NORTH FORK FLATHEAD ROAD

Final Corridor Study Environmental Scan Report

August 23, 2010

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DEPARTMENT OF TRANSPORTATION

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Abbreviations and Acronyms

CH	Critical Habitat
CO	Carbon Monoxide
DNRC	Department Of Natural Resource And Conservation
ESA	Endangered Species Act
ESB	East Side Bypass
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FNF	Flathead National Forest
FIRM	Flood Insurance Rate Maps
GIS	Geographic Information System
GNP	Glacier National Park
LT	Listed Threatened
LUST	Leaking Underground Storage Tank
LWQD	Local Water Quality District
MDEQ	Montana Department Of Environmental Quality
MDT	Montana Department Of Transportation
MEPA	Montana Environmental Policy Act
MFWP	Montana Department Of Fish, Wildlife, And Parks
MNHP	Montana Natural Heritage Program
MP	Milepost
MSAT	Mobile Source Air Toxics
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHP	Natural Heritage Program
NPL	National Priority List
NPS	National Park Service
NRC	National Response Center
NRHP	National Register Of Historic Places
NRIS	Natural Resource Information System
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
PCH	Proposed Critical Habitat
RCRA	Resource Conservation And Recovery Act
TMDL	Total Maximum Daily Load
TRI	Toxics Release Inventory
USACE	U.S. Army Corps Of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish And Wildlife Service
UST	Underground Storage Tank

1 Introduction

Flathead County in partnership with MDT is conducting a corridor study for the roadway section from the intersection of Secondary 486 (S-486) and Blankenship Road north of Columbia Falls (approximate Reference post 9.5) to the junction with Camas Creek Road (approximate Reference post 22.7). The corridor consists of both paved and gravel surfacing. Secondary 486 serves as the north-south corridor between Columbia Falls and Polebridge and is referred to as the North Fork Flathead Road (NFFR) and Forest Highway 61 (**Figure 1**). The width of the roadway varies from 24 to 44 feet. The entire corridor study area is within the Flathead National Forest and adjacent to Glacier National Park.

The primary objective of this Environmental Scan Report is to provide preliminary information on the physical, biological, and other resources in the corridor study area. This information will identify potential impacts or constraints for the North Fork Flathead Road Corridor Study.

2 Physical Resources

2.1 Climate

Climate of the North Fork Flathead Valley reflects a convergence between warmer, moister systems coming in from the Pacific and drier, colder systems coming south from the Arctic. The weather is moderate with cold and snowy winters, warm summers, and approximately 17 inches of annual precipitation. The study area is approximately 15 miles north of Columbia Falls. The average minimum temperature in Columbia Falls is about 14°F in January and about 47°F in July. The average maximum temperature is about 29°F in January and about 81°F in August.

2.2 Land Ownership

The North Fork Valley landownership is predominately public land. The North Fork Flathead River watershed on the United State side is 612,763 acres in size. The U.S. Forest Service owns just over 47 percent of the land at 246,600 acres; the National Park Service has over 46 percent of the land at 244,200 and the state owns 18,600 acres, coming in at 3.5 percent. Private land accounts for 2.7 percent of the watershed, with 14,480 acres (Flathead Beacon, 2010). The private lands are a mix of either subdivided, timbered or pasture lands. **Figure 2** shows the privately held parcels in the study area in color. **Figure 3** shows parcels with structures on the property.

Figure 1 *Study Area Map*

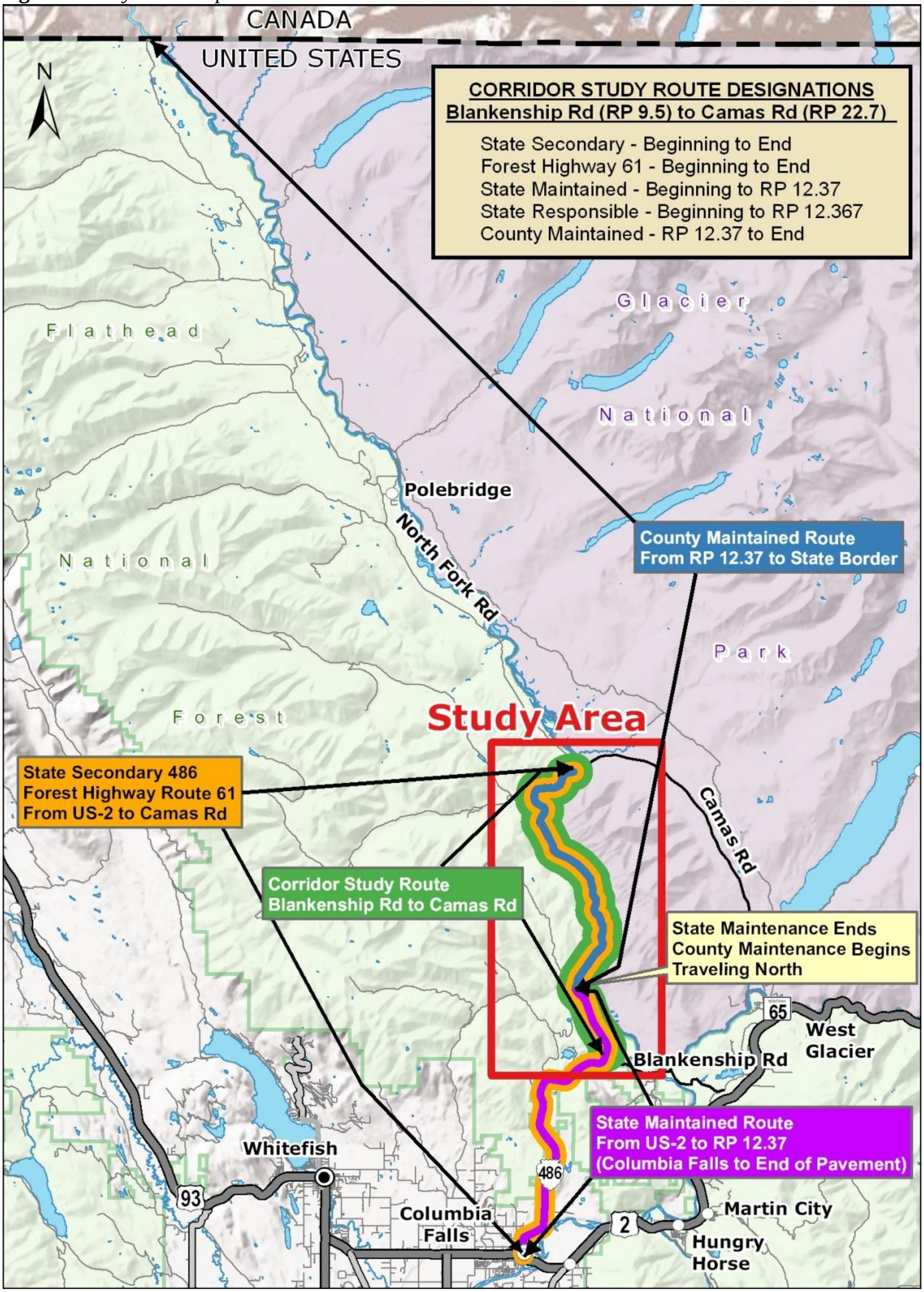


Figure 2 *Land Ownership*

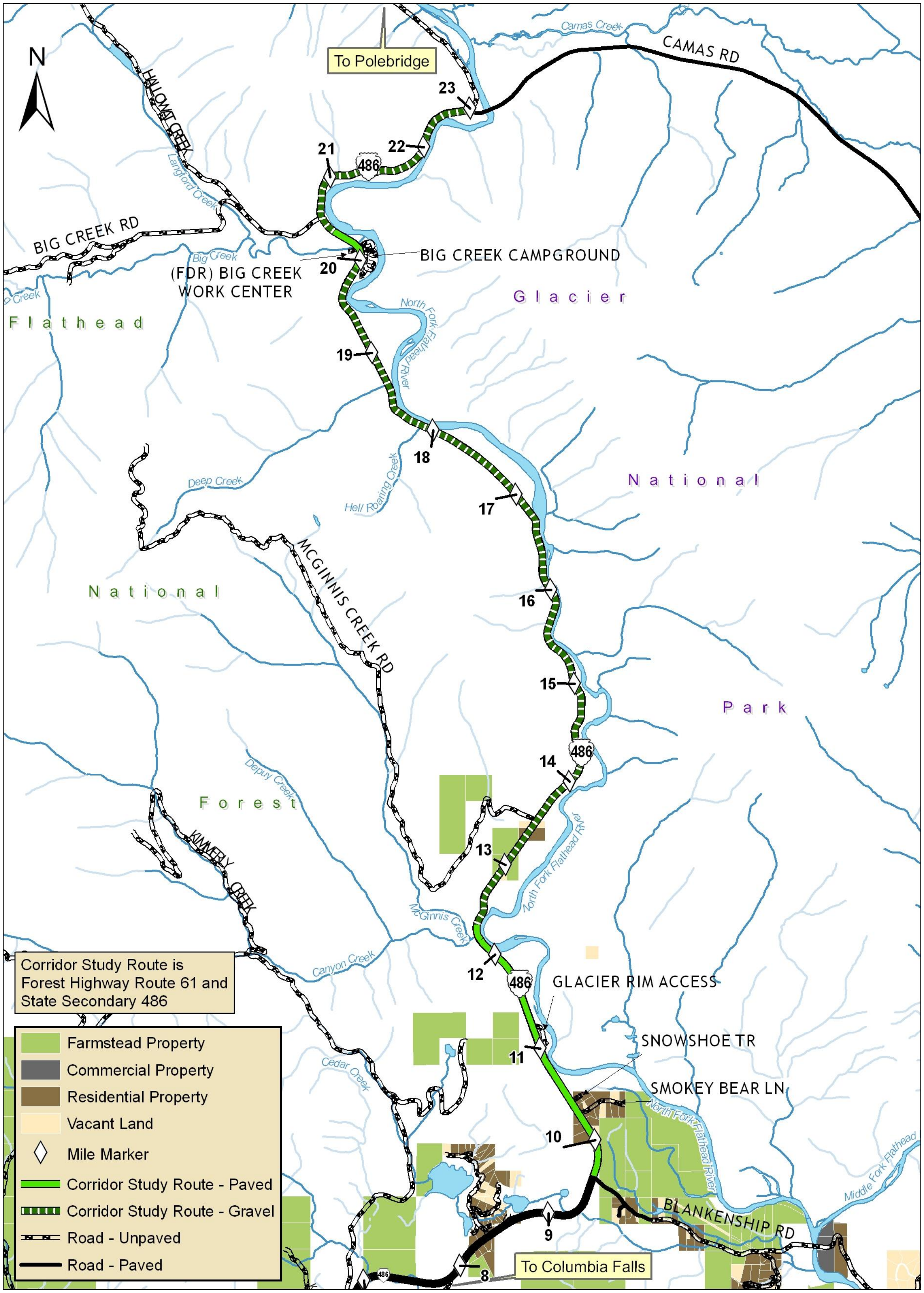
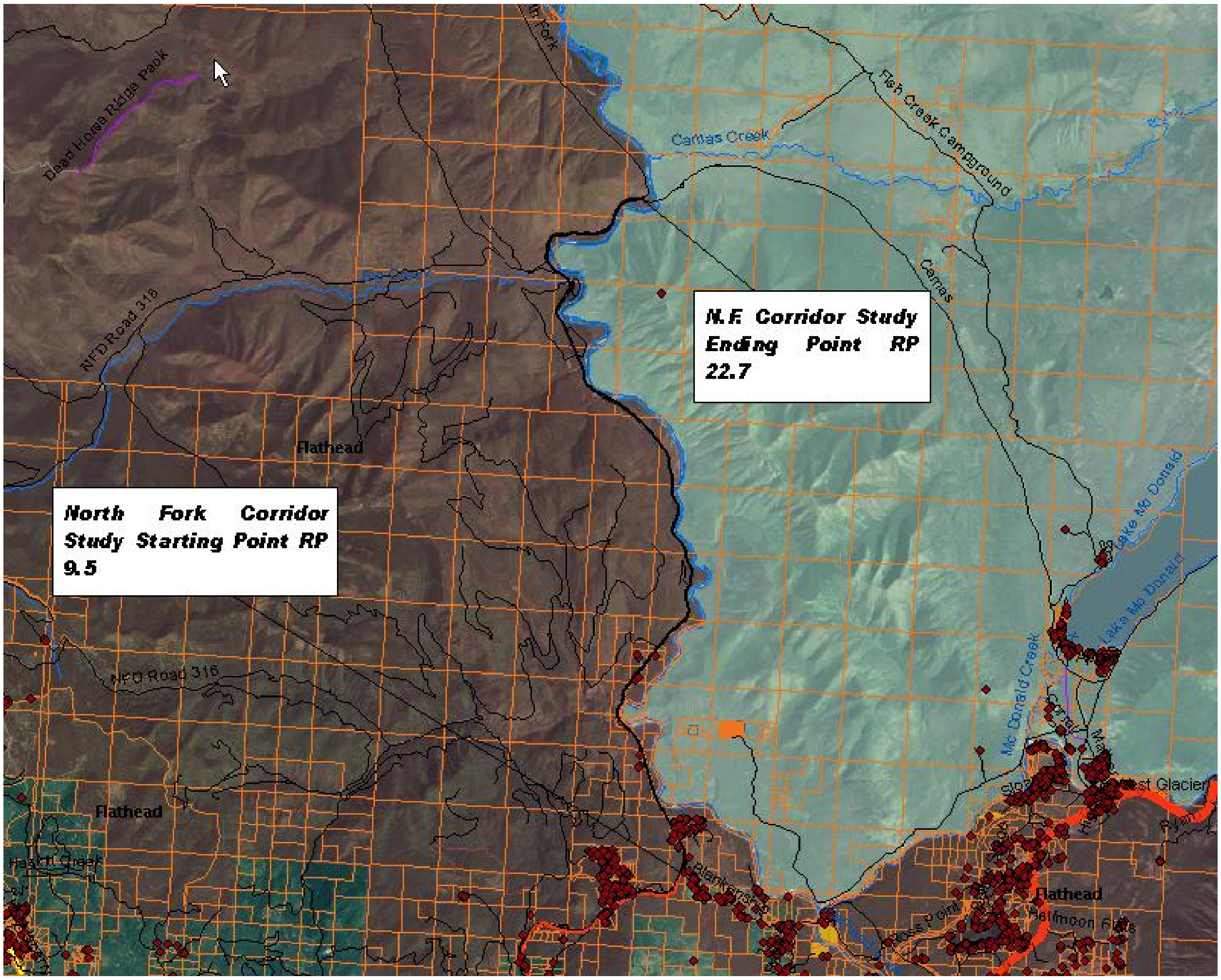


Figure 3 *Parcels with structures*



2.2.1 Section 4(f) and 6(f)

Reviews were also conducted to determine the presence of Section 4(f) and Section 6(f) properties along the corridor. Section 4(f) refers to the original section within the Department of Transportation Act of 1966 (49 U.S.C. 303), which set the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. Prior to approving a project that "uses" a Section 4(f) resource, FHWA must find that there is no prudent or feasible alternative that completely avoids 4(f) resources. The action includes all possible planning to minimize harm to the property resulting from use. "Use" can occur when land is permanently incorporated into a transportation facility or when there is a temporary occupancy of the land that is adverse to a 4(f) resource. Constructive "use" can also occur when a project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under 4(f) are "substantially impacted".

