Montana Department of Transportation

HWY 567 / Pipe Creek Road
Libby North
Corridor Study

Appendix C

Preliminary Biological Resources Investigation

MEMORANDUM

To: Ron Clegg, PE
Parsons Brinckerhoff

From: Mark Traxler, Wildlife Biologist
PBS&J

Date: March 2, 2007

Subject: **Preliminary Biological Resources Investigation**
11 KM North of Libby - North Corridor Study

INDRODUCTION

Post, Buckley, Schuh & Jernigan (PBSJ) was contracted by Parsons Brinckerhoff (PB) to conduct a preliminary biological resources investigation for the Montana Department of Transportation (MDT) Libby North Corridor Study. The study area is located in Lincoln County on Secondary 567 (Pipe Creek Road). The study area begins at RP 6.1 at the Bobtail Junction Road intersection and extends approximately 14.0 miles north to the intersection with Turner Mountain Road at RP 20.1.

The intent of this investigation is to provide a preliminary biological inventory of the study corridor through field reconnaissance, agency consultation, and review of pertinent literature. Site specific data with regard to wetlands, threatened & endangered species, sensitive plant and animal species, general wildlife habitat and fisheries habitat were not collected as part of this investigation. Information provided within this memorandum is only intended to assist MDT in identifying potential biological issues that might be encountered during future development of the highway corridor. Any future proposed highway-related actions in the corridor would require a more detailed and thorough investigation of biological resources and potential impacts to said resources.

As referenced in this memorandum, the study corridor is defined as that portion of Secondary Highway 567 (Pipe Creek Road) between RP 6.1 and 20.1, and all areas within 300 feet of the existing highway. In certain circumstances, discussion of the "study corridor" may also include areas outside the 300 foot limits, when describing habitat attributes in the watershed or when discussing habitat for wide ranging wildlife species.

METHODS

Information pertaining to endangered, threatened and sensitive plant and animal species in the study area was requested and received from the Montana Natural Heritage Program (MTNHP 2006). The Montana Fisheries Information System (MFISH 2006) was consulted regarding fisheries resources in the project area. A list of federally-listed endangered, threatened, proposed, and candidate species to be considered was generated based on the U.S. Fish and Wildlife Service (USFWS) 2006 Montana county list (USFWS 2006). Other pertinent literature, including the U.S. Forest Service *Pipestone Timber Sale and Restoration Project Draft EIS* (USFS 2002) was also reviewed. Biologists with the U.S. Forest Service, U.S. Fish & Wildlife Service, and MDT were contacted with regard to this biological resources investigation (Brundin, Kasworm, Basting, pers. comms.).

Two agency meetings with respect to the Libby North Corridor Study were held during October 2006. On October 17, 2006 PB and MDT met with Lincoln County and U.S. Forest Service officials in Libby and on October 18, 2006 PB and MDT met with various state and federal agency representatives in Helena. Minutes for both of these meetings were provided to PBS&J for review and use in preparing this Biological Resources Investigation Memorandum. PBS&J was not in attendance and did not participate in either meeting.

Field reconnaissance of the project corridor was completed by PBS&J during August 2006. At this time, the entire corridor was walked or driven, while noting vegetation communities, wildlife observations, wetland habitat, and basic stream and riparian attributes. Formal wetland delineation, habitat mapping, and wildlife surveys were not conducted at this time.

RESULTS

Study Corridor Overview

Secondary Highway 567 (Pipe Creek Road) begins at its junction with State Highway 37 on the outskirts of the Libby community and extends approximately 35 miles north to its junction with State Secondary Highway 508 in the small rural community of Yaak. Corridor limits for this study begin at approximately RP 6.1 (Bobtail Junction) and extend to the Turner Mountain Ski Area road near RP 20.1. The southern tip of the project is characterized by private land holdings, with many rural home sites and the Red Dog Saloon. Utility services such as telephone and electricity only extend a short distance north of the south corridor terminus. The remainder of the study corridor has no utility services at this time.

The existing roadway closely parallels Pipe Creek in the valley bottom to approximately RP 18.5, where it begins a steep ascent towards Pipe Creek Summit beyond the northern limits of the study corridor. A vast majority of the land in the Pipe Creek watershed, including that which is bisected by the existing highway, is heavily forested and is owned and managed by the U.S. Forest Service. Plum Creek Timber Company has significant

holdings in the watershed, while other smaller private tracts occur in small clusters immediately adjacent to the roadway.

