gray wolf in the area, these species and their critical habitat may be affected, but are unlikely to be adversely affected by the Mesaba Energy Project. In a letter sent on May 1, 2009, the USFWS concurred with DOE's conclusion that the proposed action may affect, but is unlikely to adversely affect, Canada lynx, gray wolf or their critical habitat at the West Range Site (Appendix E). In the event that the East Range would be selected for the Proposed Action, DOE would resubmit the BA for USFWS concurrence at the East Range Site.**

The MNDNR is the only agency that can make the final determination of significance of effects on the state resources it protects and determine the required avoidance, minimization, or mitigation measures needed. The MNDNR may consider public and other agency comments when making its determination of significance of effects. Species protected by the Minnesota Endangered Species Statute and species or sensitive habitats listed in the MNDNR NHIS database that may be affected would require coordination with the MNDNR Division of Ecological Services. Mitigation for any NHIS-listed elements, if necessary, would be addressed through this process. Minnesota Statutes provide legal protection for species listed as either "threatened" or "endangered" under the Minnesota Endangered Species Statute (Minnesota Statutes § 84.0895). "Species of special concern" and "non-status" (tracked) species are not legally protected under Minnesota Statutes § 84.0895; therefore, no avoidance, protection, or mitigation measures for taking of species so designated by the MNDNR is required.

Mitigation of impacts to state-listed species can incorporate a wide variety of options ranging from passive measures such as construction timing outside of critical breeding periods, permanent protection of known habitats elsewhere that contain the resource to be affected, or more aggressive measures including complete avoidance of impact. It should be noted that these are not the only mitigation measures that could be undertaken for a project. Each project that affects or potentially affects state-listed protected species is evaluated individually by the MNDNR to determine the appropriate mitigation measures that would be required, which are largely based on the significance of the impact.

The MNDNR NHIS would be reviewed again within a year prior to the start of construction to determine if any new NHIS occurrences have been recorded since the last review for this project was completed in 2005. This is especially important given the West and East Range Sites' proximity to mine pits or other habitats related to bald eagle breeding areas. Such a review accounts for species that are highly motile and/or have good dispersal ability.

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