ENVIRONMENTAL ASSESSMENT

On an Application for an

OPENCUT MINING AMENDMENT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to identify, disclose, and analyze the impacts of a proposed action. This document may disclose impacts that have no legislatively required mitigation measures, or over which there is no regulatory authority.

The state law that regulates gravel mining operations in Montana is the Opencut Mining Act. This law and the rules adopted thereunder place operational guidance and limitations on a project during its lifetime, and provide for the reclamation of land affected by opencut mining operations.

Local governments and other state agencies may have authority over different resources and activities under their regulations. Approval or denial of this Opencut Application will be based on a determination of whether or not the proposed operation complies with the Opencut Mining Act and the rules adopted thereunder. The DEQ approval of this application would not relieve the operator from the obligation to comply with any other applicable federal, state, or county statutes, regulations, or ordinances. The operator is responsible for obtaining any other permits, licenses, approvals, etc. that are required for any part of the proposed operation.

APPLICANT: Knife River

COUNTY: Carbon

SITE NAME: Giest

DATE: February 2011

LOCATION: Section 18, Township 7S, Range 23E

PROPOSAL: The applicant proposes to amend an existing 6.0 acre permitted gravel mine with an additional 13.3 acres. The proposed total permit area will be 19.3 acres for a short term gravel pit to mine, crush, stockpile and transport 170,000 cubic yards of sand and gravel from the site. The site is north of Golden Lane, approximately 2.5 miles south of Bridger, Montana near Mile Marker 17 on Highway 72. The site is located 400 feet west of the Clarks Fork of the Yellowstone River in a rural agricultural area. The eastern half of the site has been mined and the western half is irrigated pastureland. Groundwater is located 15 to 18 feet below the surface. The Operator has stated they will maintain a minimum of 3 ft. of fill above the high groundwater level for this site.

A reclamation bond would be held by DEQ to ensure that final reclamation of the site to pastureland would be completed by October 2012.

This application contains all items required by the Opencut Mining Act and its implementing rules. Proponent commits to properly conducting opencut operations and would be legally bound by the permit.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:	This site is in the alluvial valley of the Clarks Fork of the Yellowstone River. The site is located on a river terrace 400 feet west of the river. Soil in this area is typically a well drained gravelly silty clay loam, gravelly clay loam, clay loam or sandy clay loam. The average precipitation is 11.5 inches per year. *Impacts:* An irreversible and irretrievable removal of gravel from the site would occur. A small impact to the quantity and quality of soils from salvaging,

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
	stockpiling, and resoiling activities also would occur, but this would not impair the capacity of the soils to support full reclamation. There are no unusual topographic, geologic, soils, or special reclamation considerations that would prevent reclamation success.
2. WATER QUALITY, QUANTITY AND DISTRIBUTION	The estimated seasonal high water table level in the main permit area is 15 feet from the ground surface and estimated low water table level is 18 feet from the ground surface. The estimated maximum depth of mining will be at least 3 feet above the high water table level. *Impacts:* The proposed activities would have a minimal effect on the quantity and quality of the surface and groundwater resources. *Cumulative:* Cumulative impacts for this site would be negligible on water resources.
3. AIR QUALITY	Air quality standards are based upon the Clean Air Act of Montana and pursuant rules and are administered by the DEQ Air Resources Management Bureau (ARMB). Its program is approved by the Environmental Protection Agency (EPA). These rules and standards are designed to be protective of human health and the environment. Air quality permits would be required on the processing equipment before installment. Machinery, such as generators, crushers and asphalt plants, are individually permitted for allowable emissions. Best Available Control Technology (BACT) is the usual standard applied. Fugitive dust is that which blows off the pit floor, stockpiles, gravel roads, farm fields, etc. It is considered to be a nuisance but not harmful to health. *Impacts:* Air quality standards as set by the federal government and enforced by the ARMB would allow minimal detrimental air impacts.
4. VEGETATION COVER, QUANTITY AND QUALITY	The undisturbed land has pasture grasses with approximately 95% cover. The previously mined land is barren of vegetation. The vegetation would be removed as soil is stripped and the site would be replanted with a plant species compatible with the proposed post-mining land use. *Impacts:* No long term detrimental impacts to the vegetation would occur. Post reclamation with a plant root zone closer to the groundwater may allow for more productive vegetation
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:	Although the area is used primarily for pasture, it also supports populations of deer, rodents, song birds, pheasants, foxes, raptors, insects and various other animal species. Population numbers for these species are not known. *Impacts:* The proposed mine is expected to temporarily displace some individual species and it is likely that the site would be re-inhabited following reclamation to similar habitat.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:	The Montana Natural Heritage Program (MNHP) lists the following four species of concern in the vicinity of the site: Gray Wolf, Greater Short-horned Lizard, Greater Sage-Grouse, Milksnake. **Gray wolf** (*Canus lupus*) is the largest of the wild dogs. In Montana, its range is predominately the western mountainous portion of the state. This species is not migratory but may move seasonally following migrating ungulates within its