Glacier National Park is considered a Section 4(f) resource property. If a project is forwarded from this corridor study and depending on the funding of the project a Section 4(f) Evaluation would be completed. Also depending on if a project is forwarded from this study and the nature of the project, coordination with the Flathead National Forest would need to be conducted regarding the Big Creek Campground near Milepost 20.5 as a possible Section 4(f) resource.

Section 6(f) of the Land and Water Conservation Funds Act applies to all projects that impact recreational lands purchased or improved with Land and Water Conservation Funds. The Secretary of the Interior must approve any conversion of property acquired or developed with assistance under this act to other than public, outdoor recreation use. At this time, there are no 6(f) resources identified in the study corridor.

2.3 Soils Resources and Prime Farmland

Information was obtained on soils to determine the presence of prime and unique farmland in the corridor study areas.

The Farmland Protection Policy Act of 1981 (Title 7 United States Code, Chapter 73, Sections 4201-4209) has as its purpose “to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland.”

Farmland is defined by the Act in Section 4201, as “including prime farmland, unique farmland, and farmland, other than prime or unique farmland, that is of statewide or local importance.”

Prime farmland soils are those that have the best combination of physical and chemical characteristics for producing food, feed, and forage; the area must also be available for these uses. Prime farmland can be either non-irrigated or lands that would be considered prime if irrigated. Farmland of statewide importance is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops.

No areas of prime farmland were identified in the corridor area.

2.4 Topography and Geology

The Flathead basin was formed in the early Tertiary period when Precambrian rocks slid east on the Lewis overthrust fault to form the Continental Divide. In the Pleistocene era, glacial action and erosion filled much of the valley with sediment, thereby creating the broad valley bottom and rolling topography of the present landscape (Alt and Hyndman 1973). The valley is framed on the east by the spectacular Clark/Livingston Range (peaks up to 3000 m [9850 feet]) and on the west by the lower, gentler McDonald/Whitefish Range (peaks up to 2300 m [7546 feet]). Elevation of the valley bottom ranges from 1400 m [4593 feet] at the north end to 1000 m [3280 feet] at the south end; the valley varies in width from 4 km to 10 km [2.5 miles to 6.2 miles](Weaver, 2001).

The North Fork road passes geological formations mapped as predominantly glacial till consisting of clay, gravel, cobbles and boulders, with areas of landslide deposits. Several cut slopes exist along the alignment, and look to contain mainly highly fractured rock in various states of weathering. Most of these cuts exhibit at least some degree of slope movement, mainly surface raveling, although deeper movement is occurring in areas. There are also several large roadway fills along the alignment. Small washouts and potholes are common, along with "washboard" conditions.

2.5 Recreational Uses

The North Fork Flathead Road in the Flathead National Forest provides access to recreational opportunities pertaining to the usages of rivers and lakes. The North Fork of the Flathead River is a designated National Wild and Scenic River and is used for floating excursions. No permits are required for floating use for private parties. Permits are required for commercial outfitters that offer float trips. This corridor provides the public with driving opportunities to view and access the non-wilderness portions of the national forest. Some of the best huckleberry picking in Montana is in the Flathead National Forest. This area provides hunting and fishing opportunities throughout the corridor. Over 3000 visitors entered Glacier National Park in 2009 during July and August, with an average 1,500 visitors through Polebridge located north of the study area. An average of 3,000 visitors per month enter at the Camas Road entrance.

This corridor provides access to many camping opportunities in designated campsites and away from designated campsites from Columbia Falls to Polebridge and north. The Big Creek campground near milepost 20.5 provides camp sites and access to the river for fishing and floating activities. Other recreational uses of the corridor include hiking, hunting, wildlife viewing, fishing, floating, x-country skiing, dog sled racing, snowmobiling, kayaking, canoeing, and harvesting berries and mushrooms.

The Big Creek Outdoor Education Center of The Glacier Institute is located in the study corridor and is visible from the North Fork Flathead Road near Big Creek. Since 1988, the Big Creek Center has been home to a Youth Science Adventure Camps, Discovery School and several adult field courses which operates under a special use permit with the Flathead National Forest. The center runs on a generator for electricity and the campus includes two bunkhouses with bathrooms, a main dining hall, a meeting room, a large class room, and a twenty foot tepee.

2.6 Wetlands

The North Fork has abundant wetland and riparian habitat due to previous glaciations, high precipitation and the development of floodplain landforms along the North Fork Flathead River. Thus, riverine and depressional wetlands are the most widespread wetland types. The North Fork valley stands out as having the least impacted wetland and riparian system among the Flathead River sub-watersheds inventoried (Cooper et.al, 2001). The riverine fluvial processes are intact and support the development of early and late seral cottonwood stands. Mature cottonwood gallery forests have an intact native shrub understory. There are significant wetland complexes with communities that are in outstanding condition and represent the natural diversity of the North Fork watershed. The following page lists 35 wetland and riparian plant communities documented from this study and another 25 that are known or suspected to occur in the North Fork watershed (Cooper et.al, 2000).

Wetland plant communities and their conservation ranks for North Fork Flathead wetlands arranged by Cowardin system, class, and subclass; taken from Cooper et.al, 2000.

SCIENTIFIC NAME / COMMON NAME / RANK

PALUSTRINE FORESTED COMMUNITIES, NEEDLE-LEAVED EVERGREEN
Abies lasiocarpa / Calamagrostis canadensis Subalpine fir / Bluejoint reedgrass G5S5
Abies lasiocarpa / Ledum glandulosum Subalpine fir / Labrador tea G4S4
Abies lasiocarpa / Oplopanax horridum Subalpine fir / Devil's club G3S2
Abies lasiocarpa / Streptopus amplexifolius Subalpine fir / Claspleaf twisted stalk G4?S3
Picea engelmannii / Calamagrostis canadensis Spruce / Bluejoint reedgrass G3S3
Picea engelmannii / Clintonia uniflora Spruce / Beadlily G4S4
Picea engelmannii / Cornus sericea Spruce / Red-osier dogwood G3G4S3S4
Picea engelmannii / Equisetum arvense Spruce / Field horsetail G4S3
Picea engelmannii / Galium triflorum Spruce / Sweet scented bedstraw G4S4
Thuja plicata / Athyrium filix-femina Western redcedar / Ladyfern G3G4S3
Thuja plicata / Gymnocarpium dryopteris Western redcedar / Oakfern G3S3
Thuja plicata / Oplopanax horridum Western redcedar / Devil's club G3S3

PALUSTRINE FORESTED COMMUNITIES, BROAD-LEAVED DECIDUOUS
Betula papyrifera Paper birch *G4QS3*
Populus balsamifera ssp. *trichocarpa / Cornus sericea* Black cottonwood / Red-osier dogwood G3?S3
Populus balsamifera ssp. *trichocarpa /* Herbaceous Black cottonwood / Herbaceous G?S?
Populus balsamifera ssp. *trichocarpa /* Recent alluvial bar Black cottonwood / Recent alluvial bar G?S?
Populus balsamifera ssp. *trichocarpa / Symphoricarpos albus* Black cottonwood / Common snowberry G4S4
Populus tremuloides / Calamagrostis canadensis Quaking aspen / Bluejoint reedgrass G3S2
Populus tremuloides / Cornus sericea Quaking aspen / Red-osier dogwood G4S3
Populus tremuloides / Osmorhiza occidentalis Quaking aspen / Western sweet cicely G3?S3?
P. tremuloides - P. balsamifera ssp. Quaking aspen - black
trichocarpa / Osmorhiza occidentalis cottonwood / Western sweet cicely G2QS2Q
Populus tremuloides /Symphoricarpos albus Quaking aspen / Common snowberry G3?S3?

PALUSTRINE SCRUB-SHRUB COMMUNITIES, BROAD-LEAVED DECIDUOUS
Alnus incana Mountain alder G5S5
Alnus incana / Carex spp. Mountain alder / sedge G3S?
Alnus viridis ssp. *sinuata* Sitka alder G5S5
Betula glandulosa / Carex cusickii Bog birch / Cusick's sedge G?S3
Betula glandulosa / Carex lasiocarpa Bog birch / Slender sedge G4S4
Betula glandulosa / Carex utriculata Bog birch / Beaked sedge G4?S4
Cornus sericea Red osier dogwood G4S3
Kalmia microphylla / Carex scopulorum Alpine laurel / Holm's Rocky Mountain sedgeG3G4S3
Rhamnus alnifolia Alder-leaved buckthorn G5S5
Salix bebbiana Bebb's willow G5S5
Salix boothii / Calamagrostis canadensis Booth's willow / Bluejoint reedgrass G3G4QSR
Salix candida / Carex lasiocarpa Hoary willow / Slender sedge G?S?
Salix drummondiana Drummond's willow G5S5
Salix drummondiana / Calamagrostis canadensis Drummond's willow / Bluejoint reedgrass G5S
Salix drummondiana / Carex utriculata Drummond's willow / Beaked sedge G5S5
Salix drummondiana / Mesic forb Drummond's willow / Mesic forb G4S?
Salix exigua / Mesic graminoid Sandbar willow / Mesic graminoid G5S5
Salix exigua / Temporary flooded Sandbar willow / Temporary flooded G5S5
Salix geyeriana / Carex utriculata Geyer's willow / beaked sedge G5S5
Salix geyeriana / Mesic graminoid Geyer's willow / Mesic graminoid G2G3?

PALUSTRINE EMERGENT COMMUNITIES, PERSISTENT
Agrostis stolonifera Redtop G5SE
Bromus inermis Smooth brome G5SE
Calamagrostis canadensis Bluejoint reedgrass G4QS4

Carex aperta Columbia sedge G2?S2
Carex aquatilis Water sedge G5S4
Carex aquatilis – Carex utriculata Water sedge – Beaked sedge G3G4
Carex atherodes Awned sedge G5S5
Carex buxbaumii Buxbaum's sedge G3S3
Carex lasiocarpa Slender sedge G5S5
Carex limosa Mud sedge G3S3
Carex nebrascensis Nebraska sedge G5S5
Carex scopulorum Holm's Rocky Mountain sedge G5S4
Carex utriculata Beaked sedge G5S5
Carex vesicaria Inflated sedge G5S5
Deschampsia cespitosa Tufted hairgrass G4S3S4
Dulichium arundinaceum Dulichium G3?S2
Eleocharis palustris Common spikerush G5S5
Eleocharis rostellata Beaked spikerush G?S1
Elymus glaucus Blue wildrye G2S?
Equisetum fluviatile Water horsetail G5S5
Glyceria borealis Northern mannagrass G4S3
Hordeum jubatum Foxtail barley G5S5
Juncus balticus Baltic rush G5S5
Poa pratensis Kentucky bluegrass G5SE
Poa palustris Fowl meadow-grass G5SE
Phalaris arundinacea Reed canarygrass G5S5
Scirpus acutus Hardstem bulrush G5S5
Typha latifolia Broadleaf cattail G5S5

The National Wetlands Inventory (NWI) has been completed for Flathead County. However, the NWI is not inclusive of all wetlands that are in the study corridor. Formal wetland delineation would need to be performed if a project is forwarded from this corridor study to identify and map all wetlands. **Figure 4** depicts NWI wetlands identified in the corridor study area:

2.7 Floodplains

Executive Order (EO) 11988, Floodplain Management, requires federal agencies to avoid direct or indirect impact of floodplain development whenever a practicable alternative exists. FHWA Policy and Procedures for Location and Hydraulic Design of Highway Encroachments on Floodplains (23 CFR 650 Part A) and EO 11988 requires an evaluation of project alternatives to determine the extent of any encroachment into the base floodplain. The base floodplain is the regulatory standard used by federal agencies and most states to administer flood plain management programs. A base floodplain, also known as a 100-year floodplain, is defined as lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, with a one percent or greater chance of flooding in a given year. As described in FHWA's floodplain regulation (23 CFR 650 Part A), floodplains provide natural and beneficial values serving as areas for fish, wildlife, plants, open space, natural flood moderation, water quality maintenance, and groundwater recharge.

The 2007 Flathead County Flood Insurance Rate Maps depict an approximate delineated base floodplain for the North Fork Flathead River and Canyon Creek. A detailed hydraulic analysis was not done to determine flood elevations. A formal floodplain permit may be required if any work is done in areas shown within the floodplain boundary. Flathead County Floodplain regulations require that the base floodplain elevation is not increased by more than 0.5 feet in a delineated floodplain.

Figure 5 identifies approximate 100-year flood areas.