Land management within this rural corridor has been largely geared towards timber production in recent decades, although timber harvest has dropped significantly in the last five to ten years. Extensive forest road systems have long been established in most tributary drainages and are actively managed by the USFS, with many seasonal or yearlong road closures in place for wildlife security purposes.

A 10,000+ acre roadless area, *Gold Hill West*, occurs within the study corridor and is generally located towards the northern portion of the corridor on the east side of the roadway. This roadless area includes portions of the Shafer, Carrie, and Noisy Creek drainages.

Small private holdings adjacent to the roadway are becoming more and more developed over time, with minor levels of subdivision still occurring on the few remaining parcels that have not yet been developed. Private land holdings are generally clustered and occur near the southern terminus of the corridor, towards the middle of the corridor (approx. RP 10 to 13) and in the vicinity of Loon Lake Road (RP 17).

Forest Service lands within the corridor are managed for a number of multiple uses including but not limited to timber harvest, recreation (hunting, hiking, fishing, camping), wildlife, and aesthetics. Timberlane Campground is located towards the southern end of the corridor and numerous hiking trails occur in the drainage, with several trailheads located along the highway. Turner Mountain Ski Area is located just west of the highway towards the northern end of the study corridor and is a popular winter recreation site. Hunting in the fall and snowmobiling during the winter are also popular recreational activities in the corridor.

General Vegetation

As mentioned, Pipe Creek Road in the study corridor traverses heavily timbered forest land over much of its length. A variety of coniferous forest habitat types are represented in the corridor, with slope, aspect, elevation, proximity to water, and disturbance regime being key variables affecting forest composition. Lodgepole pine *(Pinus contorta)* and Douglas-fir (*Pseudotsuga menziesii*) forest types are common in the corridor, as are mixed species stands of western Larch *(Larix occidentalis)*, Douglas-fir, lodgepole pine, ponderosa pine *(Pinus ponderosa)*, grand fir (*Abies grandis*) and white pine (*Pinus monticola*). Other conifers in the corridor include western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), subalpine fir (*Abies lasiocarpa*), and Engelmann spruce *(Picea engelmannii)*.

Timber harvest in the corridor during the latter half of the previous century has had a significant impact on forest communities both immediately adjacent to the highway and throughout the Pipe Creek watershed. Today, the landscape is a mosaic of undisturbed mature forest and regeneration stands of varying ages and composition. Fire, both natural

and prescribed, has also played a role in determining forest composition in the corridor over time.

Roadside ditches and cut slopes immediately adjacent to the roadway are generally well vegetated with such grass species as timothy *(Phleum pratense),* smooth brome *(Bromus inermis),* orchard grass *(Dactylis glomerata),* and Kentucky bluegrass (*Poa pratensis*). The primary weedy species noted in disturbed roadside areas during the field reconnaissance include spotted knapweed (*Centaurea maculosa),* and common tansy (*Tanacetum vulgare).* Other common herbaceous and woody species noted in the corridor adjacent to the highway include: Oregon grape (*Berberis repens*), kinnikinik (*Arctostaphylos uva-ursi*), pine grass (*Calamagrostis rubescens*), thimbleberry (*Rubus parviflorus*), snowberry (*Symphoricarpos albus),* serviceberry *(Amelanchier alnifolia),* chokecherry (*Prunus virginiana*), ninebark (*Physocarpus malvaceus*), woods rose *(Rosa woodsii),* and ceanothus (*Ceanothis velutinus*). Riparian and wetland species noted on site are discussed later in this memo, as are sensitive species known to occur in the corridor.

Executive Order 13112, signed on February 3, 1999, addresses federal agency responsibilities with respect to invasive species (noxious weeds). Any proposed federally funded action in the study corridor would be subject to the provisions of E.O. 13112. The primary weedy species noted in disturbed roadside areas during the field reconnaissance include spotted knapweed (*Centaurea maculosa),* ox-eye daisy (*Chrysanthemum leucanthemum),* Canada thistle (*Cirsium arvense),* orange hawkweed *(Hieracium aurantiacum),* and common tansy (*Tanacetum vulgare).* Other noxious weed species may occur in the study area, but were not observed during the field reconnaissance.

