

3.8 BIOLOGICAL RESOURCES

Projects receiving Federal funds are subject to the Fish and Wildlife Coordination Act, requiring that Federal agencies consider the effects on fish and wildlife and their habitats prior to implementation of an action. Fish and game species are protected through the hunting, fishing, and trapping regulations enforced by the MNDNR and the USFWS. Birds and their nests, including any songbirds or raptors that may inhabit the sites, are protected under the Federal Migratory Bird Treaty Act. **Consultation with Native American tribes is also required when a Federal Action could affect biological resources under their management. Sections 1.6.1.3 and 1.8 describe the consultation with the local Native American tribes in more detail.**

The following sections describe the ecological conditions and biological communities that are present on the West Range and East Range Sites and their associated utility and transportation corridors. Section 3.8.1 describes the types of terrestrial floral (vegetative) and faunal (animal) communities present at the West Range Site, the East Range Site, and the associated corridors. Section 3.8.2 describes the aquatic biota associated with each of the alternative project site locations. State- and Federally listed rare, special concern, threatened, or endangered species and associated habitats located within the vicinities of the potential project locations are discussed in Section 3.8.3.

Flora and fauna and associated habitats were assessed in conjunction with the field reconnaissance for wetland habitat. Specific locations of potential protected habitats and/or species occurrences located within or near the project areas were targeted during the reconnaissance and identified prior by conducting a review of MNDNR Natural Heritage Information System (NHIS) data.

Section 3.8 of this Final EIS includes additional information as compared to Section 3.8 of the Draft EIS. New Table 3.8-1 has been added, which provides detailed information about terrestrial habitats in the areas of the West and East Range Sites as well as some wildlife species that would be expected to utilize those habitats. Section 3.8.2 has been revised to include more information about aquatic biota, and Section 3.8.3 has been revised in response to the December 2008 addition of the gray wolf (*Canis lupus*) to Federal legal protection status, although it is currently unclear what the status will be in the future (see Section 3.8.3.1 for more information). Several minor changes have also been made in response to public comments received on the Draft EIS, as well as editorial revisions.

3.8.1 Terrestrial Communities

Loss of habitat and habitat degradation have contributed to the population decline of some types of wildlife in Minnesota. Consequently, the MNDNR and the USDA Forest Service have developed an Ecological Classification System (ECS) in Minnesota for mapping and classifying landscape features based on the ecological functions that these features provide. Ecological land classifications are used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The system utilizes associations of biotic and environmental factors, which include climate, geology, topography, soils, hydrology, and vegetation (MNDNR, 2007).

Based on the ECS, the West Range Site lies within the Nashwauk Uplands Subsection, and the East Range Site lies within the Laurentian Uplands Subsection. Subsections are ECS units that are defined using glacial deposition processes, surface bedrock formations, local climate, topographic relief, and the distribution of vegetation, particularly tree species (MNDNR, 2007).

The Nashwauk Uplands Subsection is bounded by Giant's Ridge to the north and the Mesabi Range to the south. Before settlement by people of European descent, forests in this region consisted of red pine (*Pinus resinosa*), white pine (*Pinus strobus*), balsam fir (*Abies balsamea*), white spruce (*Picea alba*), and aspen-birch (*Populus spp.-Betula spp.*). Vegetation in wetlands consisted of evergreen conifer trees and shrubs. Forestry and mining activities are the most common types of land use in this subsection. Animal

species of note that are known or expected to occur in this subsection include bald eagles (*Haliaeetus leucocephalus*), Canada lynx (*Lynx canadensis*), spruce grouse (*Falcapennis canadensis*), American bitterns (*Botaurus lentiginosus*), bobolinks (*Dolichonyx oryzivorus*), Connecticut warblers (*Oporornis agilis*), gray jays (*Perisoreus canadensis*), northern goshawks (*Accipiter gentilis*), ospreys (*Pandion haliaetus*), trumpeter swans (*Cygnus buccinators*), and northern brook lampreys (*Ichthyomyzon fossor*) (MNDNR, 2006b).

The Laurentian Uplands Subsection is bounded by the North Shore Highlands and Border Lakes Subsections. The high elevations in this subsection are the source of many rivers, including the St. Louis, Cloquet, and Whitefish. Lakes and wetlands are numerous in this area. Before settlement by people of European descent, major upland forest types consisted of aspen-birch, jack (*Pinus banksiana*), and red and white pine. Lowland areas contained conifer swamps and bogs. At present, forestry is the most important land use, and quaking aspen (*Populus tremuloides*) has become the dominant tree species. The size and shape of areas affected by forestry practices influences the types of wildlife species utilizing large, contiguous blocks of land. Animal species of note that are known or predicted to occur in this subsection include bald eagles, gray wolves, Canada lynx, spruce grouse, black-throated warblers (*Dendroica caerulescens*), common loons (*Gavia immer*), gray jays, and heather voles (*Phenacomys intermedius*) (MNDNR, 2006c).

Table 3.8-1 (new in Final EIS) provides descriptions of the ECS habitat types existing in the areas of the West and East Range Sites. Also included are the Species in Greatest Conservation Need (SGCN), as defined by the MNDNR, that typically utilize those habitat types.

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
APn80 - Northern Spruce Bog	Includes bogs dominated with black spruce trees (<i>Picea mariana</i>). Trees are usually stunted (< 30 feet tall) with 25 – 75% coverage. The understory is dominated by Sphagnum moss (<i>Sphagnum sp.</i>) and fine-leaved graminoids such as cotton grass (<i>Eriophorum vaginatum</i>) and sedge species (<i>Carex spp.</i>) Low-shrubs, such as cranberry species (<i>Vaccinium sp.</i>) and Labrador tea (<i>Ledum groenlandicum</i>) comprise approximately 25% of the canopy	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf <i>Phenacomys intermedius</i>– heather vole <i>Snaptomys borealis</i> – N. bog lemming</p> <p>Birds <i>Chodeilles minor</i> – Common nighthawk <i>Contopus cooperi</i> – olive-sided flycatcher <i>C. virens</i> – eastern wood pewee <i>Empidonax</i> - flycatchers <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock</p> <p>Amphibians <i>Hemidactylum scutatum</i> – four toed salamander <i>Plethodon cinereus</i> – E. red backed salamander</p>

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
APn81 - Northern Poor Conifer Swamp	Includes bogs dominated by black spruce and tamarack (<i>Larix laricina</i>). Trees are usually stunted (< 33 feet tall) with 25 – 50% coverage. The understory is dominated by Sphagnum moss, fine-leaved graminoids, and low-shrubs. The tall shrub layer is dominated by speckled alder (<i>Alnus incana</i>) and willow species (<i>Salix spp.</i>). The tall and low shrub layers comprise approximately 25% coverage of the canopy.	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf <i>Phenacomys intermedius</i>– heather vole <i>Snaptomys borealis</i> – N. bog lemming</p> <p>Birds <i>Chodeiles minor</i> – Common nighthawk <i>Contopus cooperi</i> – olive-sided flycatcher <i>C. virens</i> – eastern wood pewee <i>Empidonax</i> - flycatchers <i>Melospiza georgina</i> – Swamp sparrow <i>Opornis agilis</i> – Connecticut warbler <i>Scolopax minor</i> – American woodcock <i>Sphyrapicus varius</i> – yellow bellied flycatcher <i>Wilsonia canadensis</i> – Canada warbler</p> <p>Amphibians <i>Hemidactylum scutatum</i> – four toed salamander</p>
APn90 - Northern Open Bog	Includes bogs dominated by low-shrubs, Sphagnum moss and fine-leaved graminoids. Graminoids species present include bog wiregrass sedge (<i>Carex oligosperma</i>), cottongrass, and miscellaneous other sedge species. Tree cover is sparse or absent (< 25%) and generally comprised of stunted black spruce and tamarack mix.	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf <i>Phenacomys intermedius</i>– heather vole <i>Snaptomys borealis</i> – N. bog lemming</p> <p>Birds <i>Chodeiles minor</i> – Common nighthawk <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock <i>Zonotrichia albicollis</i> – white throated sparrow</p>
FPn73 - Northern Alder Swamp	Includes tall-shrub wetlands dominated by speckled alder, red-osier dogwood (<i>Cornus sericea</i>), and current species (<i>Ribes spp.</i>). The herbaceous layer is comprised of Canada bluejoint (<i>Calamagrostis canadensis</i>), fowl manna grass (<i>Glyceria striata</i>), sedge species, common marsh marigold (<i>Caltha palustris</i>), touch-me-nots (<i>Impatiens spp.</i>), and fern species (<i>Dryopteris spp.</i>)	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chodeiles minor</i> – Common nighthawk <i>Botaurus lentiginosus</i> – American bittern <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock <i>Scolopax minor</i> – American woodcock</p>

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
FPn82 - Northern Rich Tamarack Swamp (Western Basin)	Includes wetlands dominated by tamarack trees with black spruce, red maple (<i>Acer rubrum</i>), paper birch (<i>Betula papyrifera</i>), and balsam fir (<i>Abies balsamea</i>) in the understory. Tree canopy is patchy to interrupted with 25-75% coverage. Speckle alder and willows dominate the tall-shrub layer. Sphagnum moss, Canada bluejoint grass, and sedge species comprise the herbaceous layer.	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>C. virens</i> – eastern wood pewee <i>Empidonax</i> - flycatchers <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock</p>
LKi54 - Inland Lake Clay/Mud Shore	Includes inland lakes and ponds with plant communities growing in a clay, mud, or silt substrates. Vegetation cover and composition vary seasonally and from year to year dependent on water levels.	<p>Mammals <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Botaurus lentiginosus</i> – American bittern <i>Gavia immer</i> – common loon <i>Haliaeetus leucocephalus</i> – bald eagle <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock</p> <p>Reptiles <i>Chelydra serpentina</i> – snapping turtle</p> <p>Amphibians <i>Rana palustris</i> – pickerel frog</p>