Figure 4 *National Wetland Inventory.*

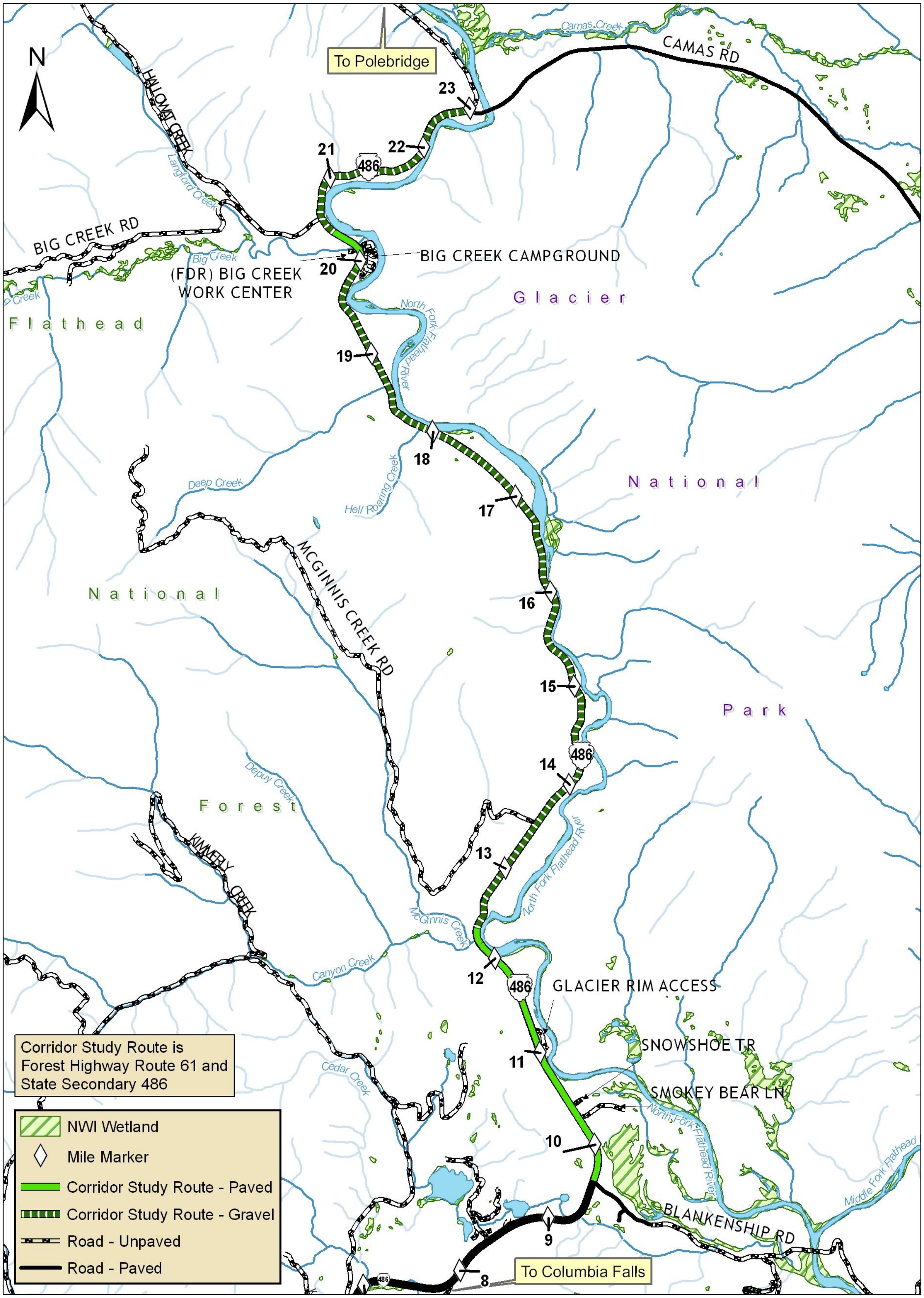
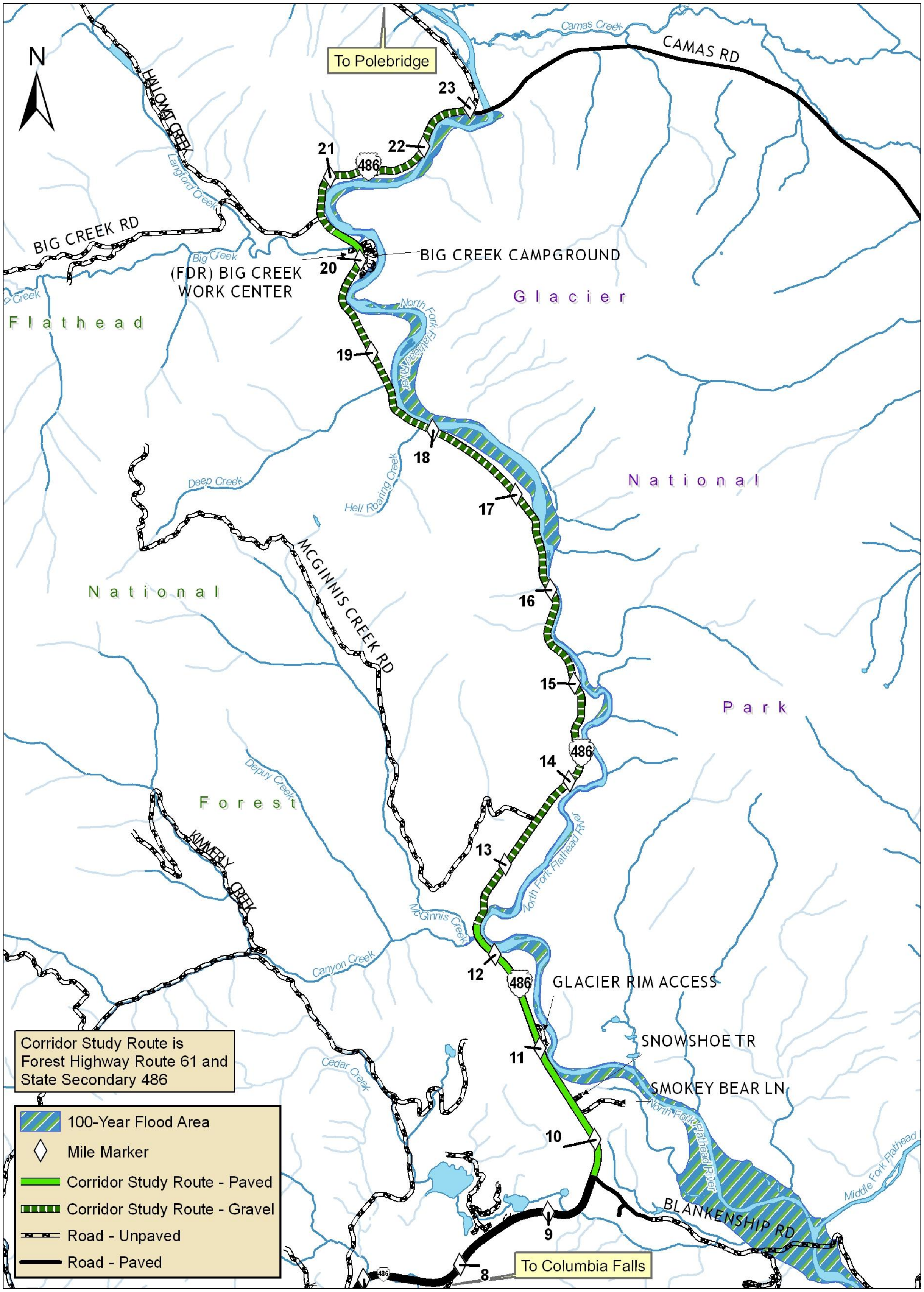


Figure 5 *Floodplains*



2.8 Wild and Scenic River

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.

Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank in the lower 48 states and one-half mile on rivers outside national parks in Alaska in order to protect river-related values.

Rivers are classified as wild, scenic, or recreational.

- Wild river areas — Rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- Scenic river areas — Rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- Recreational river areas — Rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The North Fork Flathead River originates 50 miles across the border in British Columbia, Canada. The river divides the Flathead National Forest on the west from Glacier National Park on the east. The upper 41 miles of the river above the Camas Creek Bridge (north end of the study area) are classified as Scenic under the Act. The lower 17 mile river section to Blankenship Bridge and the confluence of the Middle Fork is classified as Recreational. The section of the river adjacent to the study area from the Camas Creek Bridge milepost 22.7 to approximately milepost 10.7 where the North Fork Flathead River turns east away from the road is classified as Recreational.

The Flathead National Forest manages this Wild and Scenic River.

3 Biological Resources

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, 2010). The Montana Fisheries Information System (MFISH, 2010) 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 upon the U.S. Fish and Wildlife Service (USFWS) 2010 Montana county list (USFWS, 2010). Other pertinent literature, including the 1980 and 1982 USFWS jeopardy opinions issued when the Western Federal Lands Division of the Federal Highway Administration proposed to pave the NFFR road to the Canadian border were also reviewed. Biologists with the U.S. Geological Survey-Northern Rocky Mountain Science Center (NOROCK), the U.S. Forest Service, Glacier National Park, and Montana Fish, Wildlife and Parks were also contacted with regard to this biological resources investigation (Graves, Deleray, Williams, Waller, Jackson, Kuennen, Ake, Servheen pers.comms.).

One agency meeting occurred April 21, 2010 to gather and review preliminary information gathered thus far for the corridor.

Field reconnaissance of the project corridor was conducted by MDT in August of 2009. 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 for the study.

North Fork Valley Overview

The North Fork Flathead River flows southward 50 km (31 mi) in British Columbia and 76 km (47 mi) in Montana where it forms the western border of Glacier National Park. The watershed is 4134 sq km (1590 sq mi) in size, with 38 percent of the landscape in B.C. and 62 percent in Montana (Weaver, 2001).

Flooding and fire have been important influences on the diverse communities of vegetation, herbivores, and carnivores in the transboundary Flathead. Cottonwood (*Populus trichocarpa*), spruce (*Picea* spp.), and willow (*Salix* spp.) characterize the floodplain; coniferous forests of lodgepole pine (*Pinus contorta*), Douglas-fir (*Pseudotsuga menziesii*), western larch (*Larix occidentalis*), spruce, and subalpine fir (*Abies lasciocarpa*) dominate the upland areas; and patches of fescue (*Festuca spp*.) grasslands are scattered on the alluvial benches above the river (see Habeck 1970, Singer 1979, Jenkins 1985).

Flathead County, which lies just west of GNP, has experienced an extraordinary rate of growth. Its population increased 26 percent between 1990 and 2000, and another nine percent from 2000 to 2004. Although the majority of that increase has occurred farther out in the Flathead Valley, there is residential development close to the western border of the Park, along the North and Middle Forks of the Flathead River, and in the corridor between West Glacier and Columbia Falls. Some of that development has impacted prime winter range just beyond the Park’s border (Sax and Keiter, 2007).

Forest Service lands within the corridor are managed for a number of multiple uses including but not limited to timber harvest, recreation (rafting, snowmobiling, cross country skiing, hunting, hiking, fishing, camping, wildlife viewing), wildlife and aesthetics.

During the 1990s, the Clinton Administration embraced the ecosystem management concept as it sought to shift federal natural resource policy toward landscape scale planning and biodiversity conservation (Szaro et al. 1998; Thomas and Ruggiero 1998). The Forest Service responded by making fundamental changes to its NFMA planning rules, giving priority to ecological sustainability for policy purposes (Hoberg 2004), and undertaking several landscape-scale planning initiatives (Keiter 2003). The result has been a dramatic reduction in emphasis on timber production, a new commitment to ecosystem management principles, and a significant restructuring of the agency’s workforce toward greater disciplinary diversity (Sax and Keiter, 2007).

The Flathead National Forest (FNF) over the past twenty years has seen a major reduction in its timber program. As a result of steady ESA litigation pressures related to the Grizzly bear (*Ursus arctos horribilis*) the FNF has cut its timber harvest levels from 100 million board-feet (mbf) annually to 54 mbf, reduced the forest's road density by 15 percent (from 1,900 to 1,600 miles), and adopted old growth timber cutting limitations (in: Sax and Keiter, 2007). Despite concerns about possible ESA "delisting" of the Northern Continental Divide Grizzly bear population, this appears unlikely at the present time, which means these restrictions will remain in place. Moreover, several new local species, including the Canada lynx and bull trout, have been added to the threatened and endangered species list and will also affect future forest management decisions (Sax and Keiter, 2007).

Protection of the remote North Fork region continues to be a major concern for GNP managers. When the North Fork road paving proposal resurfaced a few years ago, the Park remained silent (unlike its active opposition twenty years earlier) as did the Forest Service (thus altering its earlier supportive stand). The proposal has died for now due to lack of funds (Sax and Keiter, 2007). GNP managers have presently stated opposition to paving this or any section of the North Fork Road due to issues such as wildlife habitat loss, wildlife connectivity issues, direct mortality to wildlife, and the potential expansion of road use, development and increased human population densities.

Since finding themselves enjoined from oil and gas leasing during the 1980s by a court order (Conner v. Burford, 848 F.2d 1441 (9th Cir. 1988)), FNF officials have taken no further action to facilitate energy exploration in the North Fork or elsewhere on the forest. Although a contentious exploratory well was drilled on private North Fork lands adjacent to the Park during the late 1980s, it was a dry hole, which has apparently discouraged any renewed interest in the area. Moreover, the FNF recent forest plan revisions recommend a new wilderness designation adjacent to the Park in the North Fork region (U.S. Forest Service 2006). These measures do not relieve forest officials from the need to deal with the burgeoning ORV activity in the area (Sax and Keiter, 2007).