General Wildlife

Of the 108 mammal species known for the state, 62 are suspected or known to occur in Lincoln County (Foresman 2001). Mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), elk (*Cervus elaphus*), moose (*Alces alces*), black bear (*Ursus americanus*), mountain lion (*Puma concolor*), American beaver (*Castor Canadensis*), porcupine (*Erethizon dorsatum*), striped skunk (*Mephitis mephitis*), long-tailed weasel (*Mustela frenata*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), deer mouse (*Peromyscus maniculatus*), bushy-tailed woodrat (*Neotoma cinerea*), red squirrel (*Tamiasciurus hudsonicus*), and meadow vole (*Microtus pennsylvanicus)* are common mammals occupying habitats in the general area and probably occur occasionally within the project corridor. White-tailed deer, moose, red squirrels and chipmunks (*Tamias sp.*) were all observed in habitats immediately adjacent to the roadway during the field reconnaissance, as well as black bear and elk scat. Bushy-tailed woodrat activity was noted underneath the Pipe Creek Bridge just south of the entrance to Timberlane Campground.

The study area is within the distributional range of approximately seven amphibian and seven reptilian species (Maxell et al. 2003). Additionally, the study area is historic

habitat for the recently declining northern leopard frog (*Rana pipiens*) (Reichel and Flath 1995). The amphibians that may occur near wetland and riverine habitats within the study area are the long-toed salamander (*Ambystoma macrodactylum*), tiger salamander (*Ambystoma tigrinum*), Coeur d'Alene salamander (*Plethodon idahoensis*), tailed frog (*Ascaphus montanus*), western toad (*Bufo boreas)*, pacific tree frog (*Pseudacris regilla*), and spotted frog (*Rana luteiventris*) (Maxell et al. 2003). No amphibians were seen during the August field reconnaissance survey. Reptiles likely to occur in or near the study area are the painted turtle (*Chrysemys picta*), northern alligator lizard (*Elgaria coerulea*), rubber boa (*Charina bottae*), racer (*Coluber constrictor*), bullsnake (*Pituophis catenifer*), western terrestrial garter snake (*Thamnophis elegans*), and common garter snake (*Thamnophis sirtalis*) (Maxell et al. 2003). No reptiles were seen during the August field reconnaissance survey.

Between 1996 and 2002, the Montana Bird Distribution Committee compiled observations of 253 bird species within the latilong of this corridor (Lenard 2003). An extensive list of possible species occurring in the project area is not presented here. However, the project area is likely to be occupied by a wide variety of species. Common breeders in the study area likely include woodpeckers, flycatchers, warblers, raptors, finches, grouse and thrushes in forested and scrub-shrub wetland and riparian areas; and sparrows, crows, ravens, magpies, bluebirds, blackbirds, and raptors in various other habitats represented near the project. Species observed during the August field survey include American Robin (*Turdus migratorius*), Common Raven (*Corvus corax)*, and American Dipper (*Cinclus mexicanus*).

Threatened and Endangered Species

Threatened and endangered species include those species listed or proposed for listing by the USFWS as threatened or endangered. Under Section 7 of the Endangered Species Act, as amended, activities conducted, sponsored, or funded by federal agencies must be reviewed for their effects on species federally listed or proposed for listing as threatened or endangered. The following listed, proposed, and candidate species were considered with respect to this corridor:

- Bald Eagle (*Haliaeetus leucocephalus*: threatened)
- Gray Wolf (*Canis lupus*: endangered)
- Grizzly Bear (*Ursus arctos horribilis*: threatened)
- Canada Lynx (*Lynx canadensis*: threatened)
- Bull Trout (*Salvelinus confluentus*: threatened)

Bale Eagle. There are no known active Bald Eagle nest sites within the study corridor. The nearest active nest sites occur along the Kootenai River several miles to the south. Bald Eagles are known to utilize the project corridor on occasion, likely feeding on fish in Pipe Creek and road killed carrion along Pipe Creek Road. Numerous roost and perch sites occur along Pipe Creek throughout the corridor.

Gray Wolf. Wolves are considered a year-round resident on the Kootenai National Forest; however, there are no known established wolf packs within the study corridor. There are two established wolf packs north of the study corridor in the Yaak River drainage (USFWS 2005). While individuals from these established packs or other dispersing individuals may venture into the study area on occasion, there are no known rendezvous or denning sites within the study corridor. Suitable gray wolf habitat and an adequate prey base do exist within the study corridor.

Grizzly Bear. The Libby North Corridor Study area lies outside the designated Cabinet – Yaak Grizzly Bear Recovery Zone, but does occur within designated occupied habitat. According to the USFWS, grizzly bears occur within the study corridor on occasion; however, little research has been done in this area to adequately ascertain populations or overall use in this area (Kasworm pers. comm.). As recently as 2005, a nuisance grizzly bear was relocated from the Pipe Creek drainage due to conflicts with local residents along Pipe Creek Road in the 17-mile area (Kasworm pers. comm.). Suitable grizzly bear habitat does exist within the study corridor, especially towards the northern end.

