

ENVIRONMENTAL ASSESSMENT TABLE SUPPLEMENT TO THE LILLY/ORPHAN BOY  
MINE EXPANDED ENGINEERING EVALUATION & COST ESTIMATE

---



*Lilly/Orphan Boy Mine Reclamation and Restoration Project*

*Abandoned Mine Lands Project MT039006*

*Powell County, Montana*

*Prepared by:*

*Montana Department of Environmental Quality Abandoned Mine Lands Program*

*In Cooperation with*

*U.S. Department of the Interior*

*Office of Surface Mining Reclamation and Enforcement Reclamation and Enforcement*

*Casper, WY Field Office*

*April 13, 2016*

## Table of Contents

Description of the Proposed Action.....	3
Need for the Proposed Action .....	3
Alternatives Considered.....	4
Alternative 1: Do not issue an authorization to proceed with the proposed project (No Action) .....	4
Alternative 2: Issue an authorization to proceed with excavation and disposal of mine wastes in an off-site repository. ....	4
Alternative 3: Preferred Alternative - Issue an authorization to proceed with excavation and disposal of mine wastes in the Luttrell Repository.....	5
Affected Environment.....	5
Environmental Impacts of the Proposed Alternatives.....	6
Summary .....	12
Persons and Agencies Contacted to Assist in the Preparation of the EEE/CA.....	12
Preparer .....	13
References .....	13
Appendix A – Consultation Letters (Attachments 1 – 6).....	14
Appendix B - Scoping and Public Comment (Attachments 1 – 8).....	15

## **Description of the Proposed Action**

The Montana Department of Environmental Quality (DEQ) identified twelve segments of the Little Blackfoot River as impaired by metals on the 303(d) list. The reaches, which include Telegraph Creek, do not meet water quality standards and a Total Maximum Daily Load (TMDL) was developed for metals. The source of metals in the watershed includes abandoned mines. Trout Unlimited in 2014 completed the Metals Restoration Strategy for the Little Blackfoot Watershed TMDL Planning Area. In that strategy, Trout Unlimited identified nineteen mines and ranked them for reclamation/restoration in order to achieve metals reduction loads in the watershed. The Lilly/Orphan Boy was ranked number one by the DEQ in that ranking system. Trout Unlimited obtained grant funds from Montana DNRC to complete the Expanded Engineering Evaluation and Cost Analysis (EEE/CA) to utilize the remedial investigation work already completed by the Montana Abandoned Mine Lands (AML) Program.

In 2015 Trout Unlimited (TU) was successful in obtaining a Montana DNRC Planning Grant to complete the Expanded Engineering Evaluation/Cost Analysis (EEE/CA). TU and DEQ have entered into a partnership to complete the removal of mine wastes. The DEQ AML program has secured special grant funds (Orphan Share) for the removal portion of the project and TU has secured grant funds (319 and Future Fisheries) for the restoration portion of the project.

The proposed action is to remove unvegetated waste rock dumps, haul the waste to the Luttrell Repository at the defunct Basin Creek Mine, cover with clean amended soil and revegetate the site. The mine wastes are currently impacting Telegraph Creek which bisects one of the waste rock dumps, those contaminated wastes will be removed and hauled to the Luttrell Repository and the floodplain will be regraded to support a stable stream in form and function. Telegraph Creek will be restored to support fisheries habitat.

Funds for the construction of the project will be obtained from grants outside of OSMRE grant funds to the State of Montana. Work is to be completed under the authority of the Surface Mine Reclamation and Control Act (SMCRA).

## **Need for the Proposed Action**

During the course of underground mining at the Lilly/Orphan Boy mine, waste material of varying degrees of mineralization were deposited on slopes and in Telegraph Creek. The mine waste materials pose risks to human health and safety and to the environment. Upper Telegraph Creek was listed on the 303(d) list for impairments from arsenic, beryllium, cadmium, copper, iron and zinc. Waste rock dumps and contaminated sediment at the site contain elevated levels of metals including arsenic and lead. Currently the mine waste is actively eroding into Telegraph Creek resulting in impairments to the creek. Removal and revegetation of the mine site would reduce metals load to the creek and eliminate the risk to human health and safety.

## **Alternatives Considered**

The EEE/CA for the Lilly/Orphan Boy Mine developed a detailed analysis of three reclamation alternatives which include Alternative 1: No Action, Alternative 2: Excavation and disposal in an off-site repository and Alternative 3: Excavation and disposal in the Luttrell Repository. Please refer to the EEE/CA for additional alternative details, however below contains a brief discussion and summary of the alternatives.