Recently (February 2010) a signed Memorandum of Understanding (MOU), agreed upon by Gov. Brian Schweitzer and British Columbia Premier Gordon Campbell, stopped all coal, oil and gas exploration and development upstream of Glacier National Park. The MOU places a July 2010 deadline on the mining and exploration ban. The governor also stressed the importance of Flathead County working with state and federal delegations as they move forward to formalize the ban stateside with legislation. Montana's U.S. Sens. Max Baucus and Jon Tester introduced a bill to Congress on March 4, 2010 that would officially prevent future mining or development in the Upper Flathead Valley. The legislation mirrors similar efforts in British Columbia. The new legislation does not address retiring the 103 existing oil and gas leases on federal land, but representatives from the governor's office said that process should be similar to the slow process of retiring the leases on the Rocky Mountain Front, which was finalized earlier this year (Flathead Beacon, 2010). Recently at the behest of Montana U.S. Senators Baucus and Tester, Chevron and Conoco Phillips has voluntarily retired gas and oil leases in the North Fork covering over 200,000 acres. Status of the MOU and negotiations pertaining to protection of the North Fork on both the Canadian and U.S. sides is continually evolving as a dynamic process in the works despite differences of opinion as to how best to permanently protect this trans-boundary region.

3.1 General Vegetation

Much of the North Fork valley was burned during the late 1800's and early 1900's. The evidence of wildfire was reduced by organized fire suppression since about 1920. Since 1988 large stand replacing fires have occurred in the North Fork and the study corridor, most recently with the 2001 Moose Fire and 2003 Robert and Wedge Canyon fires. Approximately 13,123 acres of the 52,900-acre Robert Fire and 21,526 acres of the 54,405-acre Wedge Canyon Fire burned on the Flathead National Forest during the summer of 2003. The Moose fire (35,000 acres within the Flathead National Forest), burned adjacent to the northern portion of the Robert Fire in 2001.

The North Fork region, particularly the creek bottoms, was heavily logged in the early 1950's because of a spruce bark beetle (*Dendroctonus obesus*) outbreak (Zager et.al., 1980). Mountain pine beetle (*D. ponderosae*) has also affected vegetation, logging and fire history in this valley. As mentioned earlier, Black Cottonwood (*Populus balsamifera ssp. trichocarpa*), spruce (*Picea engelmanii x alba spp.*), and willow (*Salix spp.*) characterize the floodplain; coniferous forests of lodgepole pine (*Pinus contorta*), Douglas-fir (*Pseudotsuga menziesii*), western larch (*Larix occidentalis*), spruce, and subalpine fir (*Abies lasciocarpa*) dominate the upland areas; and patches of fescue (*Festuca spp.*) grasslands are scattered on the alluvial benches above the river (see Habeck 1970, Singer 1979, Jenkins 1985). These communities are dominated by Rough fescue (*Festuca scabrella*), Idaho fescue (*F. idahoensis*), Pinegrass (*Calamagrostis rubescens*), Bluebunch wheatgrass (*Agropyron spicatum*) and other genus' such as bluegrass (*Poa spp.*), brome (*Bromus spp*), and wildrye (*Elymus spp.*). Up on the benches along tributaries to the North Fork River pockets of communities dominated by western redcedar (*Thuja plicata*) and grand fir (*Abies grandis*) also occur where they are protected from extreme freezing temperatures typically found along the North Fork river bottom. Lower gradient streams at higher elevations often have riparian forest canopies dominated by subalpine fir (*Abies lasiocarpa*), while higher gradient streams have very narrow, poorly developed riparian areas (Cooper et.al., 2000).

Riparian and wetland scrub – shrub communities are dominated by Drummonds willow (*Salix drummondiana*), and to a lesser extent Bebb's willow (*S. bebbiana*), and Geyer's willow (*S. geyeriana*). Sandbar willow (*S. exigua*) dominates active and recently stabilized gravel and sandbars. Mountain alder (*Alnus incana*), red-osier dogwood (*Cornus stolonifera*), common snowberry (*Symphoricarpos albus*), are found along higher gradient streams mountain alder and alder-leaved buckthorn (*Rhamnus alnifolia*) are found around fens and lakes (Cooper et.al, 2000). Cooper et.al. also noted that reed canarygrass (*Phalaris arundinacea*), Norwegian cinquefoil (*Potentilla norvegica*) and Canada thistle (*Cirsium arvense*) are aggressive exotics that are invading lower quality riparian and wetlands in the drainage.

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 weed species noted in disturbed roadside areas during the field review include spotted knapweed (*Centaurea maculosa*) and Canada thistle. Other noxious weeds that could occur in the study area include orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Chrysanthemum leucanthemum*).

3.2 General Wildlife

Of the 108 mammal species known to occur in the state of Montana, 63 are known to occur in Flathead County and 3 are suspected to occur (Foresman, 2001). Mule deer (*Odocoileus hemionus*), white-tailed deer (*O. 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 occur occasionally within the study corridor. White-tailed deer, mule deer, moose, red squirrels and chipmunks (*Tamias spp.*) were all observed during field reconnaissance as well as black bear and elk scat.

A unique community of carnivore species resides in the North Fork Flathead region that appears unmatched in North America for its variety, completeness, use of valley bottomlands, and density of species which are rare elsewhere (Weaver, 2001).

The following species occur there: Grizzly bear (*Ursus arctos*), black bear, wolf (*Canis lupus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), mountain lion, Canada lynx (*Lynx canadensis*), bobcat (*Lynx rufus*), marten (*Martes americana*), fisher (*Martes pennanti*), wolverine (*Gulo gulo*), badger (*Taxidea taxus*), river otter (*Lontra canadensis*), mink (*Mustela vison*), and various weasels (*Mustela. spp.*) (Weaver, 2001).

The study corridor area is also within important spring, summer, and fall habitat with some winter range areas for white-tailed deer, mule deer and elk. The following discussion is paraphrased from the Flathead National Forest, Robert-Wedge Post-Fire Project FEIS. As mentioned above, both the Robert and Wedge Canyon fire areas mainly contain important summer habitat for elk and mule deer. They also contain some fall and spring range depending on weather conditions during these seasons. There is no designated mule deer and elk winter range (MA-13) in either fire area, although a small number of both elk and mule deer do stay mainly in the vicinity of the North Fork of the Flathead River and Big Creek during the winter. A few elk will stay along the south facing slopes along Trail Creek but most of the elk from the Wedge Canyon Fire area tend to winter just south of the Canadian border, primarily in Glacier National Park where there are more south facing slopes and the snow is not as deep. Elk from the Robert Fire winter along Trumble Creek on Forest Service land and along the river bottom. Both areas are south of the Robert Fire. Robert Fire elk also winter along Camas Creek and Huckleberry Creek in Glacier National Park. Again these areas primarily have south facing slopes and less snow. See **Figure 6a** and **Figure 6b** for fire area boundaries shown in black.

Mule deer from the Wedge Canyon Fire area cross over the Whitefish Divide, which is to the west, and winter in the vicinity of Eureka, MT. There are concentrations of 800 plus mule deer in this area during the winter. Some mule deer also winter in the vicinity of Kintla Lake. Mule deer from the Robert Fire area tend to winter along Apgar Ridge, or in Huckleberry Creek (both areas are in Glacier National Park), and also west of the project area along Winona Ridge and Demers Ridge. A small bit of Huckleberry Creek and part of Apgar Ridge burned in the Robert Fire, however, for the most part elk and mule deer winter ranges in the vicinity of the two fire areas have not been impacted by recent fires (Thier 2004, pers. comm.). The migration routes utilized by both mule deer and elk into and out of both fire areas are not fully understood at this time. Near the confluence of Big Creek and the North Fork, MFWP has identified critical mule deer winter range in the corridor study area as well.

Thirty acres of white-tailed deer winter range burned at high severity in the Robert Fire; mule deer and elk would have likely used this area also. Although neither the Robert Fire nor the Wedge Canyon Fire contained designated elk and mule deer winter range; the Moose Fire, which burned in 2001 and lies between the Robert and Wedge Canyon fires dramatically affected two elk and mule deer winter ranges. In fact, the critical component of thermal cover was mostly eliminated in both winter ranges. The Forest Plan considers winter range to be acceptable when 30 percent of the area contains winter thermal cover (a stand of evergreen trees having a minimum height of 60 feet and a minimum crown canopy of 70 percent). The Big Creek winter range contains approximately 25 acres of marginal thermal cover while Demers winter range has no thermal cover remaining. Both winter ranges were severely changed by the Moose Fire and though mule deer (and probably some elk, though not documented) use of the winter ranges occurred these past winters, it seems reasonable to conclude that use and numbers of animals has decreased, as compared to pre-fire use levels.

The main Forest Plan goal for elk and mule deer is to provide the size, age, diversity, and distribution of cover and forage suitable for elk and mule deer habitat. Considering that approximately 72 percent (approximately 9,389 acres) of the National Forest portion of the Robert Fire and 76 percent (approximately 16,276 acres) of the National Forest portion of the Wedge Canyon Fire burned at severity levels of high or moderate, there are few options for diversifying forest age classes, since in the burned areas a single forest age class is expected to develop. The main effects of the Robert Fire and Wedge Canyon Fire on elk and mule deer result from the proliferation of quality forage (grasses, forbs, and shrubs) and the elimination of thermal and hiding cover. With the high vegetation burn severity that affected both fires areas, the full benefits of increased quantities of forage are not expected to occur for several years and last for approximately15 to 30 years depending on local site conditions.

Figure 6a *Habitat Analysis Units in the Wedge Canyon Fire Area*

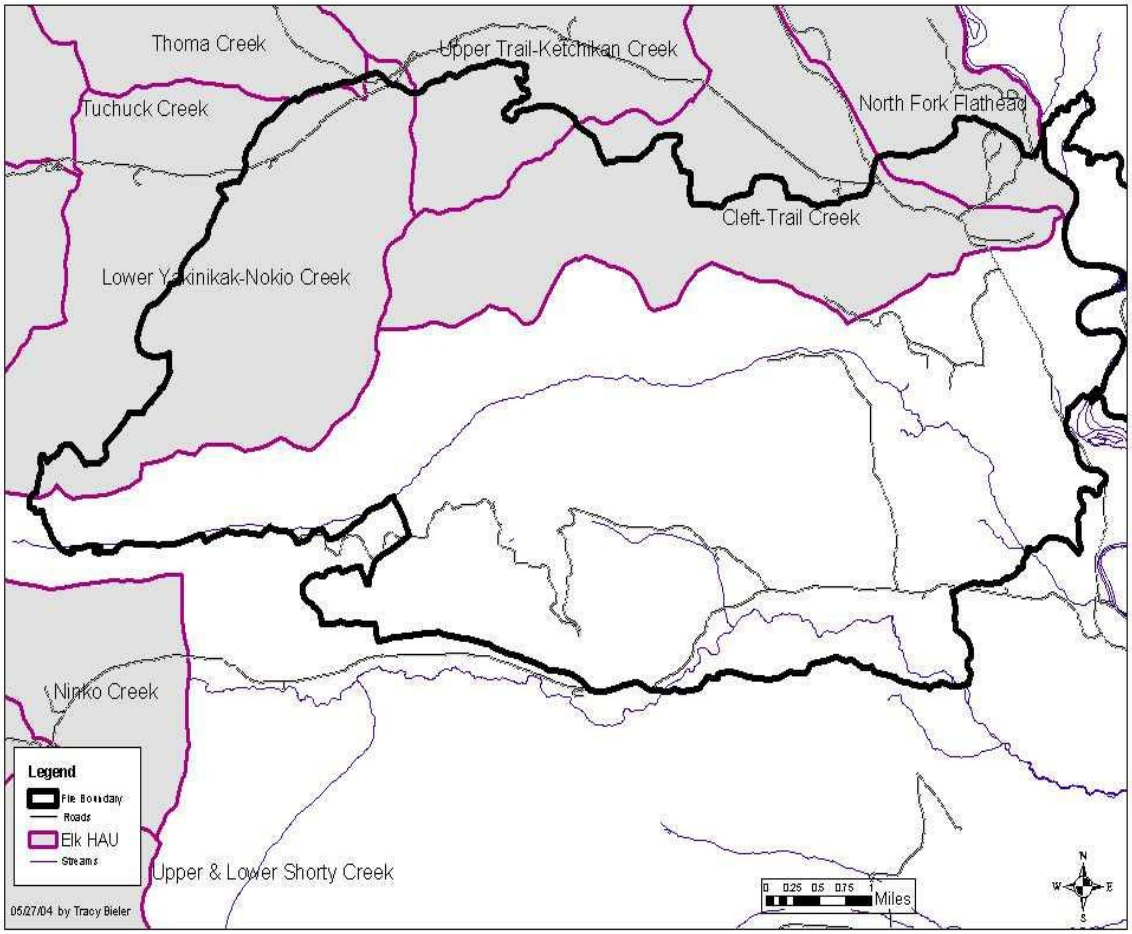
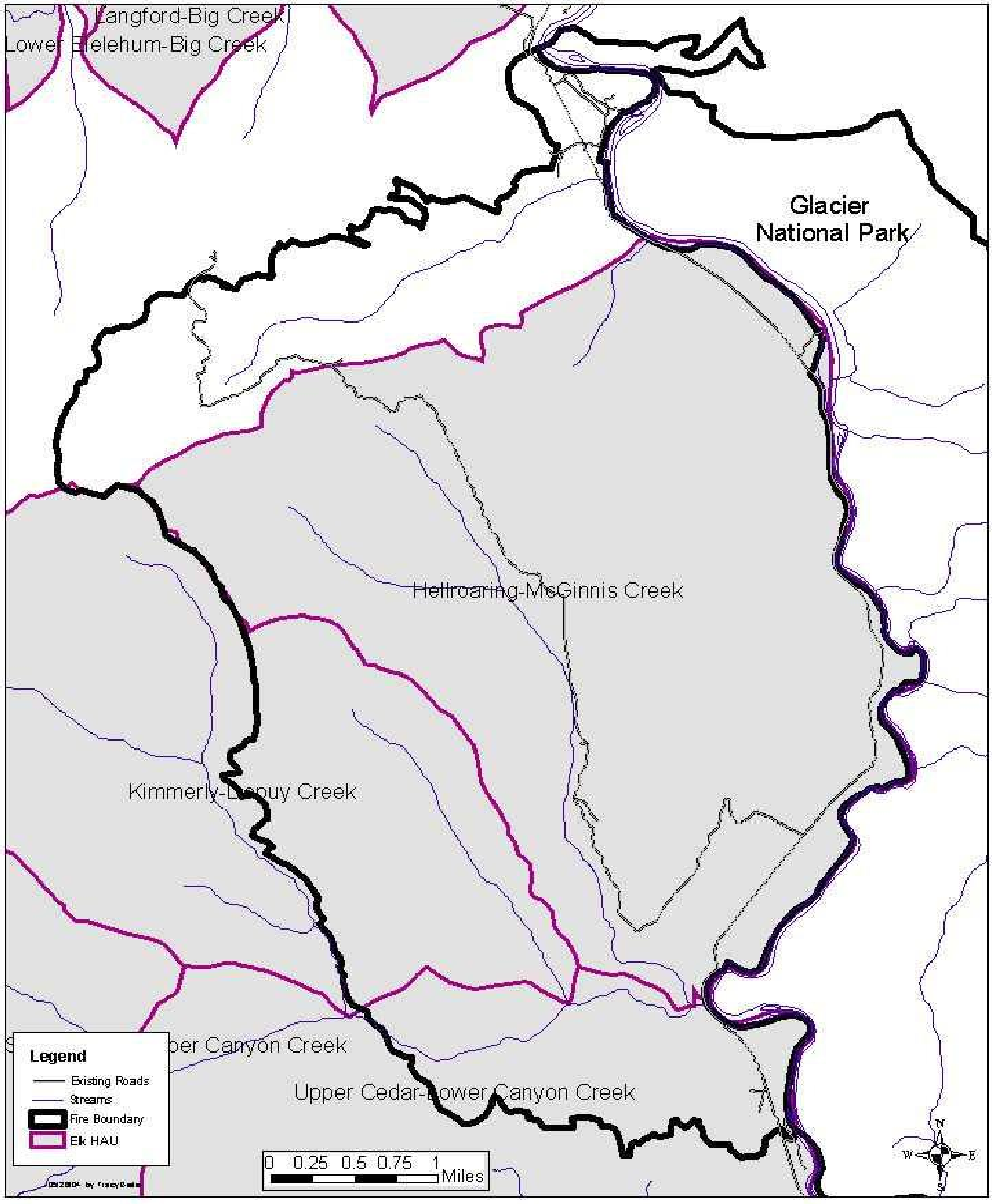