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
MHn35 - Northern Mesic Hardwood Forest	Includes hardwood forest on well-drained to moderately well-drained soils. Tree canopy is usually continuous (> 75% cover) and comprised of sugar maple (<i>Acer saccharum</i>), basswood (<i>Tilia americana</i>), northern red oak (<i>Quercus rubra</i>) with occasional area of paper birch and quaking aspen (<i>Populus tremuloides</i>). The shrub layer includes sapling of the tree canopy species with beaked hazelnut (<i>Corylus cornuta</i>), chokecherry (<i>Prunus virginiana</i>), and balsam fir. The herbaceous layer ranges from 5 – 75% coverage and dominated by Pennsylvania sedge (<i>Carex pennsylvanica</i>), large leaved aster (<i>Aster macrophyllus</i>), and bedstraw species (<i>Galium spp.</i>)	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Accipiter gentiles</i> – N. goshawk <i>Buteo lineatus</i> – Red shouldered hawk <i>Catharus fuscescens</i> – veery <i>Coccyzus erythrophthalmus</i> – black-billed cuckoo <i>C. virens</i> – eastern wood pewee <i>D. castanea</i> – bay-breasted warbler <i>D. tigrina</i> – Cap May warbler <i>Empidonax</i>- flycatchers <i>Haliaeetus leucocephalus</i> – bald eagle <i>Hylocichlia mustelina</i> – wood thrush <i>Opornis agilis</i> – Connecticut warbler <i>Pheucticus ludovicianus</i> – rose breasted grosbeak <i>Seiurus aurocapillus</i> – ovenbird <i>Sphyrapicus varius</i> – yellow bellied flycatcher <i>Wilsonia canadensis</i> – Canada warbler</p> <p>Amphibians <i>Hemidactylum scutatum</i> – four toed salamander</p>

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
<p>MHn44 - Northern Wet-Mesic Boreal Hardwood-Conifer Forest</p>	<p>Includes forests on generally wet-mesic to mesic soils. Tree canopy is dominated by quaking aspen, paper birch, balsam fir with occasional red maple, white spruce (<i>Picea glauca</i>), and black ash (<i>Fraxinus nigra</i>). The shrub layer is comprised of beaked hazelnut, chokecherry, and juneberries (<i>Amelanchier spp.</i>). The ground layer is dominated by large-leaved aster, bedstraw species, and Canada mayflower (<i>Maianthemum canadense</i>).</p>	<p>Mammals <i>Canis lupus</i> – grey wolf <i>Lynx canadensis</i> – Canada lynx</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Accipiter gentiles</i> – N. goshawk <i>Buteo lineatus</i> – Red shouldered hawk <i>Catharus fuscescens</i> – veery <i>Coccyzus erythrophthalmus</i> – black-billed cuckoo <i>C. virens</i> – eastern wood pewee <i>Dendroica caerulescens</i> – black throated blue warbler <i>D. castanea</i> – bay-breasted warbler <i>D. tigrina</i> – Cap May warbler <i>Empidonax</i>- flycatchers <i>Haliaeetus leucocephalus</i> – bald eagle <i>Hylocichlia mustelina</i> – wood thrush <i>Opornis agilis</i> – Connecticut warbler <i>Pheucticus ludovicianus</i> – rose breasted grosbeak <i>Seiurus aurocapillus</i> – ovenbird <i>Sphyrapicus varius</i> – yellow bellied flycatcher <i>Wilsonia canadensis</i> – Canada warbler</p> <p>Amphibians <i>Hemidactylum scutatum</i> – four toed salamander <i>Plethodon cinereus</i> – E. red backed salamander</p>
<p>MRn83 - Northern Mixed Cattail Marsh</p>	<p>Includes wetland complexes that are dominated by cattail species (<i>Typha spp.</i>). The cattails are often found in dense stands interspersed with pools of open water. Associated species are highly variable.</p>	<p>Mammals <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Botaurus lentiginosus</i> – American bittern <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock</p>

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
MRn93 - Northern Bulrush-Spikerush Marsh	Include emergent marsh communities typically dominated by bulrush species (<i>Scirpus spp.</i>) and spike rushes (<i>Eleocharis spp.</i>). Associated species include pondweeds (<i>Potamogeton spp.</i>), broad-leaved arrowhead (<i>Sagittaria latifolia</i>), and bur reed (<i>Sparganium spp.</i>). Cattail species present but not dominant.	<p>Mammals <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Botaurus lentiginosus</i> – American bittern <i>Melospiza georgina</i> – Swamp sparrow <i>Scolopax minor</i> – American woodcock</p>
OW- Other Water Body	Includes open water body not associated with a natural body of water. An example is abandoned open pit mine filled with water.	<p>Mammals <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Botaurus lentiginosus</i> – American bittern <i>Gavia immer</i> – common loon <i>Haliaeetus leucocephalus</i> – bald eagle</p> <p>Reptiles <i>Chelydra serpentina</i> – snapping turtle</p> <p>Amphibians <i>Rana palustris</i> – pickerel frog</p>
WFn55 - Northern Wet Ash Swamp	Includes forested wetlands dominated (50-100% cover) with black ash primarily. Fine-bladed sedges and fern species dominate the herbaceous layer.	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>C. virens</i> – eastern wood pewee <i>Empidonax</i> -flycatchers <i>Melospiza georgina</i> – Swamp sparrow <i>Opornis agilis</i> – Connecticut warbler <i>Scolopax minor</i> – American woodcock <i>Sphyrapicus varius</i> – yellow bellied flycatcher <i>Wilsonia canadensis</i> – Canada warbler</p> <p>Amphibians <i>Hemidactylum scutatatum</i> – four toed salamander</p>

Table 3.8-1. Wildlife Species Assemblages by Habitat Association

ECS Habitat Code and Name*	Definition	SGCN Species*
WMn82 - Northern Wet Meadow/Carr	Includes open wetlands dominated by dense cover of broad-leaved graminoids and/or tall shrubs. Tall shrubs include speckled alder, willow species, and red-osier dogwoods. Herbaceous layer dominated by Canada bluejoint, tussock sedge (<i>Carex stricta</i>), and lake sedge (<i>Carex lacustris</i>).	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Coturnicops novaboracensis</i> – Yellow rail <i>Zonotrichia albicollis</i> – white throated sparrow</p>
AFXXXX - Aspen Forest1	Includes forested areas dominated primarily by sapling quaking aspen. Generally these are areas that were logged using clear cutting methods.	<p>Mammals <i>Canis lupus</i> – grey wolf <i>Lynx canadensis</i> – Canada lynx</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>C. virens</i> – eastern wood pewee <i>Empidonax</i> -flycatchers</p>
XDXXOF - Old Field1	Includes native habitats that were disturbed by agricultural, development, or construction activities. The current vegetation likely dominated by non-native vegetation.	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Asio flammeus</i> – Short eared owl <i>Circus cyaneus</i> – northern harrier <i>Zonotrichia albicollis</i> – white throated sparrow</p>
XDXXXX - Disturbed Land1	Includes primarily mine spoil areas that have not been vegetated.	<p>Mammals <i>Lynx canadensis</i> – Canada lynx <i>Canis lupus</i> – grey wolf</p> <p>Birds <i>Chordeiles minor</i> – Common nighthawk <i>Asio flammeus</i> – Short eared owl <i>Circus cyaneus</i> – northern harrier <i>Zonotrichia albicollis</i> – white throated sparrow</p>

*ECS – Ecological Classification System; SGCN – Species in Greatest Conservation Need
 Note: All SGCN bird species are considered migratory

3.8.1.1 West Range Site

Habitats were first identified for the West Range Site using offsite methods primarily consisting of aerial and satellite imagery review. Assessments of vegetation cover type were completed using LandSat-Based Land Use-Land Cover data, which is Raster-based land cover data derived from 30-meter resolution Thematic Mapper satellite imagery (MNDNR, 2006d). The review was followed by field reconnaissance completed during June 2005. The terrestrial (upland) habitats described below are based on observations collected during the June 2005 field reconnaissance. Supplemental information describing terrestrial habitats was obtained during wetland surveys performed in the summer of 2005.

In some areas, biological communities could not be determined for segments of the proposed HVTL and gas pipelines. Permission to access existing or proposed corridors was not granted by the various landowners and/or easement holders at the time of the field surveys. For areas where access was not permitted, assessments of vegetation cover type were completed through aerial imagery only. Although the source of imagery ranges from June 1995 to June 1996, the overall land use in this area of the state has not changed dramatically. Therefore, the dataset from 1995 to 1996 was considered appropriate for providing land cover information.

Physiography

The onsite geology of the West Range Site is comprised of Pleistocene glacial till over Precambrian bedrock. The glacial till is within the Nashwauk Moraine Association of the Rainy Lobe glacial advance. Deposits of peat and bedrock outcrops are embedded within the till. The site topography is varied with gently sloping hills located in the western half of the West Range Site and a more rugged series of north-south trending ridges located in the eastern half. Flat areas consist of peat deposits (wetlands), which are described in Section 3.7, Wetlands.

Flora (Vegetation)

Timber harvesting has historically been the primary land use in the area, which has influenced the composition and dynamics of the forest cover on the site, creating stands of differing age and species composition. Both clear-cutting and selective harvesting of timber are evident along defined tracts of land within the site resulting in a patchwork of recently cut areas as well as stands of forest cover of varying ages and compositions.

Results of the field studies identified several ecologically successive stages of terrestrial communities possessing a variety of trees, shrubs, and herbs. The following descriptions of the floral communities found on the West Range Site are derived from the *Field Guide to the Native Plant Communities of Minnesota: The Laurentian Mixed Forest Province* (MNDNR, 2003), a vegetation classification system for north-central and northeastern Minnesota. The wetland communities on the site are discussed in Section 3.7. State- and Federally protected flora species are addressed in Section 3.8.3.