### **Alternative 1: Do not issue an authorization to proceed with the proposed project (No Action)**

Under this alternative the OSMRE Casper Field Office would deny authorization under SMCRA to implement the abandoned mine land reclamation proposal described as Alternative 1. As a result, current conditions would likely worsen as the waste rock dumps continue to erode polluting Telegraph Creek and the Little Blackfoot with sediment and metals. The potential for wildfire in the drainage is great which could result in catastrophic flooding and movement of the contaminated mine waste further into the drainage than under normal conditions. The exposure to human health would continue.

### **Alternative 2: Issue an authorization to proceed with excavation and disposal of mine wastes in an off-site repository.**

Under this alternative, the OSMRE Casper Field Office would authorize construction activities under SMCRA authority by the Montana Abandoned Mine Lands Program to implement the land reclamation proposal described in the following:

Waste rock dumps 1, 2 and 3 and contaminated soils will be removed disposed of in an off-site repository on private land. Work will include regrading the Telegraph Creek floodplain and other removal areas, cover with clean amended soil and revegetate the disturbed areas. Secondary haul roads will be ripped and seeded. Telegraph creek will be restored to support fisheries habitat and the floodplain will be planted with hearty native vegetation to support regrowth. The site will be sprayed for weeds.

Design features of the project that would be used to mitigate harm during the construction phase include: dewatering of Telegraph Creek into a pipe to divert the creek around the site during construction to prevent sediment inputs as a result of erosion. Extensive stormwater BMPs will be placed across the site to prevent stormwater runoff and enable the rapid stabilization of the site through revegetation. BMPs include surface slash, erosion control mat on steep slopes, mulching and seeding with a hearty localized seed mix. Additionally trees and shrubs will be planted across the site to enhance habitat for wildlife. Weeds will be treated during the project and for a minimum of three years following construction to enhance wildlife habitat on the site. Finally, the restoration of Telegraph Creek will be designed to mimic natural conditions to provide for fish habitat. The current wetland features caused by the mine waste impoundment will be reconstructed during restoration to result in a no-net loss of wetlands.

Specific mitigations measures to prevent damage to the historic resources on-site include stabilizing and moving a headframe during construction and then placing it back on the shaft following removal

activities, avoidance of identified historic features and salvage and replacement of features construction activities are unable to avoid.

Water trucks will be active on the site to keep down fugitive dust during project activities.

### **Alternative 3: Preferred Alternative - Issue an authorization to proceed with excavation and disposal of mine wastes in the Luttrell Repository.**

Under this alternative, the OSMRE Casper Field Office would authorize construction activities under SMCRA authority by the Montana Abandoned Mine Lands Program to implement the land reclamation proposal described in the following:

Waste rock dumps 1, 2 and 3 and contaminated soils will be removed disposed of in the Luttrell Repository at the defunct Basin Creek Mine. Luttrell Repository is a regional repository for abandoned mine cleanup projects under EPA and Forest Service jurisdiction. Work will include regrading the Telegraph Creek floodplain and other removal areas, cover with clean amended soil and revegetate the disturbed areas. Secondary haul roads will be ripped and seeded. Telegraph creek will be restored to support fisheries habitat and the floodplain will be planted with hearty native vegetation to support regrowth. The site will be sprayed for weeds.

Design features of the project that would be used to mitigate harm during the construction phase include: dewatering of Telegraph Creek into a pipe to divert the creek around the site during construction to prevent sediment inputs as a result of erosion. Extensive stormwater BMPs will be placed across the site to prevent stormwater runoff and enable the rapid stabilization of the site through revegetation. BMPs include surface slash, erosion control mat on steep slopes, mulching and seeding with a hearty localized seed mix. Additionally trees and shrubs will be planted across the site to enhance habitat for wildlife. Weeds will be treated during the project and for a minimum of three years following construction to enhance wildlife habitat on the site. Finally, the restoration of Telegraph Creek will be designed to mimic natural conditions to provide for fish habitat. The current wetland features caused by the mine waste impoundment will be reconstructed during restoration to result in a no-net loss of wetlands.

Specific mitigations measures to prevent damage to the historic resources on-site include stabilizing and moving a headframe during construction and then placing it back on the shaft following removal activities, avoidance of identified historic features and salvage and replacement of features construction activities are unable to avoid.

Water trucks will be active on the site to keep down fugitive dust during project activities.