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
	territory. The gray wolf exhibits no particular habitat preference except for the presence of native ungulates within its territory on a year round basis. **Greater short-horned lizard** *(Phrynosoma hernandesi)* has a broad and flattened body, short spines crowning the head, a spiny back, and maximum total length of 6 inches. It ranges across much of Montana, mostly east of the Continental Divide. Habitat reports mention individuals on ridge crests between coulees, and in sparse, short grass and sagebrush with sun-baked soil. **Greater sage-grouse** (*Centrocercus urophasianus)* is the largest of Montana's grouse. In Montana, it ranges primarily in the southwestern and eastern portions of the state. This species does not migrate. Sagebrush is its preferred habitat. **Milksnake** *(Lampropeltis triangulatum)* has whitish, black, and reddish to orange banding or rings around the body, an undivided anal scale, and smooth (unkeeled) dorsal scales which distinguish it from all other snakes native to Montana. Milksnakes have been reported in areas of open sagebrush-grassland habitat and ponderosa pine savannah with sandy soils, most often in or near areas of rocky outcrops and hillsides or badland scarps. *Impacts:* None of the listed species have been found on this site. Even if suitable habitat did exist on this site, the disturbance area would be small and large areas of similar or identical habitat surrounds the site. The possible impact to these species would be minimal.
7. HISTORICAL AND ARCHAEOLOGICAL SITES	The Montana State Historic Preservation Office (SHPO) was notified of the application. It reported that there were a few previously recorded sites within the designated search locale and one previously conducted cultural resource inventory in the area. A pedestrian survey of the area by DEQ personnel did not reveal any artifacts or signs of occupation. No signs were evident at depth in the previously disturbed area. Due to the low likelihood that cultural properties would be impacted, SHPO did not feel that a recommendation for a cultural resource inventory was warranted at this time. *Impacts:* If during operations resources were to be discovered, activities would be temporarily moved to another area or halted until SHPO was contacted and the importance of the resources was determined.
8. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	*Impacts:* Negligible impacts to land, water, air, or energy would occur.

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
9. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS	The site is not zoned.
10. DENSITY AND DISTRIBUTION OF POPULATION AND	As seen on the aerial photo, the surrounding rural area is agricultural with 9 farmhouses within ½ mile of the gravel mine. *Impact:* (For commercial pits) This commercial pit is being expanded in this

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
HOUSING	area because of the location of the resource, and to service a MDT highway construction project.
11. AESTHETICS	The closest residents to the north and west will be partially shielded from noise and visual effects by soil and overburden stockpiles on the perimeter of the area. The site is located in an agricultural area with a pastoral landscape. There would be a temporary alteration of aesthetics while mining is under way. However, reclamation would return the area to a visually acceptable landscape. This project is considered to be short-term, i.e. reclamation is planned to be completed within 2 years.
12. QUANTITY/ DISTRIBUTION OF EMPLOYMENT	Existing employees would mainly be utilized for this operation. There is low potential that this project would create a significant number of new jobs. *Impacts:* New employment opportunities would be limited.
13. INDUSTRIAL, COMMERCIAL, AGRICULTURAL ACTIVITIES AND PRODUCTION	The acreage listed in the proposal would be taken out of pastureland use. Upon completion of mining, the land would be reclaimed to pastureland. *Impacts:* Pastureland production would be reduced as soil stripping and operations progress across the site. When the entire site is opened up for mining and mine-related actives, all pastureland activities would cease.
14. LOCAL, STATE TAX BASE AND TAX REVENUES, PERSONAL AND COMMUNITY INCOME	Local, state and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, etc., from the companies, employees, or landowners benefitting from this operation. Following reclamation, it is assumed the tax base would revert to pre-mine levels.
15. DEMAND FOR GOVERNMENT SERVICES	Limited oversight by DEQ Opencut Program personnel would be conducted in concert with other area activity when in the vicinity.
16. HUMAN HEALTH AND SAFETY	Any industrial activity will increase the opportunities for accidental injury. There are agencies that require specific safety measures are in place. If followed there is no reason to believe that significant safety issues would be present.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES	This activity would not inhibit the use of the identified resources.
18. NATIVE CULTURAL CONCERNS	*Impacts:* None identified.

19. Alternatives Considered:

A. Denial Alternative: The Department would deny an application that does not comply with the Act and Rules. No impacts to the natural or human environment would occur.

B. Approval Alternative: The Department would approve an application that complies with the Act and Rules. Impacts of this application are addressed in the body of the EA.

20. Public Involvement, Agencies, Groups or Individuals contacted: Montana State Historic Preservation Office, Montana Natural Heritage Program.

21. **Other Governmental Agencies which May Have Overlapping or Sole Jurisdiction include, but may not be limited to:** Carbon County Commission or County Planning Department (zoning), Carbon County Weed Control Board, MSHA and OSHA (worker safety), DEQ ARMB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT (road access).

22. **Regulatory Impact on Private Property:** The analysis done in response to the Private Property Assessment Act indicates no impact. The Department does not plan to deny the application or impose conditions that would restrict the use of private property so as to constitute a taking.

23. **Magnitude and Significance of Potential Impacts:** This proposal is not likely to create impacts of significance due to mitigation, restrictions, and oversight mandated by the Opencut Mining Act and pursuant rules and the Montana Clean Air Act.