The most common forested terrestrial habitat onsite is characterized as the northern mesic hardwood forest, and further classified as the plant community type red oak-sugar maple-basswood-(bluebead lily) forest (MNDNR Code MHn35b). This hardwood forest typically occurs on well-drained to moderately well-drained loamy soils, most often on stagnation moraines and till plains and less frequently on bedrock hills. This plant community association is dominated by sugar maple (*Acer saccharum*), basswood (*Tilia americana*), and northern red oak (*Quercus rubra*). The presence of paper birch (*Betula papyrifera*), red maple (*A. rubra*), and occasionally yellow birch (*B. allegheniensis*) and quaking aspen indicate the plant community type MNDNR Code MHn35b. Subcanopy species in the northern mesic hardwood forest commonly include sugar maple and ironwood (eastern hop hornbeam, *Ostrya virginiana*). Sugar maple is the dominant species in the shrub layer, but other frequent shrub species include beaked hazel (*Corylus cornuta*), chokecherry (*Prunus virginiana*), pogoda dogwood (*Cornus alternifolia*), fly honeysuckle (*Lonicera canadensis*), and balsam fir. Common understory species include wild sarsaparilla (*Aralia nudicaulis*), large-leaved aster (*Aster macrophyllus*), mountain rice grass (*Oryzopsis asperifolia*), and rose

twistedstalk (*Streptopus roseus*). Common herbaceous species include Pennsylvania sedge (*Carex pennsylvanica*), sweet-scented bedstraw (*Galium triflorum*), large-flowered bellwort (*Uvularia grandiflora*), and bluebead lily (*Clintonia borealis*).

Field investigations identified northern mesic hardwood forest as one of the more mature forest stands, which was dominated by sugar maple and yellow birch. Trees in this forest stand had approximate diameters at breast height that ranged between 8 to 18 inches. Based upon visual observations, it was estimated that timber-harvesting activities of northern mesic hardwood forest had not occurred within the past 30 to 60 years. Sugar maple and yellow birch were the largest tree species, with many yellow birches averaging a diameter at breast height of 8 to 12 inches and sugar maples averaging diameters at breast height of 12 to 14 inches. The subcanopy and shrub-layer were sparsely vegetated, but contained a few small maples, oaks, ironwood, hazel, honeysuckle, and serviceberries. Forbs and herbaceous plants were commonly represented by bluebead lily, Pennsylvania sedge, maple seedlings, wild sarsaparilla, and large-leaved aster. Stands of sugar maple saplings dominated areas where sunlight penetrated the forest canopy.

The second most common terrestrial habitat at the West Range Site consists of the northern wet-mesic boreal hardwood-conifer forest, and further classified as the aspen-birch-red maple forest (MNDNR Code MHn44a). This hardwood forest association is most commonly encountered on level, clayey sites with a seasonally shallow local water table on glacial lake deposits, stagnation moraines, and till plains. Species composition is variable, and the canopy is often dominated by quaking aspen, paper birch, and balsam fir. Less common associates include red maple, white spruce, and black ash (*Fraxinus nigra*). Trees that formed the forest canopy also formed the subcanopy. The most prevalent species in the shrub layer was beaked hazel, but other common species included chokecherry, juneberries (*Amelanchier* spp.), bush honeysuckle (*Diervilla lonicera*), and mountain maple (*Acer spicatum*). Common understory forbs included Canada mayflower (*Maianthemum canadensis*), wild sarsaparilla, sweet-scented bedstraw, dwarf raspberry (*Rubus pubescens*), and large-leaved aster, which is most common.

The northern wet-mesic boreal hardwood-conifer forest at the West Range Site was characterized as a less mature forest than the northern mesic hardwood forest, and was mostly dominated by paper birch interspersed less frequently with balsam fir. Other less common species included white pine (occasional), American elm (*Ulmus americana*), sugar maple, and green ash (*Fraxinus pennsylvanica*). Understory species consisted mostly of beaked hazel and serviceberries. Immature red maple, basswood, quaking aspen, and big-toothed aspen (*Populus grandidentata*) were also observed at the shrub and sub-canopy layer. Common understory forbs included, but were not limited to, large-leaved aster, bracken fern (*Pteridium aquilinum*), bluebead lily, species of clubmoss, Canada mayflower, and sweet coltsfoot (*Petasites frigidus*).

The remaining terrestrial forested cover types within the West Range Site were identified as second growth aspen forest, which was characterized as early successive, near monotypic, even-aged stands emerging after logging activities. This community had a tree canopy dominated by quaking aspen and balsam poplar (*Populus balsamifera*). Generally, vegetation in these areas ranged from 10 to 20 years in age and was defined by even-aged canopy trees, many of which were relatively young with small stems. Herbaceous species consisted mainly of big-leaf aster, bracken fern, and goldenrods (*Solidago* sp.). The early successional aspen forest community is recognized in the MNDNR's Mesic Hardwood Forest System as being approximately 0 to 35 years in age, but it has not been assigned a plant community classification code (MNDNR, 2005a). Consequently, these clear-cut areas are referred to as aspen forest.

There were no old-growth or mature conifer forests observed during the field reconnaissance. White pines were observed infrequently and red pine was not observed at the site. All of the terrestrial communities identified have been impacted by silvicultural (forest management) practices and other land use activities at some point in time. The eastern half of the West Range Site had recently been harvested for timber (2005) and portions of the western half of the West Range Site exhibited evidence of logging

activities within the past 10 to 20 years, as evidenced by dense stands of quaking aspen sprouts. Evidence of beaver activity was also observed, particularly in the eastern half of the site.

Invasive species observed on the West Range Site consisted of reed canary grass (*Phalaris arundinacea*) and smooth brome (*Bromus inermis*), which were identified in maintained utility ROWs. Other invasive species not observed onsite, but are known to occur within the Arrowhead Region include plant species such as: purple loosestrife (*Lythrum salicaria*), typically located within disturbed emergent wetlands; buckthorn (*Rhamnus cathartica* and *R. frangula*), honeysuckle (*Lonicera tatarica*), and black locust (*Robinia pseudoacacia*), typically located within disturbed forests and along forest edges; and, garlic mustard (*Alliaria petiolata*) and crown vetch (*Coronilla varia*), located in herbaceous layers (MNDNR, 1999).

The linear maintained utility ROWs transecting portions of the West Range Site were dominated by a variety of persistent and non-persistent herbaceous plants and occasional shrubs. Wetlands within these linear features typically occupied the lower elevations of the ROWs. Uplands in the ROWs were dominated with old field vegetation, which were comprised of Timothy grass (*Phleum pratense*), Canada blue-joint grass (*Calamagrostis canadensis*), goldenrods (*Solidago* sp.), smooth brome, reed canary grass (*Phalaris arundinacea*), big-leaf aster, bracken fern, wild sarsaparilla, and other pioneer vegetation typical of disturbed areas. Reed canary grass is an invasive species in Minnesota that is a major threat to wetlands and often produces large, single-species stands in which native vegetation are unable to compete for necessary resources. Smooth brome is also an invasive species in Minnesota that is somewhat less noxious than reed canary grass and spreads into disturbed areas as well as moist wooded areas (MNDNR, 2006e). Old field areas that were disturbed or maintained were not assigned specific classification in the MNDNR system for the Laurentian Mixed Forest Province.

LandSat Vegetative Cover Types

For utility and transportation corridors that were not accessible during the 2005 field surveys, GIS-based LandSat-Based Land Use-Land Cover (Raster) data were used to characterize vegetative coverage. The data originated from the Manitoba Remote Sensing Centre, and are downloadable from the MNDNR on-line Data Deli (MNDNR, 2006d). Table 3.8-2 describes the Land Cover Types from the LandSat-Based Land Use-Land Cover data and Table 3.8-3 summarizes the Terrestrial Land Cover Types encountered within each utility or transportation ROW during field reconnaissance.

The NWI (Cowardin et al., 1979) and USFWS Circular 39 (Shaw and Fredine, 1956) classifications were used to characterize land cover types within the utility and transportation corridors that were not field surveyed.

Table 3.8-2. Terrestrial Land Cover Types from LandSat-Based Land Use-Land Cover

Land Cover	Definition
Coniferous Forest	Includes areas with at least two thirds or more of the total canopy composed of predominantly woody coniferous species. It may contain deciduous species but is dominated by coniferous species. It includes woodlots, shelter belts, and plantations.
Deciduous Forest	Includes areas with at least two-thirds or more of the total canopy cover composed of predominantly woody deciduous species. It may contain coniferous species but is dominated by deciduous species. It includes woodlots, shelter belts, and plantations.
Grassland	Includes areas covered by grasslands and herbaceous plants. May contain up to one third shrubs and/or tree cover. Areas may be small to extensive and range from regular to irregular in shape. These areas are often found between agricultural land and more heavily wooded areas, along ROWs and drains. Some areas may be used as pastures and be mowed or grazed, and may range in appearance from very smooth to quite mottled. Included are fields which show evidence of past tillage but now appear to be abandoned and grown to native vegetation or planted to a cover crop.
Mixed-Wood Forest	Areas of forest where the canopy is composed of approximately equal amounts of deciduous and coniferous species.
Regeneration/Young Forest	Areas where commercial timber has been completely or partially removed by logging; management activities whose goal is to enhance timber productivity and/or wildlife habitat and to provide age class and species diversity; and catastrophic events, primarily fire and wind damage. These activities have taken place in the last 15 years. Almost all of these areas have been replanted or naturally regenerated into young trees.
Shrubby Grassland	This class includes a combination of grass, shrubs, and trees in which deciduous and/or coniferous treed cover comprises from one third to two thirds of the area, and/or the shrub cover comprises more than one third of the area. This complex is often found adjacent to grassland or forested areas, but may be found alone. These areas are often irregular in shape and vary greatly in size.