Figure 6b *Habitat Analysis Units in the Robert Fire Area*



The study area is also within the distributional range of approximately two reptiles and five amphibian species (Maxell et.al., 2003). See **Table 1** below:

Table 1

Common and Scientific Name	**R1 USFS Status**	**Heritage Ranks**	**Habitat Type**
Long-toed Salamander (*Ambystoma macrodactylum*)	No Special Status	S5	Temporary ponds and wetlands in the mountainous regions of the state; Permanent lakes and ponds in mountainous regions of the state; Closed forest habitats in the western portion of the state.
Rocky Mountain Tailed Frog (*Ascaphus montanus*)	No Special Status	Watch List	Riverine and riparian habitats in the mountainous regions of the state.
Western Toad (*Bufo boreas*)	Sensitive Species	S3S4	Temporary ponds and wetlands in the mountainous regions of the state; Permanent lakes and ponds in mountainous regions of the state; Riverine and riparian habitats in the mountainous regions of the state.
Columbia Spotted Frog (*Rana luteiventris*)	No Special Status	S5	Temporary ponds and wetlands in the mountainous regions of the state; Permanent lakes and ponds in mountainous regions of the state; Riverine and riparian habitats in the mountainous regions of the state.
Northern Leopard Frog (*Rana pipiens*) *Historic Range / Possible Presence*	Sensitive Species	S3S4	Permanent lakes and ponds in mountainous regions of the state; Riverine and riparian habitats in the mountainous regions of the state.
Painted Turtle (*Chrysemys picta*)	No Special Status	S4 G5	Lakes, ponds, reservoirs, and sloughs that contain some shallow water areas and a soft bottom; also river backwaters and oxbows with little current.
Terrestrial Garter Snake (*Thamnophis elegans*)	No Special Status	S5 G5	Found in nearly all habitats, but most commonly at lower elevations around water. At high elev. common on rocky cliffs/ brushy talus.

No reptiles or amphibians were observed during the field review.

Between 1962 and 2008, the Montana Natural Heritage Program (MNHP) has compiled observations of 220 different bird species within the quarter latilongs (02B4 and 02D2) for this corridor study (MNHP, 2010). An extensive list of possible species occurring in the study corridor is not presented here. However, the corridor is occupied by a wide variety of species. Of the potential 220 species that could occur, 29 are species of concern and 8 are potential species of concern. Between 1998 and 2006, 41 different species were documented direct evidence of breeding in the study area. These include woodpeckers, swallows, chickadees, owls, raptors such as the Bald eagle (*Haliaeetus leucocephalus*) and Northern goshawk (*Accipiter gentilis*), multiple species of waterfowl including the species of concern the Common loon (*Gavia immer*), a flycatcher, nuthatch, hummingbird, thrush, tanager, warbler and the White-tailed ptarmigan (MNHP, 2010). Birds observed during the field review were the American Robin (*Turdus migratorius*), American Crow (*Corvus brachyrhynchos*), and the Cliff Swallow (*Petrochelidon pyrrhonota*).

3.3 Aquatic Resources

Big Creek

Big Creek is a major tributary (77 mile² or about 50,000 acres) to the North Fork Flathead River. The water yield in Big Creek is produced from an average annual precipitation in the basin that ranges from 62 inches at the top of Big Mountain to 28 inches along the North Fork Flathead River; approximately 60 percent of this precipitation falls as snow. Stream flows typically peak in late May or June as the snow pack melts. The gradient of Big Creek tributaries in the uppermost portions of the watershed is approximately 1,000 feet per mile (18 percent stream slope). The gradient of the main stem of Big Creek is 400 feet per mile for the uppermost four miles (7 percent stream slope), 200 feet per mile for the stretch in which Big Creek meanders on its valley floor (4 percent stream slope), and 70 feet per mile in the lowermost 8 miles near the Big Creek Campground (1 percent stream slope). Big Creek is a key spawning stream for bull trout (*Salvelinus conflutentus*) and westslope cutthroat trout (*Oncorhynchus clarki lewisi*) because of the clean water and its physical characteristics (Sirucek et.al., 2003). Big Creek is listed as Core habitat under the currently Proposed Critical Habitat for Bull trout by the USFWS.

The past construction of roads and logging skid trail networks on both national forest and private lands have caused an increased sediment load to Big Creek. At the same time, an increase in water yield following the extensive timber harvest on Forest Service and private lands has been observed. This increased water yield, in combination with the excess sediment supply, has caused stream bank instability and stream channel erosion. This has resulted in stream channel widening and stream pool filling from bedload sediments that could not be transported by the stream. During the 1960s and 70s when management activities were extensive, sediment supply exceeded transport capability in the upper basin of Big Creek. Where the gradient of Big Creek is low, particularly in the stretches with less than 4 percent slope, large quantities of sediments have been stored as point and mid-channel bars found upstream from organic debris in the stream such as individual logs or logjams. Between 1980 and 1990, the percentage of fine sediments in the substrate increased from 23 to 53 percent (Sircek et.al. 2003).

Given these factors, Big Creek is presently partially supporting the beneficial uses of aquatic life support and cold-water fishery as defined by the Montana Department of Environmental Quality (MDEQ). The MDEQ Clean Water Act Information Center (http://cwaic.mt.gov/) shows that Big Creek is listed as water quality impaired (i.e., listed as water quality impaired under Section 303(d) of the Clean Water Act), since it provides only partial support for aquatic life and cold water fishery uses due to sediment/siltation and alteration in stream-side or littoral vegetative covers from forest roads (road construction and use) and from streambank modifications/destabilization.

North Fork of the Flathead River

The North Fork Flathead River watershed (which lies within both Canada and the United States) spans 176 acres or 1558 square miles. The North Fork Flathead River flows for 53.8 miles in Canada and 54.2 miles in the United States for a total of 108 river miles. The Canadian portion of the drainage spans 375, 919 acres or 593 square miles. The U.S. portion of the drainage spans 617, 598 acres or 965 square miles (DEQ, 2004).

To paraphrase from Stanford (2000) in DEQ (2004), the North Fork differs substantially from the Middle Fork, South Fork and the main stem of the Flathead River. The North Fork flows through a broad alluvial valley with braided and anastomosed channels and expansive floodplains. The North Fork river corridor offers nearly intact ecological connectivity. Biota are able to migrate longitudinally from headwaters to the confluence with the Middle Fork and on to Flathead Lake. The expansive floodplains of the river link the channel to the uplands and foster movements between Glacier National Park and the Whitefish Range.

The North Fork Flathead River divides the Flathead National Forest from Glacier National Park. The upper 41 miles above the Camas Creek Bridge are classified as Scenic under the 1976 Wild and Scenic Rivers Act. The lower 17 mile section to Blankenship Bridge and the confluence of the Middle Fork is classified as Recreational. Fish in the North Fork run on the small size (8 to 12”) because when the parent rock, argillite, breaks down it doesn’t contain much of the big fish producing nutrients that can be found in the productive limestone waters elsewhere in Montana. Also, these waters are cold, being fed by groundwater and glacier fed streams. Westslope cutthroat trout and bull trout in the Flathead River basin are ad fluvial, that is they spend time in Flathead Lake rearing to adulthood until it’s time to spawn. Once they are sexually mature (4 to 6 years) they migrate into tributary streams, some migrations are over 100 miles, to spawn (cutthroat in the spring and bull trout in the fall). Once the fry emerge from the gravels, juveniles will rear in these tributaries for 1to 3 years until they migrate back to Flathead Lake. The North Fork of the Flathead River is currently listed as nodal habitat in the USFWS Proposed Critical Habitat for Bull trout. Other fish species present in the North Fork include: Arctic Grayling(*Thymallus arcticus*) , Lake Trout (*Salvelinus namaycus*), Largescale Sucker (*Catostomus macrocheilus*), Longnose Sucker (*Catostomus catostomus*), Mottled Sculpin (*Cottus bairdi*), Mountain Whitefish (*Prosopium williamsoni*), Rainbow trout (*Oncorhynchus mykiss*), Slimy Sculpin (*Cottus cognatus*), and Westslope X Rainbow hybrids (MFWP, MFISH, 2010).

Canyon Cr/McGinnis Cr

Canyon Creek is an 8.7 mile long perennial tributary to the North Fork Flathead River. While this is a small watershed it is directly connected to the North Fork. Approximately 600 to 800 feet upstream of the North Fork Road crossing of Canyon Creek via culvert, McGinnis Creek joins Canyon Creek. McGinnis Creek is a 4.5 mile long perennial stream. Both Canyon and McGinnis have common bull trout occurrence within the first one mile of stream reach. In the upper reaches of these streams genetically pure strains of westslope cutthroat trout persist (MFISH, 2010).

Hell Roaring Creek

Hell Roaring Creek is an intermittent stream that feeds directly into the North Fork of the Flathead River. It is a very small tributary 1.1 mile in length and little to no fisheries information is available for this stream (MFISH, 2010).

Deep Creek

Deep Creek is a 2.9 mile long, perennial tributary to the North Fork of the Flathead River. The culvert at the North Fork Road crossing is undersized, and has a stand pipe installed which restricts bedload conveyance as well as fish passage (Deleray Pers. Comm., 2010). Flathead County periodically must get an SPA-124 authorization to excavate bedload from the channel upstream of the culvert. However, the culvert also is acting as a fish barrier preventing non-native rainbow trout in the North Fork from migrating upstream and mixing with the genetically pure strains of westslope cutthroat trout in the headwaters of Deep Creek. If the North Fork Road should undergo improvements, considerations must be taken to properly size a culvert for this stream to pass bedload but a fish passage barrier must also be part of the design (Deleray Pers. Comm., 2010).

3.4 Species of Concern

Montana Natural Heritage Program Sensitive Species

Reptiles and amphibians were covered earlier in this report and will not be covered again here. Other sensitive species known to occur in the North Fork Valley in the vicinity of the corridor study include:

Table 2: *MNHP Sensitive Species occurrence in study corridor and surrounding area*

Common Name	*Scientific Name*	*Heritage Status*
Gray Wolf	**Canis lupus**	**G4 S3**
Fisher	**Martes pannanti**	**G5 S3**
Wolverine	**Gulo gulo**	**G4 S3**
Northern Bog Lemming	**Synaptomys borealis**	**G4 S2**
Harlequin Duck	**Histrionicus histrionicus**	**G4 S2B**
Blackbacked Woodpecker	**Picoides arcticus**	**G5 S3**
Bald Eagle	**Haliaeetus leucocephalus**	**G5 S3**
Common Loon	**Gavia immer**	**G5 S3B**
Northern Goshawk	**Accipiter gentilis**	**G5 S3**
Westslope Cutthroat Trout	**Oncorhynchus clarkia lewisi**	**G4T3 S2**
Moonwort	**Botrichium sp.**	**SOC**
Pale Corydalis	**Corydalis sempervirens**	**G4G5 S2**
Arctic sweet coltsfoot	**Petasites frigidus var. frigidus**	**G5T5 S1**
Meadow Larkspur	**Delphinium burkei**	**G4 S1S2**
Tufted Club rush	**Trichophorum cespitosum**	**G5 S2**
Crested Shieldfern	**Dryopteris cristata**	**G5 S2**
Pod Grass	**Scheuchzeria palustris**	**G5 S2**

Heritage Program Ranks

The international network of Natural Heritage Programs employs a standardized ranking system to denote **global** (range-wide) and **state** status (NatureServe 2006). Species are assigned numeric ranks ranging from 1 (highest risk, greatest concern) to 5 (demonstrably secure, least concern), reflecting the relative degree of risk to the species' viability, based upon available information. Global ranks are assigned by scientists at NatureServe (the international affiliate organization for the heritage network) in consultation with biologists in the natural heritage programs and other taxonomic experts.