### **Affected Environment**

The Lilly/Orphan Boy Mine EEE/CA contains a detailed description of the affected environment and resources affected. Table 1 of this document contains a list of the affected resources, environmental impacts by alternatives and specialized mitigations to clarify and condense the information in the Lilly/Orphan Boy Mine EEE/CA.

The Lilly/Orphan Boy Mine Site (LOB Mine, or site) is an abandoned hard rock mine located on private land approximately 10.5 miles south of Elliston in Powell County, Montana. Approximately 1.5 acres was disturbed by mining activities. Development of the mine began around 1893 and ended with the last shipment of ore in 1954 or 1955.

Surrounded by Helena-Lewis and Clark National Forest, the site is contaminated from metal mining along Telegraph Creek, a tributary to the Little Blackfoot River, and ranks tenth on the Montana Department of Environmental Quality (DEQ) Abandoned Mine Lands. A Phase I reclamation investigation was conducted in 2008 and a subsequent Phase II reclamation investigation in 2010 in order to characterize the nature and extent of mining related impacts at the site. Screening levels at the site include risk-based guidelines for recreational users (based on a 50-day per year exposure scenario). The main contaminants of concern are lead and arsenic. Investigation work was discontinued by the Montana AML Program after the Program's shift to focus on coal mine reclamation projects.

Miners accessed ore via a shaft and three adits. The shaft and headframe are still present but all three adits have collapsed. Adjacent to and below the shaft and each adit are piles of waste rock. The lowermost waste rock pile is associated with the lowest adit (known as the Lilly Adit), and is bisected by Telegraph Creek.

## **Environmental Impacts of the Proposed Alternatives**

The Lilly/Orphan Boy Mine EEE/CA contains a detailed description of the environmental impacts from each alternative considered. Table 1 of this document contains a summary list of the affected resources, environmental impacts by alternatives and specialized mitigations to clarify and condense the information in the Lilly/Orphan Boy Mine EEE/CA.

**Table 1: Lilly/Orphan Boy Resource Values, Environmental Impacts, Mitigation Measures and Unavoidable Adverse Impacts (See EEE/CA for details)**

<b>Resource Values</b>	<b>Brief Description</b>	<b>Environmental Impacts Alternative 1: No Action</b>	<b>Environmental Impacts Alternative 2: Remove Mine Waste to Off-Site Repository</b>	<b>Environmental Impacts Alternative 3: Preferred Alternative Remove Mine Waste to Luttrell Repository</b>	<b>Mitigation Measures for Alternative 2 &amp; 3</b>	<b>Unavoidable Adverse Impacts of Alternative 2 &amp; 3</b>
<b>Historic and Cultural Resources</b>	The Lilly/Orphan Boy Mine Site may be eligible for inclusion on the National Register of Historic Places. The mine produced enough ore to be a major part of the Elliston Mining District and contribute to the local mining history. The site contains features and structures that have been identified as historically relevant features.	Intensity: Negligible  Context: Regional (The Lilly/Orphan Boy is part of the historic Elliston Mining District)  Duration: N/A	Intensity: Minor  Context: Regional  Duration: Long term  Through mitigation measures the majority of the historic features would be avoided or preserved. The reclamation activities would not impact the eligibility for the inclusion on the National Register of Historic Places (see the consultation letter with Montana SHPO)	Intensity: Minor  Context: Regional  Duration: Long term  Through mitigation measures the majority of the historic features would be avoided or preserved. The reclamation activities would not impact the eligibility for the inclusion on the National Register of Historic Places (see the consultation letter with Montana SHPO)	Historic features will be flagged and monitored during construction for avoidance. Historic artifacts that have to be moved during construction will be replaced after reclamation activities are complete. The historic headframe will be stabilized, removed and replaced following waste rock removal.	There will be a permanent loss of several historic features as a result of Alternatives 2 & 3 such as the waste rock dumps and timbers.
<b>Hydrology</b>	The Lilly/Orphan Boy Mine is bisected by Telegraph Creek which is on the State 303(d) list as impacted by metals.	Intensity: Moderate  Context: Regional  Duration: Long Term  Continued impacts	Intensity: Moderate Positive Impact  Context: Regional Positive Impact  Duration: Long Term Positive Impact	Intensity: Moderate Positive Impact  Context: Regional Positive Impact  Duration: Long Term Positive Impact	Diversion of Telegraph Creek during construction and construction BMPs will reduce the incidental release of sediment to the creek. Restoration of Telegraph Creek and its floodplain will	There will be no unavoidable adverse impacts to hydrology.