Source: MNDNR, 2006d

Table 3.8-3. Terrestrial Land Cover Types within Utility and Transportation Corridor ROWs (West Range Site)

Utility or Transportation Corridor	Land Cover Types from LandSat-Based Land Use-Land Cover					
	Coniferous Forest	Deciduous Forest	Grassland	Mixed-Wood Forest	Regeneration/Young Forest	Shrubby Grassland
HVTLs	X	X	X	X	X	X
Gas Pipelines	X	X	X	X	X	X
Process Water Pipelines	X	X		X	X	
Process Water Blowdown Pipelines	X	X	X	X	X	
Potable Water and Sewer Pipelines	X	X	X	X	X	
Rail Lines	X	X	X	X	X	
Access Roads	X	X	X	X	X	

Source: MNDNR, 2006d

Fauna (Wildlife)

Wildlife at the West Range Site included species typical to northern Minnesota. The following discussion describes the wildlife habitats as related to wetland communities (described in Section 3.7) and terrestrial vegetative communities described above, and faunal assemblages that would be expected to occur within each of those communities. Fauna that were observed during the field investigations are also addressed. State- and Federally protected fauna are addressed in Section 3.8.3.

The quality of the wildlife habitat varies throughout the site, and the majority of the site could be characterized as medium habitat quality based upon the plant species composition, wildlife habitat structure, vegetation interspersation, and habitat complexity. Wetlands qualify as the highest quality habitats on site and the bog wetlands would rank as high quality due to their uniqueness and lack of disturbance, when compared to the condition and spatial distribution of terrestrial habitats at the West Range Site. Areas experiencing recent timbering and areas with monoculture stands of aspen with little or no forest structure diversity would be considered low value habitat. However, these areas are distinguished from other disturbed areas such as mined areas within utility or road ROWs because these areas, when viewed over a long period of time, would succeed from one successive stage to another.

A combination of timbering, mining, and development (utilities, roads, and buildings) has created areas of fragmented habitat. Habitat fragmentation is prevalent southwest of the site boundary because of the types of land management that has historically occurred. The existing roads and high voltage transmission corridors in and around the project area have resulted in permanent habitat fragmentation for some species. Land uses and types of habitats are similar in areas surrounding the West Range Site.

The quality of habitat often dictates the abundance and diversity of both plant and animal species found within the ecosystem. For instance, trees with a diameters at breast height of greater than 10 inches could be utilized as dens for cavity-dwelling birds. Also, habitat structure becomes increasingly complex along a vertical axis from the forest floor to the top of the canopy, which also correlates positively with the potential use of these habitats by avifauna (birds) (Bartoldus et al., 1994) and mammals. Animal communities within each of these habitat types are discussed below.

Mammals

Mammals that commonly utilize northern mesic hardwood forest include predators such as fox, lynx, and raccoons (*Procyon lotor*), or large ungulates such as moose (*Alces alces*) and deer (*Odocoileus virginianus*). Many deer were observed at the West Range Site and deer browse lines were evident. A moose skeleton was also observed on the site. Beaver (*Castor canadensis*) activity was prevalent, especially within the eastern half of the site. During the June 2005 field reconnaissance a gray wolf was observed preying on a deer fawn.

The northern wet-mesic boreal hardwood-conifer forest is patchy and discontinuous at the West Range Site due to the presence of other habitat types (wetlands), and forestry management activities. The wildlife using this habitat type is anticipated to be common to second growth forests and the varying upland habitats found in northern Minnesota. The northern wet-mesic boreal hardwood-conifer forest provides similar wildlife habitat as the northern mesic hardwood forest community. The well-defined shrub layer and older tree canopy present at the site increases the available wildlife habitat.

Wildlife diversity within the aspen forest cover type is expected to be less than the northern mesic hardwood forests because of a simpler wildlife habitat structure and a decrease in plant diversity. This may be especially applicable to the younger stands of aspen. However, aspen communities can provide habitat for specialty species that are not found in other habitats and have preferences exclusive to aspen forests. Quaking aspens are often considered keystone species for which other forms of plants and animals are dependent on for food, shelter, or reproduction. Aspens are an important part of the northern woods food web for many levels of life ranging from microscopic insects to beaver and moose. A significant portion of the forest area consists of monotypic communities of poplar and aspen trees, and

has limited cover type diversity. Trees in the area have den cavities, and thus provide shelter and nesting habitat for a variety of birds and wildlife.

Many of the wetland areas present at the site can be characterized as vernal pools and provide wildlife with a source of drinking water during early spring and summer.

Numerous mammal species often take advantage of the open grassy corridors found within utility ROWs and other forest edge habitats. Predator and scavenger mammal species utilize this habitat to locate and capture food. Deer and other mammals also use this habitat for food.

Birds

As birds are often more transient than mammals, they can be observed in a variety of habitats; however, they often nest in a particular habitat type. Wooded, shrub-swamp, marsh, and bog wetlands provide nesting and foraging habitat for songbirds, raptors, wading birds, rails, and waterfowl. Avifauna generally partition habitat by occupying different vertical layers within a habitat. For example, the limbs and branches in the upper part of the forest canopy provide song and roosting perches and support for nests, while overhanging vegetation can provide concealment from predators (Bartoldus et al., 1994). Field investigations at the West Range Site indicate that the project area has wetlands with a light to moderately dense shrub layer. Consequently, the structure and habitat complexity of wetlands and uplands varies throughout the project area, qualifying the project area as moderate wildlife habitat.

Several migratory bird species use wetlands, including peatlands, during the spring and summer as part of their life cycles. Typical migratory birds using peatlands include species such as the alder flycatcher (*Empidonax alnorum*), swamp sparrow (*Melospiza georgiana*), common yellowthroat (*Geothlypis trichas*), and LeConte's sparrow (*Ammodramus leconteii*). Table 3.8-4 summarizes the migratory bird species that may be found in peatlands (MNDNR, 2006f).

The West Range Site contains breeding bird habitat in uplands as well as wetlands, as evidenced by songbirds engaged in territorial behaviors and calls during the June and July 2005 field surveys. These activities were assumed to be from nesting birds. Raptor nesting was assumed to occur throughout the site as well, although no raptor nesting was observed. Two adult unidentifiable Accipiters (forest dwelling hawks) and a barred owl (*Strix varia*) were observed. Of the three potential Accipiters found utilizing forested areas, the northern goshawk is the only Accipiter considered rare and is a designated sensitive species in Minnesota by the USDA Forest Service. Goshawks tend to prefer mature, undisturbed conifer forests, which are present throughout the region, including the West Range Site and IGCC facility footprint area. The MNDNR is currently upgrading the status of this species to special concern. There is no Federal designation as threatened or endangered for this species under the Endangered Species Act of 1973. The MNDNR may ultimately request or require surveys for the northern goshawk. Ruffed grouse (*Bonasa umbellus*) were commonly observed especially in the second growth aspen forest.

Table 3.8-4. Avifauna Potentially Utilizing Wetland Habitat (West Range Site)

Scientific Name	Common Name
<i>Dendroica petechia</i>	yellow warbler
<i>Passerculus sandwichensis</i>	Savannah sparrow
<i>Dolichonix orzivoros</i>	bobolink
<i>Empidanox alhorum</i>	alder flycatcher
<i>Melospiza georgiana</i>	swamp sparrow
<i>Geothlypis trichas</i>	common yellowthroat
<i>Ammodramus leconteii</i>	LeConte's sparrow
<i>Oporornis agilis</i>	Connecticut warbler
<i>Dendroica coronata</i>	yellow-rumped warbler
<i>Vermivora ruficapilla</i>	Nashville warbler
<i>Dendroica palmarum</i>	palm warbler
<i>Catharus guttatus</i>	hermit thrush
<i>Empidonax flaviventris</i>	yellow-bellied flycatcher
<i>Junco hyemalis</i>	dark-eyed junco
<i>Spizella passerina</i>	chipping sparrow

Source: MNDNR, 2006f

Certain avian species take advantage of the open grassy forest edge areas created by roadways and utilities. Predatory birds such as hawks and eagles utilize these corridors for increased line of sight of prey species. Grasslands in Minnesota can provide habitat for a variety of bird species, which include, but are not limited to grasshopper sparrows (*Ammodramus savannarum*), Henslow's sparrows (*A. henslowii*), Baird's sparrows (*A. bairdii*), chestnut-collared longspurs (*Calcarius ornatus*), and Sprague's pipit (*Anthus spragueii*). Grasslands can also provide habitat for numerous species of mammals such as Plain's pocket mice (*Pergonathus flavescens*), prairie voles (*Microtus ochrogaster*), and Richardson's ground squirrels (*Spermophilus richardsonii*), and herptile species such as western hognose snakes (*Heterodon nasicus*) (MNDNR, 2006g).

No colonial migratory birds were observed within the West Range Site at the time of the field investigation; however, no specific survey targeting migratory birds was conducted. It is assumed that colonial migratory birds utilize habitats on site during the songbird nesting season, which occurs from approximately April 15 through August 15. Colonial migratory birds include species such as nesting swallow colonies, heron and egret nests, or other colonial nesting species.

The MNDNR NHIS database lists no bald eagle nesting areas within the West Range Site, nor within a 2-mile radius of the project area or the transportation and utility corridors.

Reptiles and Amphibians

Wetlands provide habitat for a variety of wildlife species common throughout the West Range Site. Bog habitat is the most unique onsite habitat, which is generally considered potential habitat for rare species of herpetofauna (reptiles and amphibians) (MNDNR, 2006f). Isolated wetlands (wetlands not hydrologically connected to interstate waters via a surface connection, such as a channel) function as reproductive habitat for herpetofauna. Adult anurans (frogs) were observed during the field reconnaissance and included American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), northern leopard frog (*Rana pipiens*), and wood frog (*Rana sylvatica*). Potential habitats were also observed for the spring peeper (*Pseudacris crucifer*), western chorus frog (*P. triserata*), green frog (*Rana clamitans*), and mink frog (*R. septentrionalis*), all species common to the area. The mink frog is common to lakes and lake-fringe wetlands and could occur at the site. Onsite wetlands also provide potential habitat for the eastern newt (*Notophthalmus viridescens*) and the blue-spotted salamander (*Ambystoma laterale*), which are common to northern Minnesota.