A number of factors are considered in assigning state ranks — population size, area of occupancy in Montana, short and long-term population trends, threats, intrinsic vulnerability, and specificity to environment. Based on these factors, a preliminary rank is calculated and is reviewed by members of the Montana Chapter of the Wildlife Society and Montana Chapter of the American Fisheries Society or other key experts. A committee of biologists from MNHP and MFWP then reviewed these rankings for consistent documentation and application of the criteria. Detailed documentation of the criteria and assessment process are available on the MTNHP website at:

http://mtnhp.org/animal/2004_SOC_Criteria.pdf

Among other things, the combination of global and state ranks often helps describe the proportion of a species' range and/or total population occurring in Montana. For instance, a rank of G3 S3 often indicates that Montana comprises most or a very significant portion of an animal's total population. In contrast, an animal ranked G5 S1 often occurs in Montana at the periphery of its much larger range; thus, the state supports a relatively small portion of its total population.

Rank		**Definition**
G1	**S1**	At high risk because of **extremely limited** and/or **rapidly declining** population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.
G2	**S2**	At risk because of **very limited** and/or **potentially declining** population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.
G3	**S3**	Potentially at risk because of **limited** and/or **declining** numbers, range and/or habitat, even though it may be abundant in some areas.
G4	**S4**	Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.
G5	**S5**	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.
GX	**SX**	Presumed Extinct or Extirpated - Species is believed to be extinct throughout its range or extirpated in Montana. Not located despite intensive searches of historical sites and other appropriate habitat, and small likelihood that it will ever be rediscovered.
GH	**SH**	Historical, known only from records usually 40 or more years old; may be rediscovered.
GNR	**SNR**	Not Ranked as of yet.
GU	**SU**	Unrankable - Species currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNA	**SNA**	A conservation status rank is not applicable for one of the following reasons: 1) The taxa is

		of Hybrid Origin; is Exotic or Introduced; is Accidental or 2) is Not Confidently Present in the state. (see other codes below)

- ***Combination or Range Ranks***

G#G# or **S#S#**	Indicates a range of uncertainty about the status of the species. *e.g. G1G3 = Global Rank ranges between G1 and G3 inclusive*

- ***Sub-rank***

T#	Rank of a subspecies or variety. Appended to the global rank of the full species, *e.g. G4T3*

- ***Qualifiers***

Q	**Questionable** taxonomy that may reduce conservation priority-Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. Appended to the global rank, *e.g. G3Q*
?	**Inexact Numeric Rank -** Denotes uncertainty; inexactness.
A	**Accidental -** Species is accidental or casual in Montana, in other words, infrequent and outside usual range. Includes species (usually birds or butterflies) recorded once or only a few times at a location. A few of these species may have bred on the few occasions they were recorded.
B	**Breeding -** Rank refers to the breeding population of the species in Montana. Appended to the state rank, *e.g. S2**B**,S5N = At risk during breeding season, but common in the winter*
N	**Nonbreeding -** Rank refers to the non-breeding population of the species in Montana. Appended to the state rank, *e.g. S5B,S2**N** = Common during breeding season, but at risk in the winter*
M	**Migratory -** Species occurs in Montana only during migration.

Gray Wolves were first delisted from the USFWS Threatened and Endangered Species list on March 28, 2008. Subsequent litigation resulted in the wolves being re-listed on July 18, 2008. Wolves were delisted for a second time May 4, 2009 and legal challenges resumed. Montana intervened in the lawsuit by supporting delisting efforts. An injunction request was denied in September. All legal briefs have been filed and no decision in the case had been issued as April12, 2010. It is a possibility that gray wolves could be re-listed again for the third time pending a federal district court decision.

As per the MFWP 2009 Annual Wolf Monitoring report: As of Dec. 31, 2009, FWP documented at least 524 wolves in 101 verified packs, 37 of which qualified as a “breeding pair.” That’s about a 4 percent increase from 2008, compared to 18 percent in 2007. The rate of population growth is slowing down, in part because of the dampening effect of the combination of public harvest and agency control and because the best habitat is already occupied. Nonetheless, mortality was not high enough to stop or reverse population growth and the population is secure and well above recovery levels. A minimum of 166 pups were documented in 2009.

There are three documented wolf packs in the North Fork Valley outside of GNP, two of which utilize the North Fork corridor study area within their home range. They are referred to as the Smoky and Dutch packs. The Kintla pack is further to the north outside of the corridor study area. Gray wolves depend upon large mammals for their prey base but exhibit considerable flexibility in using different prey and habitats. Wolves living amidst the high ungulate diversity of the Rocky Mountains feed principally upon deer, elk, and moose. Individual female wolves have high reproductive capacity, but social behavior can limit successful breeding to one adult female per pack. Wolf populations with an adequate prey base appear capable of sustaining annual mortality rates of 20 to 40 percent. Wolves have dispersed upwards of 800 km, but success generally decreases inversely with distance. Wolves appear relatively tolerant of human activities, but humans account for 80 to 90 percent of wolf mortality (Weaver, 2001).

Wolves in the lower transboundary Flathead (MT) have preyed in winter primarily upon white-tailed deer (71 percent of 387 kills) followed by elk (24 percent) and moose (5 percent) (combining data on 221 kills 1985-91 [Boyd et al. 1994] and 166 kills from 1992-96 [Kunkel et al. 1999]). During the initial years following wolf re-colonization of the North Fork, wolves preyed more on elk relative to white-tailed deer (1:2) than in latter years (1:6). Wolves killed the more vulnerable individuals (young-of-the year and older animals) in the prey population. In this area, cougars also preyed mostly on white-tailed deer (87 percent) and selected prey individuals similar in age, sex, and condition as those killed by wolves (Kunkel et al. 1999). Wolves in the upper Flathead (B.C.) appeared to use elk and moose more in addition to white-tailed deer (D. Boyd pers. comm.). In the rugged topography of the Rocky Mountains, wolves select valley bottoms and lower slopes where they incorporate key wintering sites of ungulates (deer, elk, and moose) in their travels (Weaver 1994, Singleton 1995, Boyd-Heger 1997). Wolves use the valley bottom intensively from Sage Creek (B.C) down to Camas Creek – particularly areas east of the river (Weaver, 2001).

3.5 Threatened and Endangered Species

Threatened and endangered species include those listed or proposed for listing by the USFWS as threatened or endangered. Under Section 7 of the Endangered Species Act (ESA), as amended, activities conducted, sponsored or funded by federal agencies must be reviewed for their effects (direct, indirect and cumulative) 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 (USFWS, 2010):

- Bull trout (*Salvelinus confluentus*) LT/CH/PCH
- Canada Lynx (*Lynx canadensis*) LT/CH
- Grizzly Bear (*Ursus arctos horribilis*) LT
- Spalding's Catchfly (a.k.a Spalding's Campion) (*Silene spaldingii*) LT

Spalding's Catchfly

Spalding's Catchfly exists in only a few locations in the northwest corner of the state. Extant occurrences are known in the following areas: Tobacco Plains area, Lost Trail National Wildlife Refuge, the Niarada area and on Wild Horse Island. The majority of occurrences have less than 100 individuals, though the largest population range-wide occurs in the state and is estimated to contain several thousand plants. One historical occurrence exists from the Columbia Falls area. Several threats affect the long-term viability of the species in the state. Invasive weeds are the most widespread threat and are negatively impacting the bunchgrass habitat occupied by *Spalding's Catchfly*. Of the extant populations of Spalding's Catchfly in northwestern Montana, Housing development and subdivision are directly impacting one occurrence and has the potential to further isolate other populations. Cattle grazing is affecting five populations and two other occurrences have apparently been extirpated recently from the severe impacts associated with llama grazing. Fire exclusion and the successive build-up of litter compared to historical conditions appears to be having negative impacts on survival and reproduction. Populations are also at risk due to the small numbers of individuals and their isolated nature, which reduces the chances of cross-pollination and gene flow between populations.

Spalding’s catchfly generally prefers open, mesic grasslands in the valleys and foothills usually with rough fescue, Richardson's needlegrass and Idaho fescue. Occasionally it may occur with scattered ponderosa pine or broadleaf shrubs. Soils are usually deep and loamy. *Spalding’s catchfly* typically occurs on northerly aspects and along draws and swales.

No known occurrences of Spalding’s Catchfly have been reported to occur in the corridor study area.

Bull Trout

The North Fork of the Flathead River is mainly comprised of the migratory life form of bull trout. Bull trout live in the Flathead River and Flathead Lake as adults then migrate upstream to spawn in tributaries of the North Fork. Young bull trout may rear from one to several years in these tributaries of the North Fork before migrating downstream to the North Fork, the main stem of the Flathead River and Flathead Lake, where they will spend the majority of their adult life. The North Fork is considered Nodal habitat serving as a critical migratory link for bull trout migrating upstream to spawn in tributaries such as Big Creek. Big Creek is considered Core habitat (drainages containing the strongest remaining populations of bull trout in the restoration area) in the Flathead drainage.

As is the case with all listed species, the corridor study will analyze options considered for impacts to bull trout and their proposed critical habitat. While in-stream projects are not precluded in the corridor, if any improvement option is forwarded into project development that could have an adverse effect upon bull trout or their proposed critical habitat the sponsor must comply with the applicable state, local and federal regulations, and provide appropriate mitigation.

The presence of bull trout in the North Fork and its tributaries does not preclude Flathead County or MDT from upgrading the existing facilities; however, timing or other restrictions may apply to in-stream work so as to avoid or minimize sediment related impacts to spawning fish or their eggs. If a project were to evolve from the corridor study, extensive coordination with fish biologists from the USFWS and MFWP would be necessary under Section 7 of the ESA to go through the jeopardy analysis, whether any “take” of bull trout is anticipated, whether there are impacts to proposed critical habitat and what conservation and coordination measures can be taken to minimize the amount of potential “take”.

Canada Lynx

The lynx was listed as a threatened species on March 24, 2000. Historic lynx range extends from Alaska across much of Canada, with southern extensions into parts of the western United States, the Great lakes states, and New England (Ruediger, B. et.al.. 2000).

Lynx are highly specialized predators whose primary prey is the snowshoe hare (*Lepus americanus*), which has evolved to survive in areas that receive deep snow (USFWS 2000a). Snowshoe hares use forests with dense understories that provide forage, cover to escape from predators, and protection during extreme weather. Generally, earlier successional forest stages have greater understory structure than do mature forests and therefore support higher hare densities; however, mature forests can also provide snowshoe hare habitat as openings develop in the canopy of mature forests when trees succumb to disease, fire, wind, ice, or insects, and the understory grows (USFWS 2000a). Lynx concentrate their hunting activities in areas where hare activity is relatively high (USFWS 2000a). In addition to hares, lynx also eat other small to medium-sized animals and occasionally larger animals and carrion (Nellis 1989).

Primary lynx habitat in the Rocky Mountains and in the Flathead National Forest includes lodgepole pine, subalpine fir and Engelmann spruce (Ruediger et al, 2000). Secondary vegetation interspersed within subalpine forests; including cool, moist Douglas-fir, grand fir, western larch and aspen, may also contribute to lynx habitat. Moist Douglas-fir types are considered secondary habitat that can provide red squirrels, an alternate prey species for lynx during periods when snowshoe hare (primary lynx species) densities are low.

Lynx seem to prefer to move through continuous forest, and frequently use ridges, saddles, and riparian areas. Although cover is important, lynx often hunt along edges (in Ruediger et al, 2000, pg. 1-4).

The corridor study analysis area for lynx is within the Lower Big and Canyon Lynx Analysis Units (LAU). LAU's were mapped on the Forest in 2000 and approximate the size of an area used by an individual lynx, see **Figure 7**. These LAU's include preferred habitat, as well as non-habitat. Habitat was mapped, considering habitat types, winter snow depths and elevation. Non-habitat includes dry forest habitat types, areas with less than 24 to 30 inches of snow annually (roughly 3700' elevation), high elevation habitat types on specific sites and other sites (permanent water, permanent non-forest vegetation, rock and human development).

The status and trend of lynx in the Flathead National Forest is not known. Track surveys along the North Fork road in the winters of 2000-01 and 2001-02 documented lynx to the north of Polebridge, but none south of Polebridge (Edmonds et al. 2002). Track surveys during the winter of 2002-03 to the north of Coal Creek documented tracks (63 sets) of lynx in all the drainages surveyed, as well as several observations of lynx (Edmonds et al. 2003). Winter track surveys in 2002-3 detected only three sets of tracks on the east side of the North Fork (Edmonds et al. 2003) while the remainder were on the west side, lands managed primarily by the Flathead National Forest. They propose three possible reasons for the increased activity on the west side of the North Fork; 1) habitat on the Forest may support higher densities of snowshoe hares because of its diverse age and structure of the forest; 2) the availability of compacted travel routes; and 3) avoidance of wolves, which may make greater use of Glacier National Park. The majority of these observations were from the Trail Creek, Whale Creek and Tepee Creek drainages.