Resource Values	Brief Description	Environmental Impacts Alternative 1: No Action	Environmental Impacts Alternative 2: Remove Mine Waste to Off-Site Repository	Environmental Impacts Alternative 3: Preferred Alternative Remove Mine Waste to Luttrell Repository	Mitigation Measures for Alternative 2 & 3	Unavoidable Adverse Impacts of Alternative 2 & 3
		to Telegraph Creek and the Little Blackfoot will occur without removal of the mine waste from the Lilly/Orphan Boy Mine.	Removal of the sediment and metals source to Telegraph Creek will have a positive impact the water quality downstream and in the Little Blackfoot. There will be no change to water quantity.	Removal of the sediment and metals source to Telegraph Creek will have a positive impact the water quality downstream and in the Little Blackfoot. There will be no change to water quantity.	have a long lasting positive impact on the watershed.	
<b>Vegetation</b>	See reference to wetlands below. The site is vegetated with Lodgepole pine, Douglas fir, Engelmann Spruce, shrubs and several grasses. There is no vegetation present on the waste rock dumps.	Intensity: Moderate  Context: Local  Duration: Long Term  Continued negative impacts to vegetation at the mine site will occur without removal of the mine waste.	Intensity: Moderate Positive Impact  Context: Local Positive Impact  Duration: Long Term Positive Impact  Removal of the contaminated mine waste will have a positive impact the ability of vegetation to grow on the site.	Intensity: Moderate Positive Impact  Context: Local Positive Impact  Duration: Long Term Positive Impact  Removal of the contaminated mine waste will have a positive impact the ability of vegetation to grow on the site.	The seed mix, tree and shrub selection for revegetation was selected to revegetate the site quickly with species adapted for the climate. Weed free seed mix and mulch is required.	There will be no unavoidable adverse impacts to vegetation.
<b>Fish and Wildlife Resources</b>	There are no threatened or endangered species in the area of the mine site. Fisheries and wildlife habitat are impacted by the presence of mine wastes.	Intensity: Moderate  Context: Regional  Duration: Long Term  Continued	Intensity: Moderate Positive Impact  Context: Regional Positive Impact  Duration: Long Term Positive Impact	Intensity: Moderate Positive Impact  Context: Regional Positive Impact  Duration: Long Term Positive Impact	See the mitigation measures for hydrology and vegetation. No other specific mitigation measures for wildlife habitat are included in the project (See USFWS Consultation	There will be no unavoidable adverse impacts to fish and wildlife resources.

Resource Values	Brief Description	Environmental Impacts Alternative 1: No Action	Environmental Impacts Alternative 2: Remove Mine Waste to Off-Site Repository	Environmental Impacts Alternative 3: Preferred Alternative Remove Mine Waste to Luttrell Repository	Mitigation Measures for Alternative 2 & 3	Unavoidable Adverse Impacts of Alternative 2 & 3
		negative impacts to fisheries habitat and other wildlife habitat will continue without the removal of mine waste.	Removal of the sediment and metals source to Telegraph Creek will have a positive impact the fisheries habitat in Telegraph Creek and downstream to the Little Blackfoot. Upland wildlife habitat will be improved by removal of contaminated mine waste and reestablishment of vegetation at the site.	Removal of the sediment and metals source to Telegraph Creek will have a positive impact the fisheries habitat in Telegraph Creek and downstream to the Little Blackfoot. Upland wildlife habitat will be improved by removal of contaminated mine waste and reestablishment of vegetation at the site.	Letter)	
<b>Soils</b>	No Prime and Unique Farmlands Soils are contaminated with heavy metals from historic mining activities	Intensity: Minor  Context: Local  Duration: Long Term  Continued negative impacts to soils without the removal of mine waste.	Intensity: Moderate Positive Impact  Context: Local Positive Impact  Duration: Long Term Positive Impact  Removal of the contaminated mine waste will have a positive impact on the soil function at the mine site.	Intensity: Moderate Positive Impact  Context: Local Positive Impact  Duration: Long Term Positive Impact  Removal of the contaminated mine waste will have a positive impact on the soil function at the mine site.	Contaminated soils will be removed and replaced with clean amended soils. Amendments include organic matter and fertilizer. Mulch and erosion control mat will be placed to mitigate erosion while vegetation is established.	There will be no unavoidable adverse impact to soils.
<b>Wetlands</b>	Wetlands exist on the site and are caused by the impounded mine waste. Wetland soils	Intensity: Minor  Context: Local	Intensity: Moderate Positive Impact  Context: Local Positive	Intensity: Moderate Positive Impact  Context: Local Positive	Wetlands will be delineated and rebuilt following mine waste removal to facilitate a	There will be no unavoidable adverse impacts to wetlands.