Wildlife Protected Areas

No designated Federal Wildlife Refuges, Waterfowl Production Areas, or National Preserves are within or immediately adjacent to the West Range Site boundary. No MNDNR Wildlife Management Areas, Wildlife Refuges, State Natural Areas, designated Game Lakes, or Designated Trout Streams occur within or immediately adjacent to the West Range Site or any of the associated utility or transportation corridors. **Pickereel Creek, which is a designated trout stream that drains into Swan Lake (east of Pengilly), is located 2,500 feet east of one of the HVTL corridors proposed for the West Range Site.**

3.8.1.2 East Range Site

Habitats for the East Range Site were first identified through a review of aerial and satellite imagery. Vegetation cover types were characterized through the use of LandSat-Based Land Use-Land Cover data, which is Raster-based land cover data derived from 30-meter resolution Thematic Mapper satellite imagery (MNDNR, 2006d). The terrestrial (upland) habitats described below are based on field surveys conducted during October 2004, and wetland surveys performed in September through October 2005. Observations of specific flora and fauna during field surveys are also discussed.

Floral and faunal communities could not be determined for some segments of the utility corridors during the field surveys because permission to access these corridors was not granted by the various landowners and/or easement holders. For these utility corridors, vegetation cover types were characterized through the use of aerial imagery. Although the source imagery dates range from June 1995 to June 1996, overall land use in this area has not dramatically changed; therefore, the dataset was considered appropriate for evaluation.

Physiography

The geology is comprised of a thin mantle of Pleistocene glacial till over Precambrian bedrock amidst areas that are exposed bedrock. The glacial till (surface geology) is a ground moraine within the Nashwauk Moraine Association of the Rainy Lobe glacial advance. Deposits of peat and bedrock outcrops occur within the till. The site topography is comprised of flat areas within the larger wetland basins and gently undulating hills elsewhere. The large ridges associated with the Iron Range occur approximately one mile to the north of the site. Large spoil and overburden piles surround the northern and western sides of the site. Flat areas are often peat deposits (wetlands), which are described in Section 3.7, Wetlands.

Flora (Vegetation)

Timber harvesting is the primary land use for the site. A portion of the uplands within the East Range Site were recently clear-cut (within the previous five years). Timber harvesting has influenced the composition and dynamics of the forest cover on the site. Large areas are virtually devoid of tree cover due to recent clear-cutting.

The following descriptions of the vegetative communities found on the East Range Site were derived from the *Field Guide to the Native Plant Communities of Minnesota: The Laurentian Mixed Forest Province* (MNDNR, 2003), a vegetation classification system for north central and northeastern Minnesota. The wetland communities on the site are discussed in Section 3.7. State- and Federally protected flora and fauna species are addressed in Section 3.8.3.

The forested terrestrial (upland) habitats at the East Range Site consist of northern mesic mixed forest, further classified as the native plant community type aspen-birch forest (balsam fir subtype) (MNDNR Code FDn43b1). This mixed forest is typically on loamy soils over bedrock in scoured bedrock uplands or on loamy, rocky, or sandy soils on glacial moraines, till plains, and outwash plains. This plant community association is dominated in the ground layer by wild sarsaparilla, large-leaved aster, bluebead lily, and bunchberry (*Cornus canadensis*). The shrub layer consists of beaked hazel, fly honeysuckle, and mountain maple. Canopy composition is mixed and includes paper birch, quaking

aspen, white pine, balsam fir, white spruce, red pine, and white cedar (*Thuja occidentalis*). The presence of balsam fir in either the shrub layer or the subcanopy is an indicator of the northern mesic mixed forest.

The northern mesic mixed forest habitat at the East Range Site contained a wide range of trees. From field observations, it was obvious that timber logging had occurred historically and in recent years. The entire site has undergone several iterations of clear-cuts based upon tree age and plant community dominance. Quaking aspen stands were perpetuated through clear-cutting activities, as evidenced by the stands of evenly aged aspens observed on the site. The most mature trees in many areas were in an early- to mid-successional stage with ages of less than 50 years. The landscape setting for this area was mostly scoured bedrock terrain. The soils in this natural community consisted of shallow parent material, mostly sands and loams, over bedrock.

Invasive species observed on the East Range Site consist of reed canary grass and smooth brome, which were identified in maintained utility ROWs. Other invasive species not observed onsite, but are known to occur within the Arrowhead Region include plant species such as: purple loosestrife, typically located within disturbed emergent wetlands; buckthorn, honeysuckle, and black locust, typically located within disturbed forests and along forest edges; and garlic mustard and crown vetch, located in herbaceous layers (MNDNR, 1999).

LandSat Vegetative Cover Types

For utility and transportation corridors that were not accessible during the 2004 or 2005 surveys, use of the LandSat-Based Land Use-Land Cover (Raster) data were used to characterize vegetative coverage along these corridors (MNDNR, 2006d). A summary of each terrestrial vegetative land cover encountered within utility and transportation corridors is provided in Table 3.8-5 (refer to Table 3.8-2 for descriptions of the land cover types). The National Wetlands Inventory (Cowardin et al., 1979) and USFWS Circular 39 (Shaw and Fredine, 1956) classifications were used to characterize wetland or aquatic habitats within the utility and transportation corridors that were not field surveyed.

Table 3.8-5. Terrestrial Land Cover Types Encountered within the Utility and Transportation Corridor ROWs (East Range Site)

Utility or Transportation Corridor	Land Cover Types from LandSat-Based Land Use-Land Cover					
	Coniferous Forest	Deciduous Forest	Grassland	Mixed-Wood Forest	Regeneration/Young Forest	Shrubby Grassland
HVTLs	X	X	X	X	X	X
Gas Pipeline	X	X	X	X	X	X
Process Water Pipelines		X	X	X	X	X
Railroad Alternatives	X			X	X	X
Potable Water and Sewer Lines		X	X	X	X	
Access Roads	X	X		X	X	X

Source: MNDNR, 2006d

Fauna (Wildlife)

Fauna present at the East Range Site would include species typical to northern Minnesota. The following discussion describes the wildlife habitats as related to the wetland habitats (described in Section 3.7) and the terrestrial vegetative communities described above, and faunal assemblages that are expected

to occur within each community. Fauna observed during the field investigations are also addressed. State- and Federally protected fauna are addressed in Section 3.8.3.

The quality of the wildlife habitat varies throughout the site. The majority of the site could be characterized as having medium quality habitat based upon the plant species composition, wildlife habitat structure, vegetation interspersion and wildlife utilization. Wetlands were the highest quality habitat on site and the bog wetlands would rank as high quality due to their uniqueness and lack of disturbance. Emergent wetlands also occur in areas where organic material forms the dominant substrate. There appears to be a high degree of vegetative cover type interspersion and an irregular shoreline in areas where emergent wetlands exist. The occurrence of emergent vegetation along shorelines creates favorable habitat for fisheries. Disturbed habitat from recent clear-cutting was widespread, and was the primary reason for the diminished quality in wildlife habitat.

The East Range Site upland habitats have been widely impacted by recent clear-cutting. All of the uplands are classified as northern mesic mixed forest, aspen birch forest (balsam fir subtype) (MNDNR Code FDn43B1). Most of the un-harvested stands of this habitat are located in the eastern third of the site. Clear-cuts dominate elsewhere and wildlife habitat has been modified and qualitatively reduced in these areas. Avifauna diversity is highest within the un-harvested stands compared to the clear-cut areas. This includes nesting and foraging habitats for songbirds and raptors. The same also applies to suitable habitats for reptiles, amphibians, and mammals where clear-cutting has diminished habitat quality and complexity for these faunal groups.

Wetland habitats for fauna are relatively diverse and common on the East Range Site. Bog habitat is the most unique habitat and is potential habitat for rare species of fauna, primarily birds and small mammals, but is not the most common or abundant wetland type within the East Range Site.

Mammals

The list of mammals that potentially utilize this site is comprehensive and includes predators, such as bears, and large ungulates, such as moose and deer. A moose calf was observed during the wetland assessments in 2004 and evidence of moose was widespread throughout the East Range Site. Gray wolf tracks and scat were also observed occasionally throughout the site. Deer were observed frequently, and a family of otters (*Lutra canadensis*) was observed on the eastern side of the project site. Evidence of beaver foraging for food was widespread. Many of the wetlands within the project area contained beaver lodges and dams. Habitat for fisher (*Martes pennanti*) and pine martin (*M. americana*) was confined to the forested wetlands where clear-cutting has not occurred. Snowshoe hare habitat is also mostly confined to the forested wetlands for the same reason. This species is the primary prey item for the Federally threatened Canada lynx (discussed in Section 3.8.3). Lastly, the American black bear (*Ursus americana*) is relatively common in the area and could be expected to utilize the habitat resources in the area.

Numerous mammal species often take advantage of the open grassy corridors found within utility ROWs and other forest edge habitats. Predator and scavenger mammal species utilize this habitat to locate and capture food. Deer and other mammals also use this habitat for food.