24. **Recommendation for Further Environmental Analysis: [ ] EIS [X] No Further Analysis**

EA Prepared By: Don Jackson — Opencut Mining Program Environmental Specialist
Name — Title

EA Reviewed By: Chris Cronin — Opencut Mining Program Supervisor
Name — Title

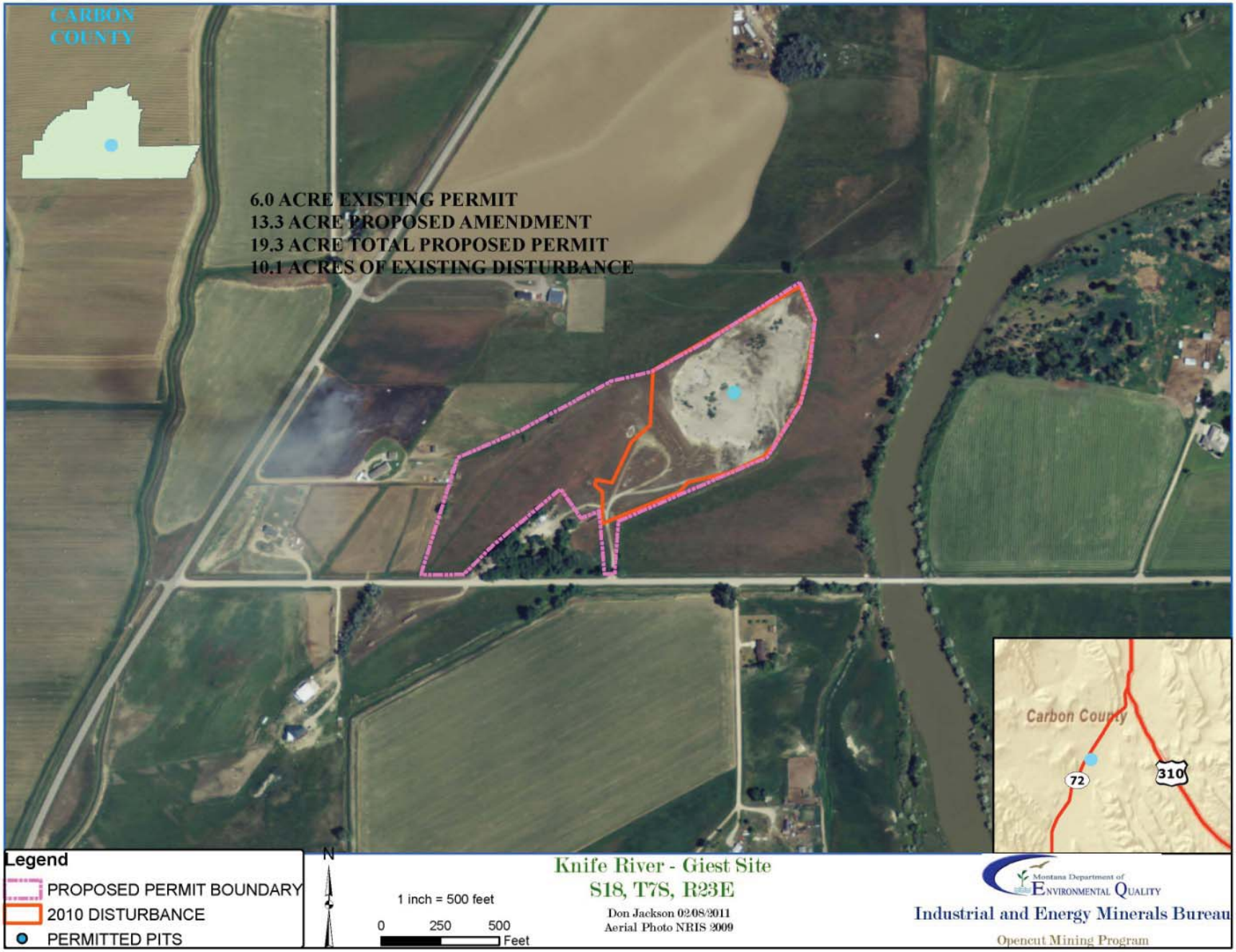
PRIVATE PROPERTY ASSESSMENT ACT (PPAA) CHECKLIST

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PPAA?

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deprive the owner of all economically viable uses of the property?
	X	4. Does the action deny a fundamental attribute of ownership?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? (If answer is NO, skip questions 5a and 5b and continue with question 6.)
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property?
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? (If the answer is NO, skip questions 7a-7c)
		7a. Is the impact of government action direct, peculiar, and significant?
		7b. Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
		7c. Has the government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b.

If taking or damaging implications exist, the agency must comply with § 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.


CARBON COUNTY
6.0 ACRE EXISTING PERMIT
13.3 ACRE PROPOSED AMENDMENT
19.3 ACRE TOTAL PROPOSED PERMIT
10.1 ACRES OF EXISTING DISTURBANCE
Carbon County
72
310
Legend
PROPOSED PERMIT BOUNDARY
2010 DISTURBANCE
PERMITTED PITS
N
1 inch = 500 feet
0 250 500 Feet
Knife River - Giest Site
S18, T7S, R23E
Don Jackson 02/08/2011
Aerial Photo NRIS 2009
Montana Department of Environmental Quality
Industrial and Energy Minerals Bureau
Opencut Mining Program

KNIFE RIVER
4014 HESPER ROAD
BILLINGS, MT

GIEST
SW 1/4 SECTION 18, T7S. R23E.
JANUARY 26, 2011
PERMIT AREA = 19.26 ACRES
NAIP ORTHOIMAGERY ZONE 12

WELL GWIC Id: 104083

0 100 200

SCALE IN FEET
1" = 200'