Resource Values	Brief Description	Environmental Impacts Alternative 1: No Action	Environmental Impacts Alternative 2: Remove Mine Waste to Off-Site Repository	Environmental Impacts Alternative 3: Preferred Alternative Remove Mine Waste to Luttrell Repository	Mitigation Measures for Alternative 2 & 3	Unavoidable Adverse Impacts of Alternative 2 & 3
	are contaminated with heavy metals from historic mining activities.	Duration: Long Term  Wetland soils and vegetation will continue to receive heavy metal contamination from the mine waste dumps on the mine site.	Impact  Duration: Long Term Positive Impact  Removal of the contaminated mine waste will have a positive impact on the wetland soils and vegetation.	Impact  Duration: Long Term Positive Impact  Removal of the contaminated mine waste will have a positive impact on the wetland soils and vegetation.	no net loss of wetland acres at the site.	
<b>Recreational Resource</b>	The Lilly/Orphan Boy Mine is privately owned and is surrounded by the Helena National Forest. There are no gates or other fences preventing access to the mine site.	Intensity: Minor  Context: Local  Duration: NA  There will be no change to the existing condition.	Intensity: Minor  Context: Local  Duration: NA  There will be no change to the existing condition.	Intensity: Minor  Context: Local  Duration: NA  There will be no change to the existing condition.	No mitigation measures are necessary.	There will be no unavoidable adverse impacts.
<b>Air Quality</b>	The Lilly/Orphan Boy Mine is not located in a special air quality zone.	Intensity: Negligible  Context: Local  Duration: NA  There will be no change to the existing condition.	Intensity: Minor  Context: Local  Duration: Short Term  There will be minor impacts to air quality during construction activities but will include mitigation to prevent fugitive dust.	Intensity: Minor  Context: Local  Duration: Short Term  There will be minor impacts to air quality during construction activities but will include mitigation to prevent fugitive dust.	Water trucks will be used to keep down dust at the mine site, the haul roads and the repository during construction.	There will be no unavoidable impacts.

<b>Resource Values</b>	<b>Brief Description</b>	<b>Environmental Impacts Alternative 1: No Action</b>	<b>Environmental Impacts Alternative 2: Remove Mine Waste to Off-Site Repository</b>	<b>Environmental Impacts Alternative 3: Preferred Alternative Remove Mine Waste to Luttrell Repository</b>	<b>Mitigation Measures for Alternative 2 &amp; 3</b>	<b>Unavoidable Adverse Impacts of Alternative 2 &amp; 3</b>
<b>Noise</b>	The Lilly/Orphan Boy Mine is located next to a popular road in the Helena National Forest, noise is limited to localized traffic.	Intensity: Negligible  Context: Local  Duration: NA  There will be no change to the existing condition.	Intensity: Minor  Context: Local  Duration: Short Term  Noise levels will increase during the construction period due to operation of heavy equipment at the site, haul roads and repository.	Intensity: Minor  Context: Local  Duration: Short Term  Noise levels will increase during the construction period due to operation of heavy equipment at the site, haul roads and repository.	Work hours will be observed to avoid impacts to local residents.	There will be no unavoidable impacts.
<b>Topography</b>	The Lilly/Orphan Boy Mine is in a mountainous region with moderate to steep slopes. The mine site itself is located in the Telegraph Creek floodplain and surrounding hillsides.	Intensity: Negligible  Context: Local  Duration: NA  There will be no change to the existing condition.	Intensity: Negligible  Context: Local  Duration: Long Term  Site topography will be stabilized and resemble natural conditions	Intensity: Negligible  Context: Local  Duration: Long Term  Site topography will be stabilized and resemble natural conditions	Borrow sources will be left in a stable condition so to not create steep unstable slopes. Topography of the Telegraph floodplain will be restored to create a functional floodplain.	There will be no unavoidable impacts.