According to meeting minutes from the October 19, 2006 meeting between MDT and various resource agencies, significant discussion took place with regard to grizzly bears in the study corridor and what the implications of proposing a highway improvement project in the corridor may be. In short, any proposed project would need to be reviewed for potential impacts to grizzly bears and their habitat. Any proposed project beyond simple striping or similar type improvements, would potentially lead to formal consultation with the USFWS, especially if the proposal would increase traffic speeds and/or volumes, and if proposed in the northern portion of the corridor (RP 17 to 20) where bears are more common.

With grizzly populations at critically low levels (estimated at 30-40 bears) in the Cabinet-Yaak ecosystem, "take" as defined under the Endangered Species Act with regard to grizzly bears is discouraged in the corridor and may or may not be permitted as a result of a proposed highway improvement project. Through the formal consultation process, the USFWS would issue a biological opinion for any proposed highway project that was deemed "Likely to Adversely Affect" grizzly bears or any other federally listed species. In their biological opinion, the USFWS would determine 1) whether or not those adverse effects would be likely to jeopardize the continued existence of that species; 2) whether or not any critical habitat would be destroyed or adversely modified; 3) whether "take" of any listed species is anticipated from the project; and 4) what measures must be taken to minimize that amount of "take."

Canada Lynx. The Libby North Corridor Study area lacks the high elevation mesic coniferous boreal, sub-boreal, and western montane forest habitat typically preferred by lynx in Montana. Elevations within the corridor range from approximately 2,600' near the beginning of the corridor to approximately 4,000' near the junction with the Turner Mountain Ski Area road. Most of the lynx occurrences in the Northern Rocky

Mountains/Cascades Region are in the 1,500-2,000 meter (4,920-6,560 foot) elevation class (USFWS 2000). The nearest suitable habitat is located in the higher elevation mountainous areas surrounding the valley bottom. Lynx are considered infrequent transients in the immediate study area as they move between suitable habitats. The USFWS has designated critical habitat for lynx in Montana; however, the critical habitat designation does not apply to this study area.

Bull Trout. The Pipe Creek drainage is mainly comprised of the migratory life form of bull trout that occupy the Kootenai River as adults and then migrate upstream to spawn in Pipe Creek. Young bull trout may rear from one to several years in Pipe Creek before migrating downstream to the Kootenai where they spend a majority of their adult life. Pipe Creek is considered a Core area (drainages containing the strongest remaining populations of bull trout in a restoration area) for bull trout in the Kootenai River drainage and the USFWS has also designated segments of Pipe Creek as critical habitat for this species. Bull trout are also known to occur in the East Fork Pipe Creek and in the lower sections of Shafer Creek.

As is the case with all listed species, any proposed highway project would need to be reviewed for potential impacts to bull trout and their designated critical habitat. While in-stream projects are not precluded in the corridor, any project such as bridge or culvert replacement deemed "Likely to Adversely Affect" bull trout or their habitat would result in formal consultation with the USFWS. In their biological opinion, the USFWS would determine 1) whether or not those adverse effects would be likely to jeopardize the continued existence of bull trout; 2) whether or not any critical habitat would be destroyed or adversely modified; 3) whether "take" of any listed species is anticipated from the project; and 4) what measures must be taken to minimize that amount of "take."

As mentioned, the presence of bull trout in Pipe Creek does not preclude MDT from upgrading the existing facilities; however, timing or other restrictions may apply to in-stream work so as to avoid sediment related impacts to spawning fish or their eggs. Extensive coordination with fisheries biologists from the USFS, USFWS, and Montana Fish, Wildlife and Parks would be necessary to determine what conservation measures might be warranted to minimize the level of "take" associated with a given project.

Sensitive Species

Sensitive and rare plant and animal species are designated by the United States Forest Service (USFS), Bureau of Land Management (BLM), and MTNHP and are tracked by the MTNHP. **Table 1** below lists 11 fish and wildlife species currently included on the Kootenai National Forest sensitive species list which are known or suspected to occur within the study corridor. Those species on the Kootenai National Forest sensitive species list not known or suspected in the corridor are not included in the table.