LEGEND
PERMIT BNDRY
PROPERTY BNDRY
PERMIT CORNER MARKER
WELL (APPROX. LOCATION)
TEST PIT (TP-#)

MONTANA
Natural Heritage
Program

P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0581 • tel 406.444.5354 • http://mtnhp.org

December 7, 2010

Debi Sutliff
DEQ
1371 Rimtop Drive
Billings, Montana 59105

Dear Debi,

I am writing in response to your recent request regarding Montana species of concern in the vicinity of Knife River - Giest Site - Permit #2033, in Section 18, T07S, R23E. I checked our databases for information in this general area and have enclosed 9 species occurrence reports for 4 species of concern, 1 ecological site report, a map depicting species of concern and ecological site locations, and a map depicting wetland locations. Note that the maps are in Adobe GeoPDF format. With the appropriate Adobe Reader, it provides a convenient way to query and understand the information presented on the map.

Please keep in mind the following when using and interpreting the enclosed information and maps:

(1) These materials are the result of a search of our database for species of concern that occur in an area defined by requested township, range and section with an additional one-mile buffer surrounding the requested area. This is done to provide a more inclusive set of records and to capture records that may be immediately adjacent to the requested area. Reports are provided for the species of concern that are located in your requested area with a one-mile buffer. Species of concern outside of this buffered area may be depicted on the map due to the map extent, but are not selected for the SOC report.

(2) On the map, polygons represent one or more source features as well as the locational uncertainty associated with the source features. A source feature is a point, line, or polygon that is the basic mapping unit of a Species Occurrence (SO) representation. The recorded location of the occurrence may vary from its true location due to many factors, including the level of expertise of the data collector, differences in survey techniques and equipment used, and the amount and type of information obtained. Therefore, this inaccuracy is characterized as locational uncertainty, and is now incorporated in the representation of an SO. If you have a question concerning a specific SO, please do not hesitate to contact us.

(3) This report may include sensitive data, and is not intended for general distribution, publication or for use outside of your agency. In particular, public release of specific location information may jeopardize the welfare of threatened, endangered, or sensitive species or communities.

(4) The accompanying map(s) display management status, which may differ from ownership. Also, this report may include data from privately owned lands, and approval by the landowner is advisable if specific location information is considered for distribution. Features shown on this map do not imply public access to any lands.

(5) Additional biological data for the search area(s) may be available from other sources. We suggest you contact the U.S. Fish and Wildlife Service for any additional information on threatened and endangered species (406-

449-5225). Also, significant gaps exist in the Heritage Program's fisheries data, and we suggest you contact the Montana Fisheries Information System for information related to your area of interest (phone: 406-444-3373, or web site: **http://fwp.mt.gov/fishing/mFish/**).

(6) Additional information on species habitat, ecology and management is available on our web site in the Plant and Animal Field Guides, which we encourage you to consult for valuable information. You can access these guides at http://mtnhp.org. General information on any species can be found by accessing the link to NatureServe Explorer.

The results of a data search by the Montana Natural Heritage Program reflect the current status of our data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys, which may be required for environmental assessments. The information is intended for project screening only with respect to species of concern, and not as a determination of environmental impacts, which should be gained in consultation with appropriate agencies and authorities.

I hope the enclosed information is helpful to you. Please feel free to contact me at (406) 444-3290 or via my e-mail address, below, should you have any questions or require additional information.

Sincerely,

Martin P. Miller
Montana Natural Heritage Program
martinm@mt.gov

A GUIDE TO WETLAND AND DEEPWATER HABITATS CLASSIFICATION USED IN THE NATIONAL WETLAND INVENTORY (NWI) MAPPING IN MONTANA

Purpose:

The Montana Wetland and Riparian Mapping Center uses the Cowardin classification system (Cowardin et al. 1979) adopted by the National Wetland Inventory (NWI) for wetlands (FGDC Wetlands Subcommittee, 2009). The riparian system follows the U.S. Fish and Wildlife Service (USFWS) standard (U.S. Fish and Wildlife Services, 2009). NWI is the standard classification system for wetland mapping across the United States. For ease of display and interpretation the NWI attributes have been grouped into major wetland and riparian types.

Wetlands

In Montana, there are three NWI wetland systems: Palustrine, Lacustrine, and Riverine.

PALUSTRINE:

- In Montana, this system includes all wetlands dominated by trees, shrubs, and emergent, herbaceous vegetation.
- Wetlands lacking vegetation are included if they are less than 8 hectares (20 acres) in size and are less than 2 meters (6.6 feet) deep in the deepest portion of the wetland.

Freshwater pond:

- Wetlands with vegetation growing on or below the water surface for most of the growing season.

Freshwater Emergent Wetland:

- Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

Freshwater Shrub Wetland:

- Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

Freshwater Forested Wetland:

- Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

LACUSTRINE (Lakes):

- This system includes any large body of water that is greater than 8 hectares (20 acres) in size OR is more than 2 meters (6.6 feet) deep.
- This system is usually found in a topographic depression. It may also be formed by damming of a river channel.

RIVERINE (Rivers and streams and shore):

- This system includes all wetlands and deepwater habitats that are within natural and artificial channels.
- These systems contain either continuous (perennial) or intermittently flowing water.