## Summary

Alternative 3, the preferred alternative, would remove heavy metals contaminated waste from the Lilly/Orphan Boy abandoned mine and place wastes in an established regional repository would reduce risk to human health and the environment. The alternative is also the most cost effective and reasonable given the difficulty in finding a private property willing to accept mine waste in a repository. The environmental effects of Alternative 3 are all positive and could have long lasting beneficial impacts to water quality, habitat and would meet the goals and objectives in the Little Blackfoot Metals Restoration Plan. The impacts to historic features are considered minor and were approved by the Montana SHPO. The partnership between the Montana AML Program and Trout Unlimited represents an important first step in restoring the Little Blackfoot Watershed. The construction project is entirely funded using outside grant sources and would not use OSMRE grant funds to reclaim the site. Additionally, this project makes use of the remedial investigation investment made by the Montana AML Program and OSMRE grant funds. Therefore, only the authorization to operate under SMCRA approval is requested.

## Persons and Agencies Contacted to Assist in the Preparation of the EEE/CA

The following agencies were involved in the preparation of the EEE/CA:

1. Montana DEQ 319 Program
2. Montana Trout Unlimited
3. Helena National Forest, minerals, hydrology and archaeology
4. Montana State Historic Preservation Office
5. OSMRE, Casper Field Office
6. Montana Department of Natural Resources and Conservation (DNRC)
7. Montana Fish Wildlife and Parks (FWP)

The following agencies were consulted for information or opinions during the planning and preparation of the EEE/CA.

1. U.S. Fish and Wildlife Service for threatened or endangered species
2. U.S. Army Corps of Engineers for 404 Permits
3. Montana State Historic Preservation Officer
4. Montana Natural Heritage Program Office

The consultation letters sent to U.S. FWS and Montana SHPO are included in Appendix A. While there was concurrence letters received from Montana SHPO, no response was received from U.S. FWS within 30 days of requesting consultation.

## Preparer

The Expanded Engineering Evaluation and Cost Analysis for the Lilly/Orphan Boy Mine was prepared by NewFields Companies. The supplemental Environmental Assessment Table to the EEE/CA was prepared by Autumn Coleman, Abandoned Mine Lands Program Manager.

## References

Newfields Companies, LLC, April 2016. Expanded Engineering Evaluation & Cost Analysis, Lilly/Orphan Boy Mine, Powell County, Montana.



Autumn Coleman

Abandoned Mine Lands Program Manager

Montana Department of Environmental Quality

April 14, 2016

## Appendix A – Consultation Letters

<b>Date</b>	<b>Lilly/Orphan Boy Public Comment Period</b>	<b>Attachment No.</b>
2/24/16	DEQ consultation letter to SHPO	1
2/29/16	Montana SHPO concurrence letter to DEQ	2
3/22/16	DEQ consultation letter to SHPO	3
4/4/16	Montana SHPO concurrence letter to DEQ	4
3/3/16	DEQ consultation letter to USFWS, Includes the Montana Natural Heritage Program Report on T&E Species in the Lilly/Orphan Boy Project Area	5
1/5/16	DEQ consultation letter to U.S. Army Corps of Engineers with report and USACE response	6



February 24, 2016

Damon Murdo  
Montana State Historic Preservation Office  
P.O. Box 20120  
Helena, MT 59620-1202

Dear Mr. Murdo:

The Department of Environmental Quality (DEQ), Abandoned Mine Land Program (AMLP) in partnership with Trout Unlimited is proposing to remove mine waste from the former Lilly / Orphan Boy Mine located in the southwest quarter of the northwest quarter of Section 15, Township 8 north, Range 6 West, Powell County, Montana.

A Cultural Resource Inventory of the site was conducted by Frontier Historical Consultants (FHC) in 2002 (attachment one). As stated in the FHC report, the inventory was conducted to satisfy federal and state legislation requiring cultural resources inventory in compliance with Section 106 of the National Historic Preservation Act. FHC concluded "the site still retains good integrity and therefore the Lilly / Orphan Boy Mine is now recommended to be eligible for the NRHP under criteria A and C."

The goal of the AMLP is to significantly reduce the risk to human health and the environment, while preserving historic features identified at the site, to the extent practicable. The FHC survey identified 12 historic features at the site (pages 16 – 23). Attachment two consists of additional pictures obtained by the AMLP of each feature identified in the FHC report. Attachment three is a reference to the individual features identified, accompanied with a description of the effect site reclamation will have on each feature. Attachment four is a topographic map (from the draft bid-document) which identifies each feature as well as the boundaries of the proposed reclamation activity.

The AMLP is seeking the concurrence of the State Historic Preservation Office for this proposed action. Please don't hesitate to call (431-2251 or 444-6407) if you have any questions or need further information. I look forward to hearing from you.