Birds

No raptor nests were observed during the 2004 and 2005 habitat characterizations and wetland surveys. An adult merlin (*Falco columbaris*) was observed in flight exhibiting territorial behaviors. A great horned owl (*Bubo virginianus*) was observed as well. Habitat for the red-shouldered hawk (*Buteo lineatus*) and northern goshawk was absent within the East Range Site, which is probably attributable to forest management activities. Probable habitats and improved habitat quality for these two rare species increases east and south of the project area, especially when entering the USDA Forest Service property. No breeding concentrations of colonial migratory birds (i.e., nesting swallow colonies, waterbird colonies, heron and egret nests, or other colonial nesting species) were observed within the East Range

Site. Migratory birds that may be found near the East Range Site would be comparable to those listed in Table 3.8-4 for the West Range Site.

No bald eagle nests were observed within or immediately adjacent to the project site and the MNDNR NHIS database shows no nesting areas within the East Range Site or within a 2-mile radius of the East Range Site project area. The NHIS has documented five bald eagle nesting areas within a one-mile radius of the various proposed and existing utility and transportation corridors.

Wooded and shrub wetlands also provide nesting and foraging habitat for songbirds and raptors. Marsh wetlands provide foraging habitats for wading birds, rails, and waterfowl.

Grasslands in Minnesota can provide habitat for a variety of bird species, which include, but are not limited to grasshopper sparrows, Henslow's sparrows, Baird's sparrows, chestnut-collared longspurs, and Sprague's pipit. Grasslands can also provide habitat for numerous species of mammals such as Plain's pocket mice, prairie voles, and Richardson's ground squirrels; as well as herptile species such as western hognose snakes (MNDNR, 2006g).

Reptiles and Amphibians

Many of the wetlands on the East Range Site appear to be isolated and provide habitat for herpetofauna. Herpetofauna observed utilizing isolated wetlands include adult anurans and included species such as the American toad, gray treefrog, northern leopard frog, and wood frog. Potential habitats were also observed for the spring peeper, western chorus frog, and green frog all species common to the area. These wetlands also provide potential habitat for the eastern newt and the blue-spotted salamander. Several of these species require upland habitats for some portion of their life. In some cases, timber harvesting may have provided upland habitats for herpetofaunal species that require open upland habitats on sandy soils. For other herpetofaunal species, clear-cutting may instead reduce favorable habitat.

Wildlife Protected Areas

No designated Federal Wildlife Refuges, Waterfowl Production Areas, nor National Preserves are within or immediately adjacent to the East Range Site boundary. No MNDNR Wildlife Management Areas, Wildlife Refuges, State Natural Areas, designated Game Lakes, nor Designated Trout Streams occur within or immediately adjacent to the East Range Site or any of the associated utility or transportation corridors.

3.8.2 Aquatic Communities

The following sections provide information regarding aquatic habitats and associated fisheries located on or adjacent to the West Range Site, East Range Site, and associated utility and transportation corridors.

3.8.2.1 West Range Site

There are no bodies of water within the West Range Site. There are several streams and rivers, and one body of water, Ox Hide Lake, located along the utility corridors associated with the West Range Site. These surface waters can generally be broken down into three basic categories: small ephemeral/perennial streams, rivers, and lakes. These three basic classifications all have somewhat unique fisheries components, and will be discussed in general terms. In addition, many former iron mine pits have filled with water via groundwater infiltration and surface water runoff following the cessation of mining operations. Where pits are hydrologically connected to streams and rivers, as in the case of the Lind Mine Pit and Prairie River, aquatic communities have populated the pits.

There are no waterways designated as trout streams within the area of the West Range Site or proposed utility and transportation corridors, although it is possible that trout are occasionally present in some of the area waterways not designated. **With the exception of the CMP, which has developed a self-sustaining population of lake trout (*Salvelinus namaycush*) due to MNDNR stocking in past**

years, none of the waterways or water bodies in the area is considered to be cold water due to the lack of naturally reproducing trout populations and significant groundwater source hydrology.

Small streams are typically less than three feet across, tend to be very shallow, have low discharge, are often vegetated with emergent marsh species, and tend to function as conveyance systems between the multiple wetlands and water bodies located in the project vicinity. These small waterways are also highly prone to hydrologic alteration due to the abundance of beaver and associated beaver dams. The fisheries habitat in these small streams is limited due to the lack of space and cover and drawdown during dry periods. While beaver dams can obstruct fish passage, they can also create small ponds that benefit some species. These smaller streams can be important for allowing fish to move between more permanent suitable habitats, but are generally not primary fisheries resources. If fish species are present in these small stream systems, they would likely be dominated by small non-game species such as Cyprinids (minnows, dace, and creek chub) and Percids (darters).

The rivers, primarily the Swan River, Prairie River, and their tributaries, support more fish populations than the smaller streams. Both of these river systems discharge into the Mississippi River and serve to connect many of the lakes in the region including Trout Lake, Holman Lake, Twin Lake, and Swan Lake. **Pickerel Creek flows into Swan Lake in the vicinity of the HVTL ROW at the West Range Site. The target management fish species for Pickerel Creek is brook trout (*Salvelinus fontinalis*), which are currently stocked every other year by the MNDNR, but population surveys also indicate that low amounts of brook trout natural reproduction is occurring (Minnesota Steel, 2007).**

In recent years, Trout Lake has provided a quality northern pike (*Esox lucius*) and walleye (*Sander vitreus*) fishery and these species are the primary species of management, with black crappie (*Pomoxis nigromaculatus*) as the secondary species. A 2004 survey indicated that lake fish populations were dominated by yellow perch (*Perca flavescens*), followed by rock bass (*Ambloplites rupestris*), walleye, and bluegill sunfish (*Lepomis macrochirus*). Other species present in the lake included pumpkinseed sunfish (*Lepomis gibbosus*), northern pike, largemouth bass (*Micropterus salmoides*), and black crappie (MNDNR, 2004c).

Holman Lake has a fairly simple fish community and supports a modest fishery for panfish. Northern pike are the dominant predator. A 2002 survey revealed bluegill sunfish and northern pike as being the most abundant species, and largemouth bass are also fairly abundant. Bluegill sunfish and black crappie catch rates have typically been below the lake class average. Yellow perch abundance has typically been very low in Holman Lake. Other species sampled in the 2002 assessment included black and yellow bullhead (*Ameiurus* spp.), rock bass, pumpkinseed sunfish, bigmouth buffalo (*Ictiobus cyprinellus*), and bowfin (*Amia calva*) (MNDNR, 2002).

Upper and Lower Panasa Lakes are connected through an inlet, and both are affected by mining activities in the watershed. Lower Panasa Lake is managed primarily for walleye, northern pike and panfish (MNDNR, 1998a). Walleye fry are stocked in Lower Panasa Lake and are thought to migrate to Upper Panasa Lake, which is fished for walleye, northern pike, and black crappie (MNDNR 1998b).

The primary management species for Swan Lake are walleye and northern pike, with black crappie as the secondary species. Tullibee (*Coregonus tullibee*), rock bass, and bluegill sunfish are also present (MNDNR, 2005b).

Because of the interconnectedness of these rivers and lakes, the fish assemblages are likely to be similar in most of these rivers. The rivers would support prime game fish species such as northern pike, largemouth bass, bluegill sunfish, and possibly walleye. Non-game species likely include bowfin, many minnows and shiners (Cyprinidae), white sucker (*Catostomus commersoni*), redhorse (*Moxostoma* spp.), bullhead, and darters (Percidae). Ox Hide Lake, like many of the lakes in the region, supports northern pike, largemouth bass, panfish, and yellow perch.

In past years the Canisteo Pit was stocked with lake trout, and the population has become self-sustaining. Lake trout is a swift, torpedo-shaped game fish of deep, cold waters, which is eagerly sought by commercial, sport, and subsistence fishermen. Young lake trout generally feed on plankton, insects, freshwater shrimp, and other aquatic invertebrates; whereas larger trout tend to prey on smaller fish. They spawn over large cobble and boulder substrates (BWCAW, 2007).

Rainbow smelt (*Osmerus mordax*) is a small, slender, cylindrical-shaped fish with a large mouth and lower protruding jaw with teeth on both mandibles. Found naturally in coastal inshore areas between Newfoundland and Virginia, the species has been introduced into freshwater systems throughout the northeastern and central U.S., including the Canisteo Mine Pit, where it now has a self-sustaining population. This introduced species poses a potential threat to the fishes of northern lakes, as it is a voracious feeder on the young of native fish, including walleye and lake trout (BWCAW, 2007).

Invertebrate populations in streams around the project area, e.g. Pickerel Creek, generally indicate moderate to good water quality. Genera that are typically representative of good water quality include caddisflies (Family Tricoptera), mayflies (Ephemeroptera), and stoneflies (Plecoptera), which are relatively abundant in most nearby waterways (MNDNR and USACE, 2007).

3.8.2.2 East Range Site

Several small streams and one lake are located near the East Range Site and the proposed utility or transportation corridors. Onsite fish habitats are restricted to an unnamed creek and deeper wetlands that occur within the central portion of the site. Small fish (Notropids) were observed in these open water habitats. Based on the field observations, small fish are most likely the only fish assemblages present. There are no lakes or larger water bodies that could support game fish habitat at the East Range Site. Beaver dams are widespread in the area and could function as barriers restricting the migration of larger fish, such as spring spawning migrations of northern pike into the upstream segments of surface waters. The emergent vegetation bordering open waters provides shelter and reproductive habitat for non-game fish species. The wetland fringe bordering open water, along with floating vascular emergents, provides habitat for macroinvertebrates, which in turn acts as a food source for waterfowl, herpetofauna, and other water-dependent avifauna. Wetlands characterized by deep-water marshes or border open water systems (e.g., type 5 wetlands) frequently tend to have a diverse littoral plant community, which attracts different invertebrates, thereby diversifying the nutritional requirements for a variety of species (Bartoldus et al., 1994).