RIPARIAN:

The Wetland and Riparian Mapping Center uses the riparian classification system developed by the U.S. Fish and Wildlife Service to map riparian areas in Montana. The riparian classification types listed below are followed by the coding convention used for mapping purposes.

- Plant communities (trees, shrubs and/or herbaceous plants)contiguous to rivers, streams, lakes, or drainage ways.
- Riparian areas are influenced by both surface and below surface hydrology.
- The plant species present in riparian areas are distinctly different from plant species found in adjacent areas.
- Plants in riparian areas demonstrate more vigorous or robust growth forms than in adjacent areas.

Riparian Classes:

Scrub-Shrub (SS):

- This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall.
- Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

Forested (FO):

- This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

Emergent (EM):

- Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.

References

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-79/31.

FGDC Wetlands Subcommittee. 2009. Wetlands Mapping Standard. U.S. Geological Survey, Reston, Virginia.

U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406) 444-3009 mtnhp@state.mt.us

Natural Heritage Data Report

Tuesday, December 7, 2010

Visit http://mtnhp.org for additional information.

Ecological Information

LINE CREEK PLATEAU TO PRYOR MOUNTAINS

The geographic scope of your data search intersected an area for which the Natural Heritage Program databases have ecological information. Such information can be useful in assessing biological values and interpreting Species of Concern data. A summary is provided below of conditions at the time of site record creation.

LINE CREEK PLATEAU TO PRYOR MOUNTAINS

General Description

The area extends from the east side of the Beartooth Mountains eastward to the Pryor Mountains. The west end is located 5 miles south of Red Lodge, Montana. This regional area is a premier alpine and desert region that contains an exceptional array of physiographic, climatic and geologic conditions that results in an extremely diverse flora and fauna. The area includes an extensive alpine area on Line Creek Plateau in the Beartooth Range, the dome shaped Pryor Mountains to the south, and the desert region between. Elevations range from 3739 feet (1140 m) to 10112 feet (3083 m). The abrupt elevational change along the east flank of the Beartooth Mountains near Meeteesee Spires is is one of the most severe in Montana. Alpine communities occur above 9,500 feet and are dominated by low shrubs and herbaceous vegetation. Douglas-fir (*Pseudotsuga menziesii*) and limber pine (*Pinus flexilis*) dominate montane forests. Subalpine forest have subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*) and white bark pine (*Pinus albicaulis*). Utah juniper (*Juniperus osteosperma*) and pine woodlands grow in the foothills and rock-crops in the center of the basin. Bunchgrasses and xerophytic shrubs dominate low elevation arid portions of the Bighorn Basin. Wetlands are uncommon in the limestone and desert environment; wet meadows and aspen groves occur sporadically on the alluvial fans just east of the Beartooth front. Saline marshes are found along Sage Creek.

Biological Significance

This area has very rich biological diversity values due to the environmental gradient, geographic location and plant endemism. The bighorn desert region contains many endemic and peripherally uncommon plant and animal species. Desert grasslands, shrubland and woodland communities are more typical of the Great Basin and Colorado Plateau. Utah juniper (*Juniperus osteosperma*) and mountain mahogany (*Cercocarpus ledifolius*) are very unusual and considered uncommon communities in Montana. Both white tailed and black tailed prairie dogs are found in this area. Mountainous regions have a number of arctic-alpine plant species that are disjunct or at the southern edge of their range. This region may have the highest plant endemism in Montana (eight plant species). In all, there are dozens of plants and animals of concern in this area.

Key Ecological Factors

Primary factors influencing the flora and fauna of this region are the diverse environmental gradients. Extremes in elevation and precipitation (rain-shadow effects) are critical factors. The Line Creek Plateau (ele. 10,000 feet) may receive in excess of 40 inches of annual precipitation, the eastern foothills, alluvial fans and northern Bighorn Basin are in the rainshadow of the Beartooth Mountains and may receive less than 6 inches of annual precipitation. Biogeographic factors, such as the Great Basin influence and geographic isolation, are also important. Numerous species with Great Basin affinities are at the northern extent of their range in this area. Fire was probably infrequent in the desert and woodland regions due to paucity of fuels. Coniferous forests were maintained as a mosaic of different age classes by ground and stand-replacing fires.

Exotic Species

Spotted knapweed (*Centaurea maculosa*) and leafy spurge (*Euphorbia esula*) are locally common on the alluvial fans east of the Beartooth Front. Canada thistle (*Cirsium arvense*) and sow thistle (*Sonchus* spp.) are present in wetlands. Some wet meadows in the grove creek area have been planted to Eurasian meadow grasses and used for hay. Russian olive (*Elaeagnus angustifolia*) and salt cedar (*Tamarix ramosissima*) are found along the Clarks Fork of the Yellowstone River.

Other Values

The desert region in this area is potentially a corridor between the Bighorn Mountains and the Greater Yellowstone Ecosystem (Absaroka-Beartooth Wilderness Area) and could serve as a linkage area for migratory ungulates and wide-ranging carnivores.