Sincerely,

A handwritten signature in black ink, appearing to be "Steve Bullock", written over the word "Sincerely,".

Joel Chavez  
Project Manager  
Remediation Division  
Department of Environmental Quality



*Historic Preservation  
Museum  
Outreach & Interpretation  
Publications  
Research Center*

February 29, 2016

Mr. Joel Chavez  
Montana Department of Environmental Quality  
P.O. Box 200901  
Helena, MT 59620-0901

RE: Lilly/Orphan Boy Waste Removal Project  
Powell County, Montana

Dear Mr. Chavez:

Thank you for the letter (received February 24, 2016) and opportunity to comment on the Lilly/Orphan Boy Waste Removal project in Powell County, Montana. Based on the received documentation, we concur with the determination that the proposed undertaking will have No Adverse Effect on Historic Properties, specifically the Lilly/Orphan Boy Mine (24PW0483).

If you have any questions or concerns do not hesitate to contact me directly at (406) 444-0388 or [JBush2@mt.gov](mailto:JBush2@mt.gov). Thank you for consulting with us.

Sincerely,

A handwritten signature in blue ink that reads "Jessica Bush".

Jessica Bush, M.A.  
Review and Compliance Officer  
Montana State Historic Preservation Office

RECEIVED

MAR 01 2016

Dept. of Environmental Quality  
Remediation Division

225 North Roberts Street  
P.O. Box 201201  
Helena, MT 59620-1201  
(406) 444-2694  
(406) 444-2696 FAX  
[montanahistoricalsociety.org](http://montanahistoricalsociety.org)



March 22, 2016

Ms. Jessica Bush, M.A.  
Review and Compliance Officer  
Montana State Historic Preservation Office  
P.O. Box 201201  
Helena, MT 59620-1201

RE: Lilly / Orphan Boy Waste Removal Project  
Powell County, Montana (24PW0483)

Thank you for your letter (received March 1, 2016) of No Adverse Effect on Historic Properties for DEQ's action at the site. Since our original communication with you, DEQ consultants have indicated that there will be great difficulty and some safety concerns with removing waste rock in the immediate vicinity of the Head frame (Feature 4 in past correspondence). DEQ's original plan was to not disturb the structure. We no longer think that is feasible. We have come up with some alternatives that we believe will maintain the integrity of the feature while allowing removal of the contaminants (attached). Our preferred alternative (No. two) is the temporary removal of the structure followed by waste excavation and reestablishing the headframe back in its original location and configuration. DEQ is asking for the views of the State Historic Preservation Office in consultation regarding this matter.

Also, James Strait is going to flag all the features not to be disturbed, prior to advertising the Job. This will make things clear to all perspective contractors DEQ' desire to minimize the impact to historic features. If at any time you would like to visit the site please call me (444-6407), and I will be happy to show you the entire operation.