Fifty sensitive plant species are currently listed on the Kootenai National Forest sensitive species list (USFS 2002). Of these, two species of moonwort, wavy moonwort (*Botrychium crenulatum*) and mountain moonwort (*Botrychium montanum*) are known

from populations in the study corridor (MNHP 2006a). Of the 50 listed species, seven are known from the Pipe Creek drainage, while several others are suspected to occur there based on habitat availability (USFS 2002). A comprehensive list of plant species is not provided at this time, but all species would need to be evaluated in the future if MDT were to propose a project within the study corridor. While species designated as sensitive are not generally afforded the same protection as federally listed T&E species, extensive coordination with the USFS would be required to determine appropriate protective or mitigation measures should any sensitive plant populations fall within proposed construction limits. Site specific surveys for such plant species may be required.

Aquatic Resources

All named streams within the study corridor were reviewed during the field reconnaissance and information for each was gleaned from available literature and other resources. The attached **Figure 1 - Stream Map** shows each named tributary within the study corridor as well as all unnamed perennial and intermittent drainages.

Section 303(d) of the federal Clean Water Act requires states to assess the condition of their waters to determine where water quality is impaired or threatened; the result of this assessment is reported on the state 303(d) list. Neither Pipe Creek nor any of its tributaries in the study corridor are included on the current Montana State 303(d) list (MTDEQ 2006).

Pipe Creek, a perennial tributary to the Kootenai River, parallels Pipe Creek Road at varying distances over the entire length of the study corridor and crosses under the roadway in three locations. The southern most crossing is a bridge structure located just south of the entrance road to Timberlane Campground. The second crossing of Pipe Creek is a large open bottom arch pipe at approximately milepost 11.8. The northern most crossing in the study corridor is a newly constructed culvert near milepost 18.9.

Pipe Creek is a typical cold mountain stream with low sinuosity and a cobble/gravel substrate. Over much of its length, Pipe Creek supports a narrow riparian wetland fringe along its banks that varies in width, but is rarely wider than twice the width of the stream channel.

Table 1. ***Animal Species of Concern that may occur in the Libby North Corridor Study Area (not including T&E species).***

Species	2006 MTNHP Ranking	Potential Habitat in the Study Area	Known Distribution in Project Area
Northern Goshawk (*Accipiter gentilis*)	G5, S3 S (USFS) S (BLM)	Mature old growth conifer forest with high canopy cover.	Forest Service reports three sightings in or near the study corridor.
Peregrine Falcon (*Falco peregrinus*)	G4, S2B S (USFS) S (BLM)	No potential nest sites in study area. Possible feeding opportunities along Pipe Creek for migrating individuals	Species is not known from the Pipe Creek drainage. Likely occurs during migration along the Kootenai River corridor south of the study area and potentially along Pipe Creek during migration as well.
Flammulated Owl (*Otus flammeolus*)	G4, S3B S (USFS) S (BLM)	Mature ponderosa pine and Douglas-fir forest.	Species known from locations immediately south of the study area in the Sheldon Mountain vicinity[1].
Black-backed Woodpecker *Picoides arcticus*	G5, S2 S (USFS) S (BLM)	Early successional burned coniferous forest habitat.	Species known from the Pipe Creek drainage. Recent prescribed fire in the drainage continues to provide suitable habitat.
Townsend's big-eared bat *(Corynorhinus townsendii)*	G4, S2 S (USFS) S (BLM)	Occasional forager along forest edges and over wetland habitat associated with Pipe Creek. No known maternity colonies or hibernacula within study corridor.	Species known from several locations on the Kootenai National Forest. Species is suspected to occur within the analysis area.
fisher *Martes pennanti*	G5, S3 S (USFS) S (BLM)	Possible resident or transient along Pipe Creek and associated dense riparian vegetation.	No records from immediate project area, but known on the Kootenai National Forest.
wolverine *Gulo gulo luscus*	G4T4, S3 S (USFS) S (BLM)	Generally restricted to boreal forests in western mountains in areas of sparse human habitation. Expected as transient in the immediate project area and resident in upslope areas; primarily in coniferous forest.	Two records from the Gold Hill area adjacent to the study corridor[1].
western toad *(Bufo boreas)*	G4, S2 S (USFS) S (BLM)	Shallow backwater and riparian areas of Pipe Creek.	Species documented on Kootenai National Forest
Coeur d'Alene Salamander (*Plethodon idahoensis*)	G4, S2 S (USFS) S (BLM)	Springs and seeps, waterfall spray zones, and stream edges	Species documented on Kootenai National Forest – not known from immediate study area.
torrent sculpin (*Cottus rhotheus)*	G5, S3 S (USFS)	Headwater streams in the Kootenai River drainage.	Documented in Pipe Creek
westslope cutthroat trout *(Oncorhynchus clarki lewisi)*	G4T3, S2 S (USFS) S (BLM)	Pipe Creek and perennial tributaries.	Documented in Pipe Creek