More detailed data on vegetation communities in this area may be available; if you are interested, contact the Montana Natural Heritage Program at (406) 444-5354 or mtnhp@mt.gov

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Ecological Information

LINE CREEK PLATEAU TO PRYOR MOUNTAINS

Management Information

In the lower elevation, agriculture is the primary land use producing alfalfa, sugar beets, corn and cattle. Cattle graze low elevation grassland and shrublands and particularly riparian environments. The region has year round recreational activity. The open vegetation of the desert region is attractive to off road vehicle use ; the alpine areas receive visitors via mountain bikes in the summer and snowmobile in the winter. Salvage harvest of windthrow has occurred in the Pryor Mountains and aspen groves have been harvested in the past. Much of the lower elevation areas are available for livestock grazing. There are scattered mining claims in the area. Also, there is potential for oil and gas development.

Information Gaps

Information on the occurrence and distribution of exotic infestations is needed. Surveys for animals of special concern are also needed.

More detailed data on vegetation communities in this area may be available; if you are interested, contact the Montana Natural Heritage Program at (406) 444-5354 or mtnhp@mt.gov

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Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, December 7, 2010

Centrocercus urophasianus

View Species Info in MT Field Guide

Common Name: Greater Sage-Grouse
Description: Vertebrate Animal
Mapping Delineation:
Confirmed breeding area based on the presence of a nest, chicks, juveniles, or adults on a lek. Point observation location is buffered by a minimum distance of 6,400 meters in order to encompass the latest research on the area used for breeding, nesting, and brood rearing and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Natural Heritage Ranks:

State: S2
Global: G4

Federal Agency Status:

Click for Status Help

U.S. Fish & Wildlife Service: C
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

FWP CFWCS Tier: 1

MT PIF Code:

Species Occurrences

Species Occurence Map Label: 189541
First Observation Date: 1977-04-01
Last Observation Date: 1999-05-15
SO Number: 720,397
Acreage: 31,636
SO Rank:

Species Occurence Map Label: 189581
First Observation Date: 1977-04-01
Last Observation Date: 1980-05-15
SO Number: 719,658
Acreage: 31,636
SO Rank:

Species Occurence Map Label: 189585
First Observation Date: 2001-04-01
Last Observation Date: 2007-05-15
SO Number: 725,869
Acreage: 31,636
SO Rank:

Species Occurence Map Label: 189587
First Observation Date: 1980-04-01
Last Observation Date: 1993-05-15
SO Number: 720,236
Acreage: 31,636
SO Rank:

Species Occurence Map Label: 189617
First Observation Date: 1997-04-01
Last Observation Date: 2007-05-15
SO Number: 725,840
Acreage: 31,636
SO Rank:

Species Occurence Map Label: 189627
First Observation Date: 2001-04-01
Last Observation Date: 2007-05-15
SO Number: 725,841
Acreage: 31,636
SO Rank:

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, December 7, 2010

Canis lupus

View Species Info in MT Field Guide

Common Name: Gray Wolf
Description: Vertebrate Animal
Mapping Delineation:
U.S. Fish and Wildlife Service recovery area boundaries for northwestern Montana where populations are classified as Endangered and southwestern Montana where populations are classified as Experimental Nonessential.

Species Status

Natural Heritage Ranks:

State: S4
Global: G4

Federal Agency Status:

Click for Status Help

U.S. Fish & Wildlife Service: LE, XN
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

FWP CFWCS Tier: 1

MT PIF Code:

Species Occurrences

Species Occurence Map Label: 218198
First Observation Date:
Last Observation Date:

SO Number: 45
Acreage: 36,979,424
SO Rank:

Phrynosoma hernandesi

View Species Info in MT Field Guide

Common Name: Greater Short-horned Lizard
Description: Vertebrate Animal
Mapping Delineation:
Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 300 meters in order to encompass habitats supporting other individuals and documented distances moved betweeen summer and winter habitats. Otherwise the point observation is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Natural Heritage Ranks:

State: S3
Global: G5

Federal Agency Status:

Click for Status Help

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

FWP CFWCS Tier: 2

MT PIF Code:

Species Occurrences

Species Occurence Map Label: 178923
First Observation Date: 1957-05-01
Last Observation Date: 1957-08-31

SO Number: 3,745
Acreage: 49,431
SO Rank:

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Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Tuesday, December 7, 2010

Lampropeltis triangulum

View Species Info in MT Field Guide

Common Name: Milksnake
Description: Vertebrate Animal
Mapping Delineation:
Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the maximum summer home range size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Natural Heritage Ranks:

State: S2
Global: G5

Federal Agency Status:

Click for Status Help

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

FWP CFWCS Tier: 1

MT PIF Code:

Species Occurrences

Species Occurence Map Label: 178450
First Observation Date: 2005-05-28
Last Observation Date: 2005-05-28
SO Number: 394,027
Acreage: 70
SO Rank:

Montana Species of Concern
Knife River - Giest Site
Permit #2033
Species of Concern / Sites