The small streams that are proposed to be crossed by the utility or transportation corridors are typically less than three feet across, tend to be very shallow, have low discharge, are often associated with wetlands, and tend to act as conveyance systems between the multiple wetlands and water bodies located in the project vicinity. These small waterways are highly prone to hydrologic alteration due to the abundance of beavers and associated beaver dams. The fisheries habitat in these small streams is limited due to the lack of space and cover and occasional lack of water during dry periods. Beaver dams can block fish passage, but can also create small ponds suitable for some species to thrive. These smaller streams can be important for allowing fish to move between more permanent suitable habitats, but are generally not primary fisheries resources. If fish species are present in these small stream systems, they would likely tend to be dominated by small non-game species such as Cyprinids and Percids.

Colby Lake, a 539-acre lake that has inlets from the Partridge River, Wyman Creek, and Whitewater Lake is located just south of the proposed footprint of the Mesaba Generating Station. A fish survey completed in **2005** identified Colby Lake as being generally below average in terms of fish abundance as compared to other lakes in the region, **but also showed a recent increase in bluegill sunfish and channel catfish (*Ictalurus punctatus*) numbers.** Fish populations in **2005** were dominated by bluegill sunfish, followed by **black crappie**, northern pike, **channel catfish**, yellow perch, and white sucker.

Other species were present in low numbers, including walleye, yellow bullhead (*Ameiurus natalis*), rock bass, and largemouth bass (MNDNR, 2006h).

Mine pits in the East Range vicinity are all located on former CE property that is not open to the public. Since these pits have been associated with more recent mining activities, and they are located on private property, information about aquatic communities in these pits is not available.

Invertebrate populations in streams around the project area generally indicate moderate to good water quality. Genera that are typically representative of good water quality include caddisflies (Family Tricoptera), mayflies (Ephemeroptera), and stoneflies (Plecoptera), which are relatively abundant in most nearby waterways (MNDNR and USACE, 2007).

3.8.3 Protected Species and Habitats

3.8.3.1 Federally Protected Species

The Federal Endangered Species Act is regulated by the USFWS, and both the West Range Site and the East Range Site (including the associated utility and transportation corridors) are within USFWS Region 3. Currently, population studies are being conducted for the Canada lynx (threatened Federal status) in conjunction with a formal consultation that has been initiated for other projects in the area (i.e., the proposed PolyMet mine expansion, the Minnesota Steel Industry facility, and the IPSAT Mine Expansion). In a telephone conversation with the USFWS Region 3 Endangered Species Biologist (October 10, 2005), the USFWS invited Excelsior to participate in this comprehensive formal consultation process and expand these surveys to include the West Range Site and the East Range Site, which are both in close proximity to the other projects that are currently under consultation (USFWS, 2005).

The Federal protection status of the gray wolf in the western Great Lakes region has been affected by recent actions and is yet uncertain. In March 2007, the USFWS removed the gray wolf from the endangered species list. But, in September 2008, the U.S. District Court for the District of Columbia overturned that decision, and the USFWS issued a rule in December 2008 to comply with court orders reinstating regulatory protections for the gray wolf in the western Great Lakes and northern Rocky Mountains. The rule reinstated the listing of the gray wolf in Minnesota as threatened and reinstated the former designated critical habitat for gray wolf in Minnesota. Subsequently, on January 14, 2009, the Department of the Interior announced the removal of the gray wolf in the western Great Lakes and portions of the Northern Rocky Mountains from protection under the Endangered Species Act. However, that decision was not published in the *Federal Register* before it was placed under review by the new Presidential administration on January 20, 2009 (USFWS, 2009). On June 29, 2009, the USFWS announced they had reached a settlement agreement with plaintiffs in a lawsuit challenging the removal of Endangered Species Act protections from gray wolves in the western Great Lakes. The agreement provides additional opportunity for public comment on the de-listing to ensure compliance with the Administrative Procedures Act. Therefore, to comply with the court-approved settlement, at this time, gray wolves are afforded the full protection of the Endangered Species Act with threatened status. Should the USFWS choose to de-list again, they will be required to hold a 60-day public comment period prior to the de-listing (USFWS, 2009a; USFWS, 2009b).

One Federally listed species in northern Minnesota has been delisted – the bald eagle. Consultation with the USFWS is not required for delisted species. Therefore, Canada lynx and gray wolf are the only Federally protected species of interest in the areas of the alternative sites.

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.

On August 15, 2008, DOE submitted a biological assessment (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.

West Range Site

The value of habitats for Canada lynx and gray wolf are discussed in detail in the BA (see Appendix E).

The USFWS Region 3 list of Federally protected species describes Itasca County, Minnesota as occurring within the range of the Canada lynx (threatened). There are no Federally protected plant species identified by the USFWS as occurring within the West Range Site or any of the proposed utility or transportation corridors.

According to the MNDNR data (MNDNR, 2005c), there have been both "verified without evidence of breeding" and "unverified" sightings of Canada lynx within Itasca County during 2005. Potential Canada lynx habitat and prey species were observed on and around the West Range Site during the field reconnaissance. However, in a letter concerning impacts to Federally protected species resulting from the development of the proposed Minnesota Steel Industries project in Nashwauk, USFWS determined that the project would be located near the southwestern edge of the Canada lynx's range. USFWS determined that the proposed mine may affect lynx moving through the area, but it was unlikely to result in reduced survival or reproduction of any lynx, partly because the site would be located far from areas of high lynx densities, and an intensive survey did not find any indications of lynx present in the area of the potential mine site (Sullins, 2007). The West Range Site is approximately 9 miles west of the proposed Minnesota Steel Industries mine; therefore, it is even further toward the edge of the lynx's range.

The International Wolf Center posts on their website a database summary of wolf observations. Of the over 9,300 records in the monitoring database, no radio collared wolves were recorded within 10 miles of the West Range Site, although this may be due to a limited amount of wolf

tracking that occurs in the central portion of Minnesota (Appendix E). During field studies of the West Range Site in 2005, a grey wolf was observed preying on a deer fawn.

East Range Site

The value of habitats for Canada lynx and gray wolf are discussed in detail in the BA (see Appendix E).

The USFWS Region 3 list of Federally protected species describes St. Louis County, Minnesota as occurring within the range of the Canada lynx.

Suitable snowshoe hare habitat (the primary prey item for Canada lynx) was present, but was relatively poor or marginal due to the extensive and recent timber harvesting. According to the MNDNR data (MNDNR, 2005a), there have been “verified with evidence of breeding,” “verified without evidence of breeding,” and “unverified” sightings of Canada lynx within St. Louis County through 2005. Many more verified records of Canada lynx have been recorded in the general area of the East Range Site since 2000 as compared to the West Range Site (Sullins, 2007).

The International Wolf Center database shows 32 records involving 10 wolves that have been recorded within about 10 miles of the East Range Site. Except for a single record in December 2006 and two records in 2001, all other records of wolves near the East Range Site were recorded between 1994 and 1997 (Appendix E). During field studies of the East Range Site in 2004, gray wolf tracks and scat were observed occasionally throughout the site.

3.8.3.2 Minnesota Protected Species

Minnesota’s Endangered Species Statute authorizes the MNDNR to adopt rules designating species meeting the statutory definition of endangered, threatened, or species of special concern. Minnesota Rules Chapter 6134 provides the “List of Endangered, Threatened, and Special Concern Species.” The Endangered Species Statute authorizes the MNDNR to adopt rules to regulate the treatment of species designated as endangered and threatened, which are codified as Minnesota Rules 6212.1800 to 6212.2300. As such, species of special concern or non-status (tracked) species are not protected by Minnesota’s Endangered Species Statute or the associated Rules.

Species designated as endangered, threatened, or species of special concern are defined as follows:

- Endangered – the species is threatened with extinction throughout all or a significant portion of its range within Minnesota.
- Threatened – the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota.
- Species of Special Concern – although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in the category along with those species that were once threatened or endangered but now have increasing or stable, protected populations.

A non-status (or tracked) species is one that has been identified by the MNDNR as a rare species that has not received a legal status, but needs further monitoring to determine its status.

The MNDNR NHIS database contains documented occurrences of non-status (tracked), special concern, threatened, and endangered species; sensitive ecological and natural resources; and results of the Minnesota County Biological Survey. State-listed threatened or endangered species are protected under the Minnesota Endangered Species Statute (Minnesota Statutes § 84.0895). The MNDNR was contacted to request a review of the NHIS for occurrences within the East Range Site boundaries and associated utility and transportation corridors. At the request of the MNDNR, the specific locations of these occurrences are not provided in this report to protect the integrity of rare or protected species.

West Range Site

Mesaba Generating Station

According to the MNDNR NHIS, a total of 8 plant species (17 occurrences) have been recorded in the general vicinity of the Nashwauk, Taconite, and Bovey areas. However, none of these 17 occurrences are recorded within the West Range Site boundaries. A list of the species that were identified by the MNDNR NHIS is provided in Table 3.8-6.

There are three records of moonworts (*Botrychium campestre*, *B. matricariifolium*, and *B. simplex*) listed in the MNDNR NHIS database and within one mile of the project site. The three records of moonworts (*Botrychium* spp.) listed in the MNDNR NHIS database are associated with mine spoil areas or disturbed soils. *B. campestre* and *B. simplex* are listed as species of special concern. *B. matricariifolium* has no formal protection status in Minnesota, but has been identified as a species that may be monitored due to its potential rarity or other factors that may affect this species or its habitat in the state.