Figure 7 *Canada Lynx Analysis Units Map*

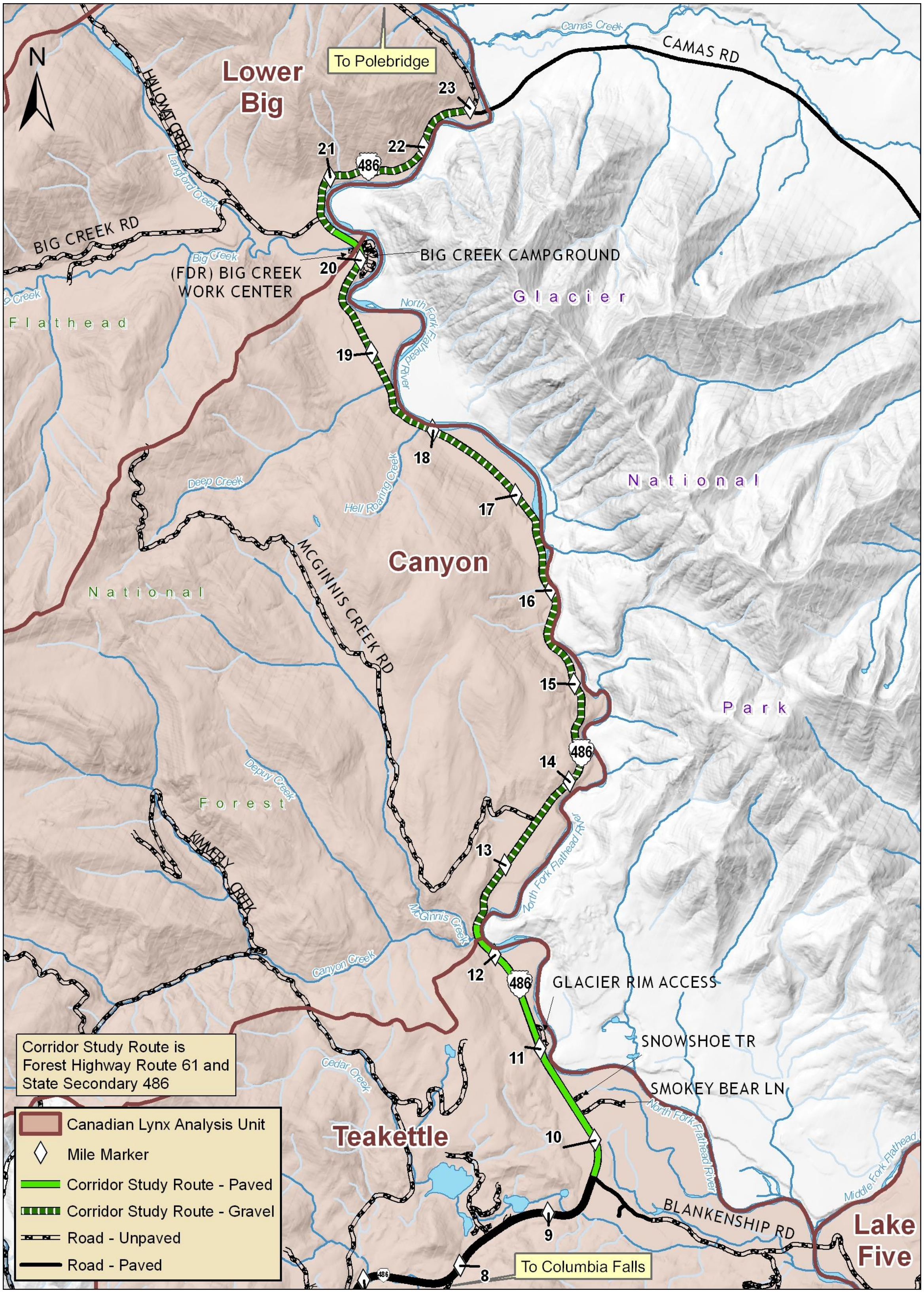
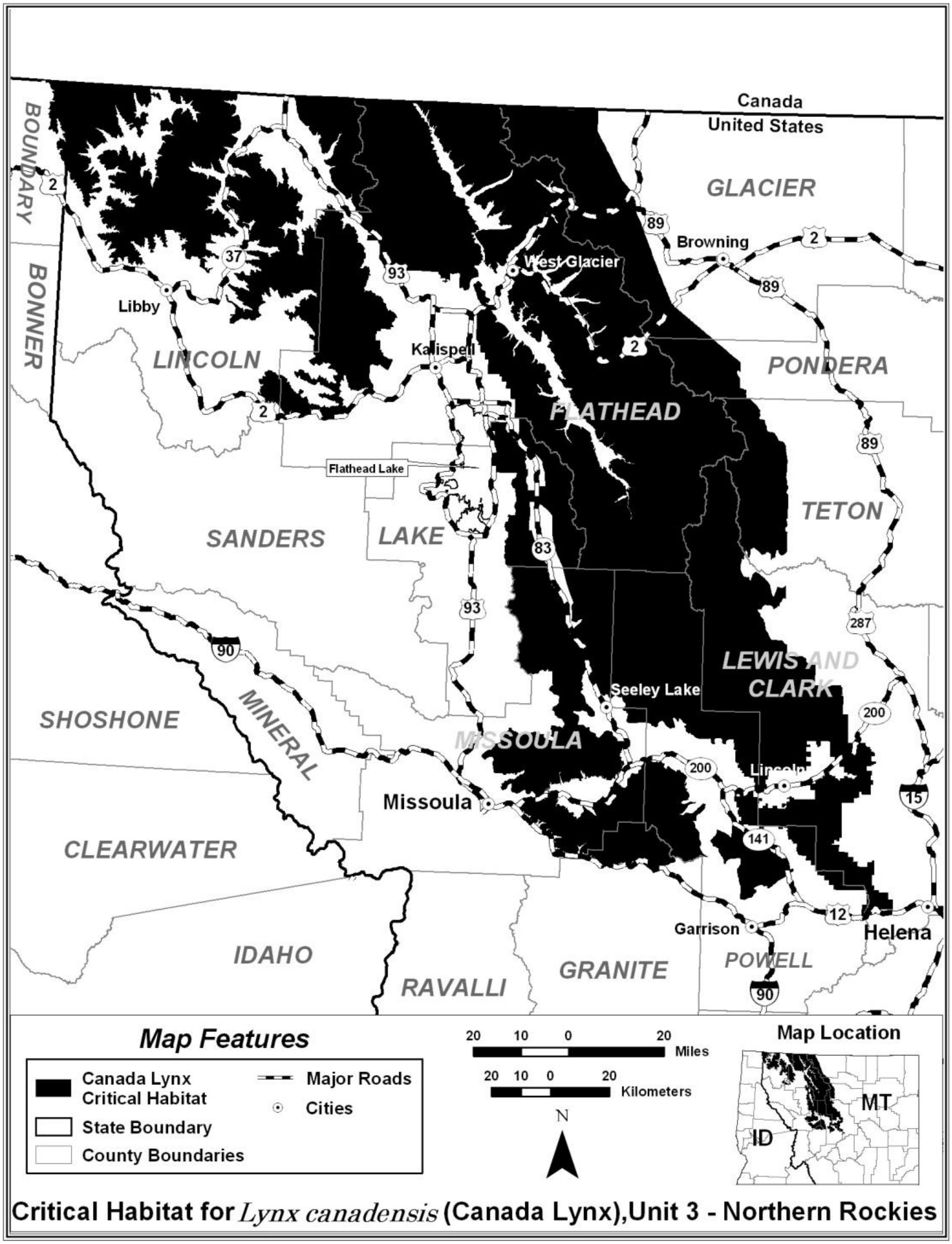


Figure 8 *Designated Lynx Critical Habitat*



In 2006, the Service designated 1,841 square miles of critical habitat for the lynx within the boundaries of Voyagers National Park in Minnesota, Glacier National Park in Montana, and North Cascades National Park in Washington. In February 2008, the Service proposed to revise the critical habitat designation after questions were raised about the integrity of the scientific information used and whether the decision made was consistent with appropriate legal standards. On February 25, 2009 the Service announced changes to designated lynx critical habitat. These changes took effect on March 27, 2009. With this action the Service expanded designated lynx critical habitat. (See **Figure 8**)

The analysis area for the corridor study falls within the Northern Rocky Mountains, Unit 3 designated critical habitat. This area contains the physical and biological features essential to the conservation of the lynx as it is comprised of the primary constituent element and its components laid out in the appropriate quantity and spatial arrangement. This area is essential to the conservation of lynx because it appears to support the highest density lynx populations in the Northern Rocky Mountain region of the lynx's range. It likely acts as a source for lynx and provides connectivity to other portions of the lynx's range in the Rocky Mountains, particularly the Yellowstone area.

The North Fork Road itself appears to be just within designated lynx critical habitat. Discussions with FNF wildlife biologist (R. Kuennen, 2010), indicate that on FNF lands designated critical habitat extends all the way down to the banks of the North Fork Flathead River, whereas on the GNP side, it begins at an elevation beginning at 4000 feet and goes up from there.
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Grizzly Bear

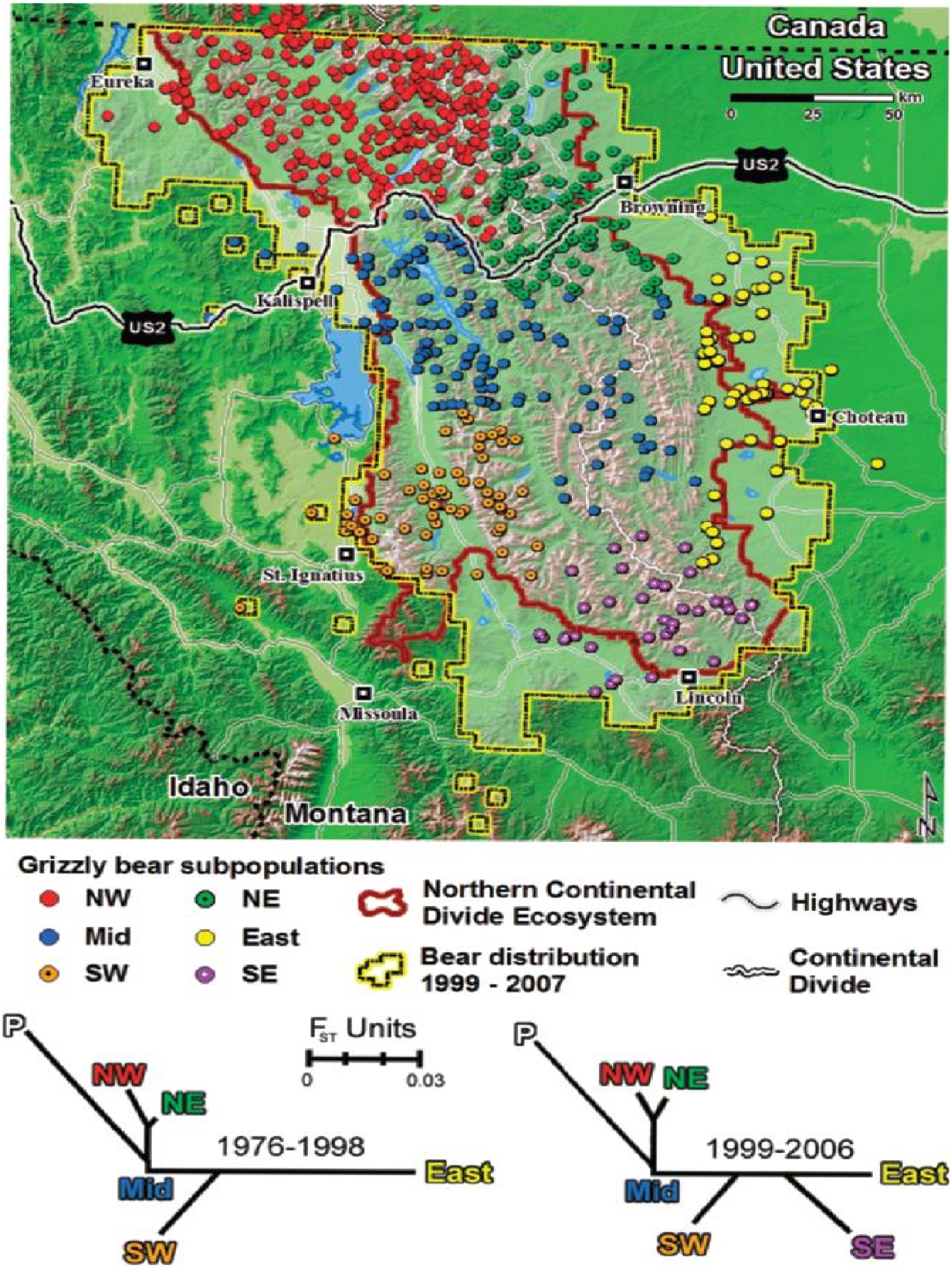
The North Fork Road corridor study lies within the boundaries of the Northern Continental Divide Ecosystem Recovery Zone. Grizzly bears in the North Fork have been studied for over 30 years. A proposed road paving project along Secondary 486 back in the late 70's and early 1980's was found by the USFWS to have the potential to Jeopardize the continued existence of the listed threatened Grizzly bear in 1980 and 1982 (USFWS, 1980, 1982). Grizzly bears are known to occur throughout the North Fork valley with higher densities further north closer to the Canada - U.S. border. Kendall et.al, 2009 estimated the population of Grizzly bears in the NCDE recovery zone to be approximately 765 bears in 2004, with the higher bear densities occurring within Glacier National Park and the North Fork valley (See **Figure 9** below). GPS telemetry of individual Grizzly bears indicates that Grizzly bears do occur within the corridor study area in particular at the southern end and the northern end near Great Northern Flats and the confluence of Big Creek and the North Fork River (Servheen and Williams, Pers.Comm, 2010).

There is extensive literature available covering topics related to Grizzly bear biology in Montana and specifically to Grizzly bears in the North Fork valley in Canada and the U.S. It is not the intent of this report to go into extensive detail on bear biology, however many sources covering this topic have been assimilated and can be made available to the consultant during their analysis of options for dust abatement in this corridor study.

McLellan and Hovey, 2001, reported on habitats selected by Grizzly bears in a multiple use landscape. This study was conducted in the North Fork valley in both Canada and the U.S. They found that when bears are not hibernating forest habitats had the highest number of bear locations; however, it was also the most common habitat. Grizzly bears tended to use other habitats disproportionately more than the area those habitats represented on the landscape. Riparian areas and avalanche chutes composed only 4.2 percent and 3.5 percent respectively, of the landscape in the study area. However, Grizzly bear use of these areas was relatively high at 24.2 percent and 7.0 percent respectively.