SPECIES OF CONCERN: A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

NonVascular Plants
- NonVascular Plants

Vascular Plants
- Vascular Plants

Invertebrates
- Invertebrates

Amphibians
- Amphibians

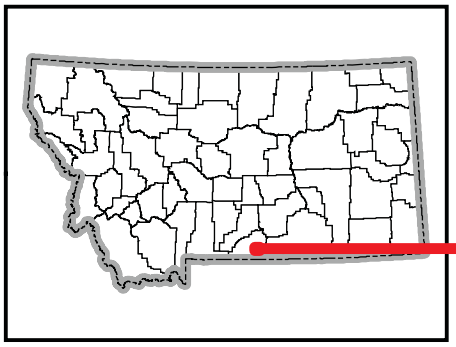
Fish
- Fish

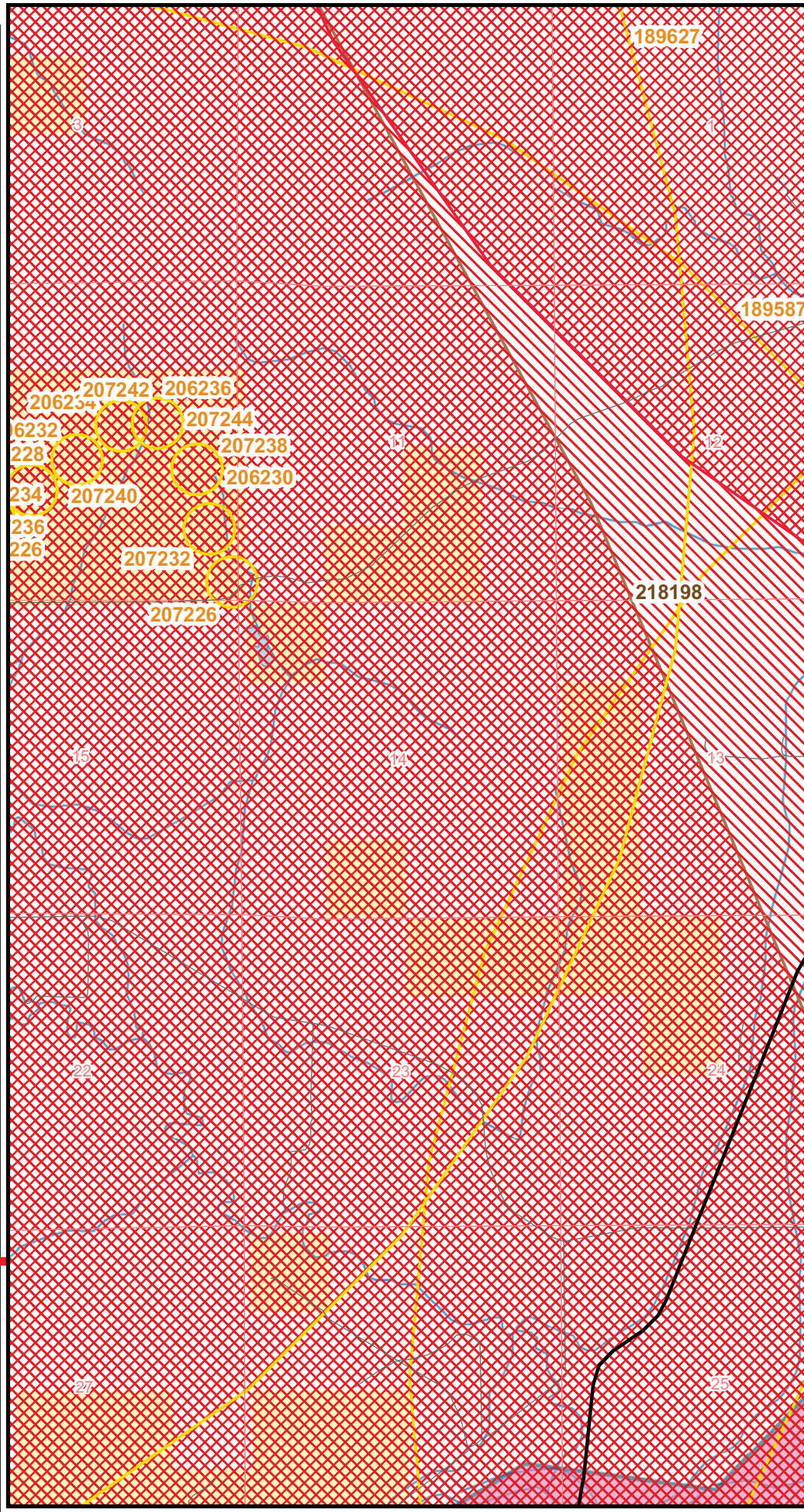
Reptiles
- Reptiles

Birds
- Birds

Mammals
- Mammals

Sites
- Sites





Not all legend items may occur on the map.

Features shown on this map do not imply public access to any lands.

This map displays management status, which may vary from ownership.

MONTANA Natural Heritage Program

Natural Resource Information System, Montana State Library
1515 East Sixth Ave., Helena, MT 59620-1800

406 444-5354 http://mtnhp.org mtnhp@mt.gov

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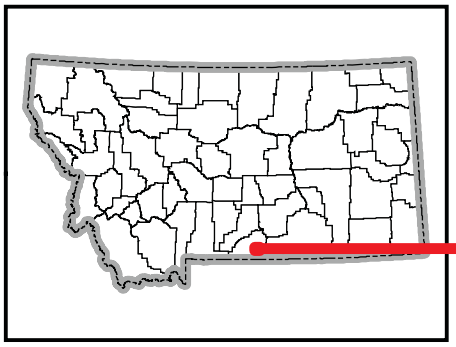
Map Document: K:\REQUESTS\Reques

Montana Species of Concern
Knife River - Giest Site
Permit #2033
Wetlands

SPECIES OF CONCERN: A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

Wetland and Riparian Classes

- Lacustrine
- Freshwater Pond
- Freshwater Emergent Wetland
- Freshwater Shrub Wetland
- Freshwater Forested Wetland
- Riverine
- Riparian Emergent
- Riparian Shrub
- Riparian Forested