Table 3.8-6. MNDNR NHIS Plant Species Occurrences Near the West Range Site

Scientific Name	Common Name	Protection Status	Records in Area	Associated Habitat Near Project Area
<i>Botrychium campestre</i>	Prairie moonwort	Special Concern	2	High iron content and gravel soils
<i>Botrychium simplex</i>	Least moonwort	Special Concern	6	Mine tailings basin, disturbed utility ROW
<i>Botrychium matricariifolium</i>	Matricary grapefern	Non-status	2	Grassy opening, near mine area
<i>Liparis lilifolia</i>	Lilia-leaved twayblade	Non-status	2	Tailings basin
<i>Myriophyllum tenellum</i>	Leafless water milfoil	Non-status	1	Lake shoreline
<i>Platanthera flava</i> var. <i>herbiola</i>	Tuberclad rein-orchid	Endangered	2	Tailings basin
<i>Spiranthes casei</i>	Case's ladies'-tresses	Non-status	1	Tailings basin
<i>Torreyochloa pallida</i>	Torrey's manna grass	Special Concern	1	Shallow marsh in mixed hardwood forest

Source: Excelsior, 2006b

Since the West Range Site may not have been surveyed by the MNDNR, potential habitats for flora listed by NHIS were investigated during the June 2005 field reconnaissance and the summer 2005 wetland surveys. Preliminary investigations for potential habitats for *Botrychium* spp. were performed during field investigations in 2005. No disturbed soil or mine spoil conditions are found within the West Range Site. However, habitat for these species or other *Botrychium* spp. may occur within the northern mesic hardwood forest. During the field reconnaissance in June 2005, a plant species that closely resembled *B. minganense*, a state-listed species of special concern, was observed in the northern mesic hardwood forest. Only one individual was observed, and no voucher specimens were collected.

Most of the other plant species occurrences recorded by the MNDNR NHIS are associated with mine spoil, tailings, or disturbed soil conditions. No mine areas are found within the West Range Site. If recruitment of these rare or otherwise protected species appears to be associated with mine spoil or

disturbed soil conditions from mining activities, it is unlikely that the West Range Site would provide this type of habitat.

Two plant species records from the NHIS database that are of interest for the project area are *Myriophyllum tenellum* and *Torreyochloa pallida*. *M. tenellum*, a non-status species, is associated with aquatic environments along shorelines. Dunning Lake, located along the eastern edge of the site, is the only likely habitat that may be suitable for this species. *T. pallida*, a species of special concern, is associated with shallow marsh habitats in mixed hardwood forests. This type of habitat is abundant throughout the West Range Site, although this species was not observed during the field reconnaissance for habitat or during the wetland surveys.

Transportation and Utility Corridors

Since access was not available for nearly all of the transportation and utility corridors during the field surveys, potential occurrences of habitat for state-listed species could only be assessed through a review of species locations within approximately 1 mile of the corridors.

No NHIS occurrences occur within one mile of the transportation or utility corridors. Since access to the transportation and utility corridors was not available during the 2005 field season, it is possible that some areas would be suitable habitat for state-listed species. At the request of the MNDNR, the element occurrence identification numbers for known records of state-listed or otherwise rare natural features are not provided graphically to protect the integrity of the species, populations, or respective habitats.

In addition to the NHIS occurrences provided in the original data request from MNDNR, the MNDNR provided a supplemental report completed in November 2005 by Critical Connections Ecological Services, Inc. (CCESR, 2005), that described six populations of previously undocumented occurrences of state-listed or tracked plant species (*B. pallidum*, *B. campestre*, *B. simplex*, and *B. matricariifolium*).

According to the 2005 Critical Connections Ecological Services report, the six populations of *Botrychium* spp. were observed “within mine tailings along the Canisteo Pit to Prairie River outflow route.” This outflow route appears to include the Lind Pit and West Hill Pit, which are located between the Prairie River and the west end of the Canisteo Pit. The Lind Pit and Canisteo Pit are both identified as a potential source for process water to serve the Mesaba Generating Station at the West Range Site. The maps that accompany the Critical Connections Ecological Services report identify these six populations of *Botrychium* spp. as occurring within the immediate vicinity of the Lind Pit and the West Hill Pit.

A summary of potential habitats for state-listed species that could be within the project area for the West Range Site utility and transportation corridors is provided in Table 3.8-7. Species with “yes” marked in the far-right column of Table 3.8-7 may require further investigation if the West Range Site is chosen as the preferred location. Portions of the area have not been surveyed through the County Biological Survey program; therefore, there is a potential that other state- or Federally listed species not identified in the MNDNR NHIS database exist within the area.

Table 3.8-7. MNDNR NHIS Species Occurrences within 1 Mile of Transportation or Utility Corridors (West Range Site)

Common Name	Scientific Name	State Protection Status	Field Investigation for Potential Habitats Recommended? (yes/no)
West Range HVTL Alternative Corridors			
Tubercled-rein orchid	<i>Platanthera flava</i> var. <i>herbiola</i>	Endangered	Yes; occurs in fringe wetland habitats. Site records also within mine spoil areas.
Case's ladies'-tresses	<i>Spiranthes casei</i>	Non-status	Yes; occurs in fringe wetland habitats. Site records also within mine spoil areas.
Least moonwort	<i>Botrychium simplex</i>	Special Concern	No; site record is within mine spoil areas.
Matricary grapefern	<i>Botrychium matricariifolium</i>	Non-status	No; site record is within mine spoil areas.
Species of moonwort	<i>Botrychium michiganense</i>	Non-status	No; site record is within mine spoil areas.
Pale moonwort	<i>Botrychium pallidum</i>	Special Concern	No; site record is within mine spoil areas.
Prairie moonwort	<i>Botrychium campestre</i>	Special Concern	No; site record is within mine spoil areas.
Lilia-leaved twayblade	<i>Liparis lilifolia</i>	Special Concern	Yes; occurs in fringe wetland habitats. Site records also within mine spoil areas.
Northern goshawk	<i>Accipiter gentiles</i>	Non-status	Yes; review habitats if new alignments are proposed within mature conifer forest habitat.
Lapland buttercup	<i>Ranunculus lapponicus</i>	Special Concern	Yes; species is found in wetland habitats.
West Range Gas Pipeline Alternative Corridors			
Leafless water milfoil	<i>Myriophyllum tenellum</i>	Non-status	No; species is found in lakes.
American bittern	<i>Botaurus lentiginosus</i>	Non-status	No; secretive species with low population density. Nests are difficult to survey.
Tubercled-rein orchid	<i>Platanthera flava</i> var. <i>herbiola</i>	Endangered	Yes; occurs in fringe wetland habitats. Site records also within mine spoil areas.
Case's ladies'-tresses	<i>Spiranthes casei</i>	Non-status	Yes; occurs in fringe wetland habitats. Site records also within mine spoil areas.
Least moonwort	<i>Botrychium simplex</i>	Special Concern	No; site record is within mine spoil areas.
Matricary grapefern	<i>Botrychium matricariifolium</i>	Non-status	No; site record is within mine spoil areas.
Species of moonwort	<i>Botrychium michiganense</i>	Non-status	No; site record is within mine spoil areas.

Table 3.8-7. MNDNR NHIS Species Occurrences within 1 Mile of Transportation or Utility Corridors (West Range Site)

Common Name	Scientific Name	State Protection Status	Field Investigation for Potential Habitats Recommended? (yes/no)
West Range Process Water Supply Pipelines			
Prairie moonwort	<i>Botrychium campestre</i>	Special Concern	Yes; observed in mine tailings near Lind Pit and West Hill Pit.
Matricary grapefern	<i>Botrychium matricariifolium</i>	Non-status	Yes; observed in mine tailings near Lind Pit and West Hill Pit.
Pale moonwort	<i>Botrychium pallidum</i>	Endangered	Yes; observed in mine tailings near Lind Pit and West Hill Pit.
Least moonwort	<i>Botrychium simplex</i>	Special Concern	Yes; observed in mine tailings near Lind Pit and West Hill Pit.
St. Lawrence grapefern	<i>Botrychium rugulosum</i>	Threatened	Yes; site record within mine tailings basin among aspen.

Source: Excelsior, 2006b

East Range Site

Mesaba Generating Station

According to the MNDNR NHIS, there are no known occurrences of state-listed protected, rare, or otherwise unique natural features within the immediate vicinity of the East Range Site. The closest recorded occurrence of a NHIS feature is 2.5 miles or greater distance from the East Range Site. Although the MNDNR NHIS is the most comprehensive database for known occurrences of rare natural features in the state, it does not preclude the discovery of undocumented occurrences within the East Range Site.

Transportation and Utility Corridors

Because access was not available for nearly all the transportation and utility corridors during the 2004 and 2005 field surveys, the potential for state-listed species to occur was assessed through a review of MNDNR information on species locations within approximately one mile of the proposed corridors.

According to the MNDNR NHIS, a total of nine listed species (27 occurrences) have been recorded in the general vicinity of Aurora, Biwabik, Eveleth, and Virginia, within one mile of a proposed transportation or utility corridor (Table 3.8-8). The closest occurrence would be for the wood turtle (*Clemmys insculpta*), located more than 2 miles from any of the corridors. At the request of the MNDNR, these locations of occurrences are not provided graphically to protect these rare species.

Table 3.8-8. MNDNR NHIS Species Occurrences within 1 Mile of Transportation or Utility Corridors Associated (East Range Site)

Scientific Name	Common Name	Protection Status	NHIS Records in Area	Associated Habitat near Project Area
<i>Arethusa bulbosa</i>	Dragon's mouth	Non-status	1	Creek shoreline
<i>Caltha natans</i>	Floating marsh-marigold	Endangered	1	Pond outlet
<i>Poa sylvensis</i>	Woodland bluegrass	Non-status	1	Mixed hardwood forest
<i>Waldsteinia fragarioides</i>	Barren strawberry	Special Concern	3	Jack pine forest
<i>Botrychium matricariifolium</i>	Matricary grapefern	Non-status	1	Mine tailings
<i>Botrychium simplex</i>	Least moonwort	Special Concern	2	Mine tailings
<i>Clemmys insculpta</i>	Wood turtle	Threatened	13	Partridge and St. Louis Rivers
<i>Haliaeetus leucocephalus</i>	Bald eagle	Special Concern	4	Various nesting areas, some in management areas
<i>Ligumia recta</i>	Black sandshell mussel	Special Concern	1	Lake shoreline

Source Excelsior, 2006b

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