McLellan and Hovey reported that compositional analysis of these proportions using sex, age class, and season as factors showed that Grizzly bears used habitats differentially, but season was the only factor investigated that had a significant effect. Riparian habitats were selected over other habitats in spring and fall. During the summer, Grizzly bears selected open-forest burns and open burns over other habitats. During autumn, Grizzly bears selected riparian areas primarily along with forest and open forest habitats. They also showed that Grizzly bears used habitats in elevation categories unequally and season was again the only factor of those investigated that had an effect. Bears were at high elevations either in their dens or close to their den sites early in the spring. The median average elevation declined after emerging from dens and it remained low for about 12 weeks as the Grizzly bears primarily used riparian habitats. The median average elevation increased in summer when open-forest burns and open burns were frequently used. Two male bears used talus at high elevations during summer. In autumn, the median average elevation again declined down to riparian areas but increased again to higher elevations where the bears hibernated.

Figure 9 *Grizzly Bear Subpopulations Kendall et.al., 2009*



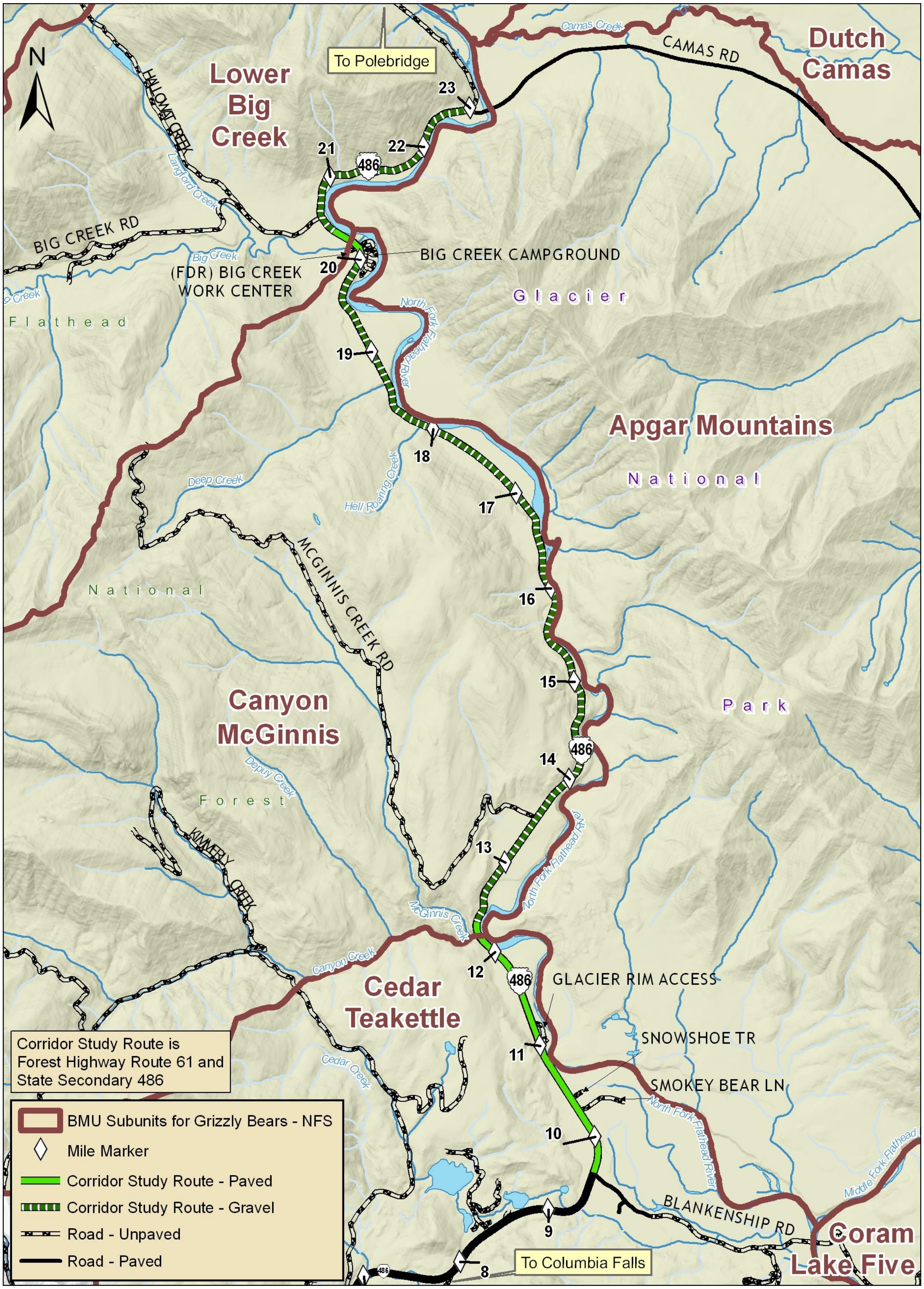
FNF has provided a figure with designated Bear Management Units and subunits for the corridor study area. The corridor study area is within the Upper North Fork Flathead Bear Management Unit (BMU), specifically within the Lower Big Creek and Canyon/McGinnis subunits.(See **Figure 10** below). Subunits are roughly the approximate the size of a female Grizzly bear's home range, including seasonal and elevational distribution of habitats. The home range size, and subsequently the subunit BMU size, varies according to habitat type. On the Flathead National Forest, for example, Mace and Manley (1993) found 48 square miles to be the size of the average home range for nine adult female grizzlies.

With regards to roads, bear mortality occurs both directly and indirectly. Direct causes of death come from road kill as animals attempt to cross highways or other routes that carry high speed traffic. Train-bear collisions have been a recurring problem along the Burlington-Northern Santa Fe Railway tracks on the southern boundary of Glacier National Park in Montana. Railway accidents have regularly spilled grain on and around the tracks, which subsequently attracts bears to feed on the grain and leads to bear deaths. Indirect mortality results from illegal poaching (and, until the early 1990s, legal hunting in Montana) by people using roads in Grizzly habitat and from federal or state control actions in response to human/bear conflicts along roads. Even closed road systems may present potentially lethal conditions for bears. As the Grizzly Bear Recovery Plan notes:

> Mortality is the most serious consequence of roads in Grizzly habitat. Research has confirmed that grizzlies experience increased vulnerability to legal harvest and poaching as a consequence of increased road access by humans (Schallenberger 1980, Zager 1980, McLellan and Mace 1985, Aune and Kasworm 1989). McLellan and Mace (1985) found that a disproportionate number of human-causes Grizzly mortalities occurred near roads. In Montana, Dood et al. (1986) reported that 48 percent of all known non-hunting mortalities during 1967-1986 occurred within one mile of roads. Aune and Kasworm (1989) reported 63 percent of known human-caused Grizzly deaths on the east front of the Rocky Mountains occurred within 1 km of roads, including 10 of 11 known female Grizzly bear deaths. Bears are also killed by vehicle collision, the most direct form of road-related mortality (Greer 1985, Knight et al. 1986, Palmisciano 1986) in (Bechtold et.al, 1996, internet).

Any proposed project resulting from the North Fork Road Corridor Study would need to be reviewed for potential impacts to Grizzly bears and their habitat. It is likely that any proposed project beyond maintaining existing conditions would likely result in formal consultation under Section 7 with the USFWS if federal funds or a federal action is involved, especially if the proposal would increase traffic speeds, lead to increased development or increase traffic volumes. Through the formal consultation process the USFWS would issue a biological opinion for any proposed road project using federal funds that is deemed “Likely to Adversely Affect” Grizzly bears or any other federally listed species. In their 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 the amount of “take”.

Figure 10 *North Fork Corridor Grizzly Bear Management Units – Subunits, FNF, 2010*



4 Potential Hazardous Sites

The Montana Natural Resource Information System (NRIS) database was searched for underground storage tank (UST) sites, leaking underground storage tank (LUST) sites, abandoned mine sites, remediation response sites, landfills, National Priority List (NPL) sites, and toxic release inventory sites in the vicinity of the North Fork road in the corridor study area. There were *no* UST sites, LUST sites, abandoned mine sites, remediation response sites, landfills, NPL sites, or toxic release inventory sites identified in the vicinity of the corridor study area. Because there were no sites identified in the corridor study area with potential environmental concerns, it appears unlikely that soil or groundwater contamination would be encountered during any improvement projects on the North Fork road.

5 Traffic Noise

Even though the majority of the project corridor is undeveloped, traffic noise will need to be evaluated for any recommendations forwarded into project development. If the roadway improvements are limited (e.g. the horizontal and vertical alignments are not changed and the surfacing remains gravel) then the project would *not* be considered a Type I project. If the improvements planned for the road include a significant shift in the horizontal or vertical alignments, paving of the roadway, and/or increasing the traffic speed and volume then the project would be considered a Type I project.

A detailed noise analysis would be required if the project is considered a Type I project. A detailed noise analysis includes measuring ambient noise levels at selected receivers and modeling design year noise levels using projected traffic volumes. Noise abatement measures would be considered for the project if noise levels *approach* or *substantially exceed* the noise abatement criteria (NAC) listed below in **Table 3**

TABLE 3 – NOISE ABATEMENT CRITERIA (NAC)

ACTIVITY CATEGORY	Leq(h) dBA	DESCRIPTION OF ACTIVITY CATEGORY
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above.
D	--------------	Undeveloped lands.
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

If traffic noise impacts are shown to exist on the project, a number of possible abatement measures may be considered, including but not limited to the following:

- Altering the horizontal or vertical alignment;
- Constructing noise barriers such as sound walls or earthen berms; and/or
- Decreasing traffic speed limits.

The noise abatement measures must be considered *reasonable* and *feasible* prior to implementation. In addition, greater than 50 percent of the affected residents must agree with the proposed noise abatement measures.

Lastly, construction activities along the North Fork road in the corridor study area may cause localized, short-duration noise impacts. Efforts to minimize these impacts should be considered during construction.

6 Air Quality

6.1 Existing Conditions

The North Fork road—within the corridor study area—is a gravel roadway that was last improved in 1987. This section of the North Fork road is considered by many to be a rough, wash-boarded road the majority of the year and dusty during the warm summer months. Flathead County Road Department is responsible for maintaining this road. Maintenance activities include grading the roadway and applying dust suppressants (as necessary).

In 2007 DEQ issued an Administrative Order on Consent (AOC) to Flathead County for emissions of airborne particulate matter from unpaved roads in the county. To resolve the AOC, Flathead County agreed to a Supplement Environmental Project (SEP) for dust abatement activities on unpaved roads in the county. The SEP included the following:

- Implementing a dust abatement program on gravel county roads;
- Installing speed limit signs indicating a mandatory speed limit of 35 MPH and a recommended speed limit 20 MPH for all unpaved roads; and
- Hiring a half-time sheriff deputy to enforce speed limits on gravel county roads.

Since Flathead County maintains the North Fork road, the corridor study area is included in this SEP.

6.2 Non-attainment Areas

EPA designates communities that do not meet National Ambient Air Quality Standards (NAAQS) as “non-attainment areas.” States are then required to develop a plan to control source emissions and ensure future attainment of NAAQS. The corridor study area is not located in a non-attainment area for PM-2.5, PM-10, or carbon monoxide (CO). The nearest designated PM-10 non-attainment area is located in the City of Columbia Falls, approximately 8 miles south of the southern end of the corridor study. There are no nearby PM 2.5 or CO non-attainment areas.

6.3 Class I Airsheds

Glacier National Park is a mandatory Class I Airshed and is located adjacent to the corridor study area, on the east side of the North Fork of the Flathead River. Class I Airsheds are considered the most pristine airsheds in the country. Therefore, state and federal air regulators are required "to preserve, protect, and enhance the air quality" in these areas. Designation as a Class I area permits only small incremental increases in new air pollutants. Of particular concern in these areas is visibility (or haze). Glacier National Park (GNP) is opposed to paving the road since its management direction is to preserve and protect the primitive values inherent in the North Fork portion of the Park. GNP believes that paving would lead to an increase in traffic and development, loss of wildlife habitat and connectivity, and a degradation of the primitive values of the North Fork portion of the Park. The Park's designation as a World Heritage Site and Biosphere Reserve also intensifies the Park's desire to preserve this area.

A requirement of the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act (CAA) require that new major stationary sources—or major modifications of existing stationary sources—must first receive a PSD permit before implementing construction. A stationary source is one that is well defined such as the stack(s) of a coal-fired power plant. Maintenance or reconstruction activities on the North Fork road (within the corridor study area) would *not* be considered a major stationary source; therefore, these activities would *not* be subject to the PSD permitting process.

6.4 MSATs

Depending on the scope of the projects being considered along this corridor, an evaluation of mobile source air toxics (MSATs) may be required. MSATs are compounds emitted from highway vehicles and off-road equipment which are known or suspected to cause cancer or other serious health and environmental effects.

7 Historical, Cultural and Archaeological Resources

Damon Murdo of the Montana State Historic Preservation Office conducted a file search of the project corridor in April 2010. The search turned up numerous previous cultural resource inventories, done mostly for USFS timber sales, and two (2) previously recorded cultural resources adjacent to the road. The two sites consist of: 24FH434, a historic ranger station, and 24FH952 a historic trail. In addition, MDT Archaeologist Steve Platt discussed the project with Flathead National Forest Archaeologist Tim Light. Neither site is likely to be impacted by minor improvements to the existing roadway. Any future reconstruction of the North Fork Flathead Road would require a cultural resource inventory of the corridor.

8 Social and Economic Resources

Flathead County, which lies just west of GNP, has experienced an extraordinary rate of growth. Its population increased 26 percent between 1990 and 2000, and another 9 percent from 2000 to 2004. Although the majority of that increase has occurred farther out in the Flathead Valley, there is residential development close to the western border of the Park, along the North and Middle Forks of the Flathead River, and in the corridor between West Glacier and Columbia Falls. Some of that development has impacted prime winter range just beyond the Park's border (Sax and Keiter, 2007).

Utility service to the corridor is provided by Flathead Electric Cooperative's 7200KV single phase overhead power from MP 9.6 to 10.5, then underground power from MP 10.5 to 11.5. Century Link provides underground telephone from MP 9.6 to 11.5 (50 pair copper line). Near the end of the study area, at MP 22.7+/- where Camas Road joins S-486, there is Quest underground telephone heading north to Polebridge.

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