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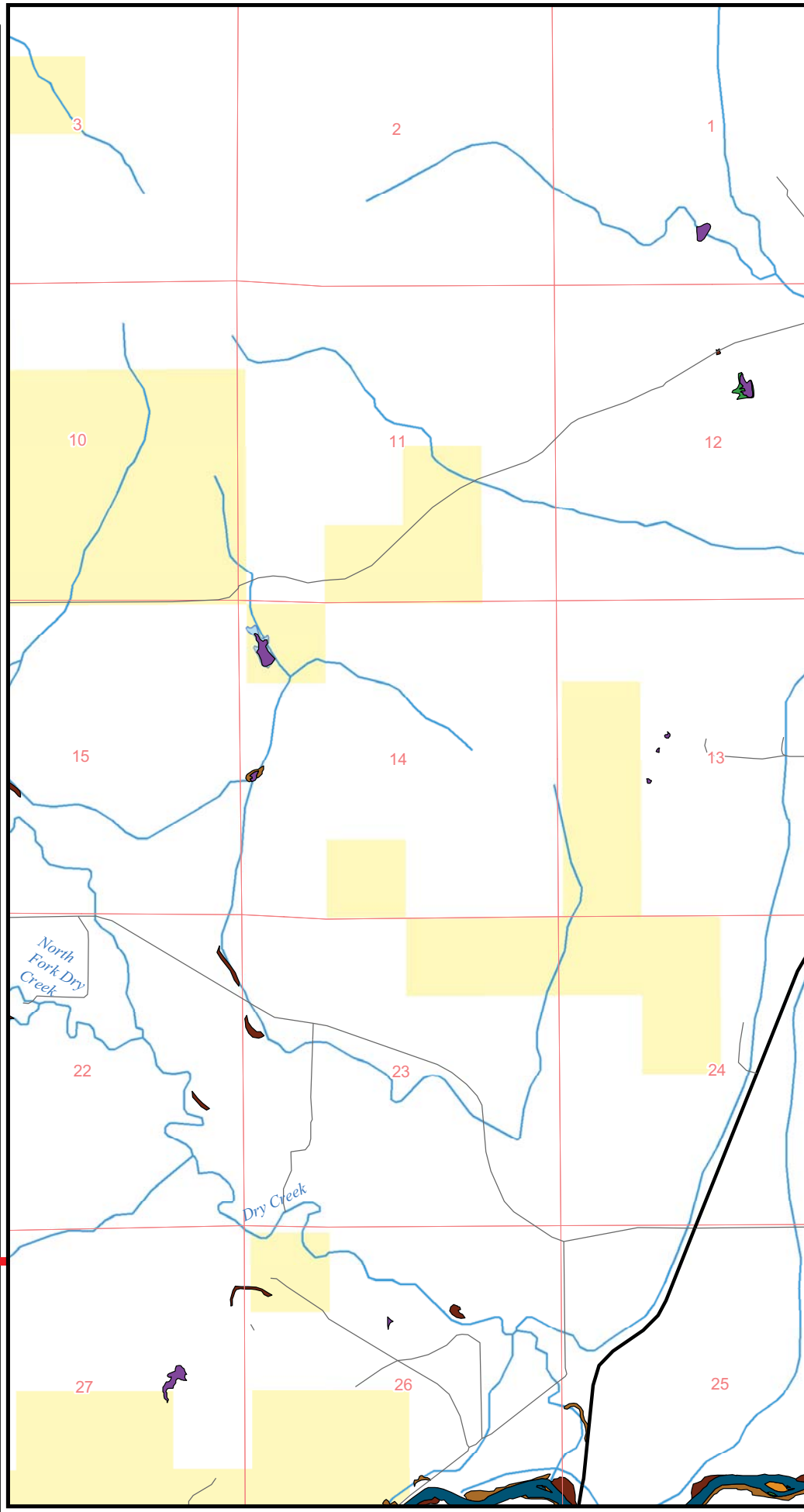
MONTANA Natural Heritage Program



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0 0.5

Map Document: K:\REQUESTS\Reques

December 9, 2010

Debi Sutliff
Hard Rock/Opencut Programs
DEQ, Permitting & Compliance Division
P.O. Box 200901
Helena, MT 59620-0901

RE: KNIFE RIVER-GIEST SITE- PERMIT#2033. SHPO Project #: 2010120809

Dear Debi:

A file search of the statewide cultural resource information databases and a review of your letter resulted in the following information regarding the proposed project location:

1) **Previously recorded sites**
According to our records there have been a few previously recorded sites within the designated search locale.
2) **Previous surveys conducted in the project area**
In addition to the sites there has been one previously conducted cultural resource inventory done in the area.
3) **Previous disturbance in the area of potential effect**
Pasture.
4) **DEQ Gravel Source Inspection Form results**
None provided.
5) **Additional comment or information**
We feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should cultural materials be inadvertently discovered during this project we would ask that our office be contacted and the site investigated.

If you have any questions or comments, please contact me at (406) 444 -7767 or by email at dmurdo@mt.gov. Thank you for consulting with us.

Sincerely,

Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: DEQ/OPENCUT/2010