[1]USFS 2002

Pipe Creek is considered a Core area (drainages containing the strongest remaining populations of bull trout in a restoration area) for bull trout in the Kootenai River drainage and the USFWS has also designated segments of Pipe Creek as critical habitat for this species. The Pipe Creek drainage is mainly comprised of the migratory life form of bull trout that occupy the Kootenai River as adults and then migrate upstream to spawn in Pipe Creek. Young bull trout may rear from one to several years in Pipe Creek before migrating downstream to the Kootenai where they spend a majority of their adult life.

Other fish species known to occur in Pipe Creek include brook trout (*Salvelinus fontinalis)*, rainbow trout (*Oncorhynchus mykiss)*, westslope cutthroat trout (*Oncorhynchus clarki lewisi)*, torrent sculpin (*Cottus rhotheus*), and longnose dace (*Rhinichthys cataractae*). Habitat conditions for all species have been impaired over time as a result of high levels of unstable substrates and fine sediment (USFS 2002).

The **East Fork Pipe Creek,** a perennial tributary to Pipe Creek, crosses underneath the highway through a large open-bottom steel arch pipe near approximately RP 18.6. The confluence with Pipe Creek is just downstream from the roadway crossing. According to MFISH, fish species known to occur in East Fork Pipe Creek include brook trout, rainbow trout, westslope cutthroat trout, and bull trout (MFISH 2006).

Shafer Creek, a perennial tributary to Pipe Creek, crosses underneath the highway through a large (approximately 10') metal squash pipe near approximately milepost 14.3. The confluence with Pipe Creek is several hundred feet downstream from the roadway crossing. Shafer Creek has a six to eight-foot wide channel, with mostly stable banks in the vicinity of the highway crossing and a gravel/cobble/small boulder substrate. According to MFISH, fish species known to occur in Shafer Creek include rainbow trout and westslope cutthroat trout (MFISH 2006). Bull trout may also occur in the lower reaches of Shafer Creek during rearing (USFS 2002).

Carrie Creek, as it is commonly referred to, is a perennial tributary to Pipe Creek that crosses underneath the highway through a small round metal culvert at approximately milepost 12.9. Carrie Creek is the primary water source for a private seasonal cabin situated immediately downstream of the highway. Carrie Creek has a two to four-foot wide channel, with mostly stable banks in the vicinity of the highway crossing and a gravel/cobble/small boulder substrate. Westslope cutthroat are the only fish species known to occur in the lower reaches of this small creek (USFS 2002).

Noisy Creek and **Blue Creek** are two perennial tributaries to Pipe Creek that occur in the study corridor, but do not cross underneath the highway at this time. Both creeks are known to support westslope cutthroat trout and sculpin (USFS 2002).

Wetlands

As part of this existing conditions review of the study corridor, wetlands were observed and noted in the field; however, a formal wetland delineation was not conducted at this

time. A formal wetland delineation would be necessary for any proposed highway-related actions in the study corridor.

While the entire Pipe Creek drainage supports numerous small wetland potholes and lakes (i.e. Rainbow Lake, Loon Lake, Rice Lake, Tom Poole Lake), the only wetlands closely situated to the existing highway are fringe wetlands along Pipe Creek and its tributaries. Fringe wetlands adjacent to Pipe Creek vary in size from very narrow (1'-2' wide) up to approximately twice the width of the creek (40-50'). Fringe wetlands associated with Shafer and Carrie Creek average three to five feet in width, while wetland habitat adjacent to the East Fork Pipe Creek averages10 to 15 feet in width near the highway.

Fringe wetlands in the corridor are typically about 90% scrub/shrub and 10% emergent habitats. Common wetland species noted adjacent to Pipe Creek and its tributaries include alder (*Alnus incana)*, red-osier dogwood *(Cornus stolonifera)*, and willow *(Salix sp.)* in the shrub layer and sedge (*Carex sp*.), horsetail (*Equisetum arvense*), and reed canary grass (*Phalaris arundinacea*) in the herbaceous layer.

Functional Assessment of study corridor wetlands was not performed at this time as wetlands were not delineated; however, with the presence of bull trout (threatened species) in the drainage and high wildlife values in the corridor, ratings would likely be moderate to high for many of the assessed functions.

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