Sincerely,

  
Joel Chavez  
Project Manager  
Department of Environmental Quality

Cc: Autumn Coleman  
James Strait

**Lilly/Orphan Boy Mine Waste Removal Project: Removal options for waste rock surrounding Lilly Orphan Boy Headframe**

**Prepared By: Portage, Inc.**

**Date: March 18, 2016**

Option	Environmental Protection	Cultural Resource Protection	Cost
<p>1) <b>Slope and Cap in Place:</b> Remove waste around headframe to a maximum 1.5:1 slope. This option leaves a substantial amount of waste in place to stabilize the timber cribbing foundation. Visually there would be significant vertical relief from the post excavation ground surface to the shaft opening. Remaining mine waste would be contoured, overlaid with geotextile and growth medium.</p>	<p>Worst. Leaves a substantial amount of mine waste in place at the site.</p>	<p>OK. Does not require removal of headframe, but the structure would be left atop steep slopes and will destabilize over time.</p>	<p>\$</p>
<p>2) <b>**Stabilize, Remove Intact, and Replace Headframe:</b> Stabilize headframe structure with bracing and ties, lift headframe from cribbing as a unit, stage headframe in a laydown area. Salvage safety grate. Remove remaining mine waste and salvage cribbing during mine waste removal. After grading and shaping around the shaft, replace salvaged safety grate, replace headframe, incorporate salvaged cribbing as appropriate. Reclaim surrounding area. This option would lower the entire structure to the re-contoured ground surface.</p>	<p>Best. Completes removal of mine waste from site.</p>	<p>Good. Requires temporary removal of headframe, but insures structure integrity. The surrounding landform would look more natural.</p>	<p>\$\$</p>
<p>3) <b>Dismantle, Remove, Reassemble, and Replace Headframe:</b> Dismantle headframe structure and stage dismantled headframe in a laydown area. Salvage safety grate. Remove remaining mine waste and salvage cribbing during mine waste removal. After grading and shaping around the shaft, replace salvaged safety grate, rebuild headframe, incorporate salvaged cribbing as appropriate. Reclaim surrounding area. This option would lower the entire structure to the re-contoured ground surface.</p>	<p>Best. Completes removal of mine waste from site.</p>	<p>OK. Requires dismantling, temporary removal, and rebuilding of headframe. The surrounding landform would look more natural.</p>	<p>\$\$\$</p>
<p>4) <b>Shoring:</b> Remove waste around headframe to nearly vertical slopes and shore around the slopes with large rock, timbers, or other appropriate materials. This option leaves some waste in place to stabilize the timber cribbing foundation. Visually there would be significant vertical relief from the post excavation ground surface to the shaft opening. The remaining foundation would be a near vertical wall eight to nine feet high making the structure a very prominent feature in the reclaimed landscape.</p>	<p>Better. More mine waste is removed from the site vs. option 1</p>	<p>OK. Does not require removal of headframe, but the structure would be left atop steep slopes and be very prominent. The slopes remain stable as long as the shoring has structural integrity.</p>	<p>\$\$\$\$</p>

\*\*Preferred alternative



*Historic Preservation  
Museum  
Outreach & Interpretation  
Publications  
Research Center*

April 4, 2016

Mr. Joel Chavez  
Montana Department of Environmental Quality  
P.O. Box 200901  
Helena, MT 59620-0901

**RECEIVED**

APR 06 2016

Dept. of Environmental Quality  
Remediation Division

RE: Lilly/Orphan Boy Waste Removal Project  
Powell County, Montana

Dear Mr. Chavez:

Thank you for the letter (received March 24, 2016) and opportunity to comment on changes and alternatives for the Lilly/Orphan Boy Waste Removal project in Powell County, Montana. Based on the received documentation, we concur that proceeding with any of the proposed alternatives will have No Adverse Effect on Historic Properties, specifically the Lilly/Orphan Boy Mine (24PW0483). That being said, alternative No. 2 is also our preferred alternative for this undertaking.

We also greatly appreciate the James Strait will be on site to flag cultural resource features so that they will not be disturbed by the undertaking.

If you have any questions or concerns do not hesitate to contact me directly at (406) 444-0388 or [JBush2@mt.gov](mailto:JBush2@mt.gov). Thank you for consulting with us.

Sincerely,

A handwritten signature in blue ink that reads "Jessica Bush". The signature is written in a cursive, flowing style.

Jessica Bush, M.A.  
Review and Compliance Officer  
Montana State Historic Preservation Office

225 North Roberts Street  
P.O. Box 201201  
Helena, MT 59620-1201  
(406) 444-2694  
(406) 444-2696 FAX  
[montanahistoricalsociety.org](http://montanahistoricalsociety.org)



March 3, 2016

Jodi Bush, Field Supervisor  
Montana Field Office  
USFWS Ecological Services  
585 Shepard Way, Suite 1  
Helena, MT 59601

**RE: Proposed Abandoned Mine Reclamation Project  
Lilly/Orphan Boy Mine  
Section 15, Township 08N, Range 06W, Powell County, Montana  
Request for Concurrence with Findings**

Dear Mr. Wilson:

The Montana Abandoned Mine Lands (AML) Program and Montana Trout Unlimited have entered into a partnership to reclaim the Lilly/Orphan Boy abandoned mine in the Telegraph Creek drainage in Powell, County, Montana. As a condition of approval for Montana's AML Program by USDOJ – Office of Surface Mining, Montana is required to consult with the US Fish and Wildlife Service (USFWS) during project planning to ensure that proposed reclamation actions will have no impact on federally listed threatened or endangered species. (See Federal Register, Vol. 60, No. 138, pages 36998-37002).

Montana's AML Program is planning to reduce the risk of exposure to elevated metals by remove mine waste dumps and tailings that are polluting Telegraph Creek. The project will remove three mine waste dumps and contaminated sediment and tailings from Telegraph Creek and deposit the mine waste in the Lutrell Pit regional repository (**Attachment 1 and 2**). The site will be regraded with clean amended soil, revegetated and Telegraph Creek will be restored to provide for instream aquatic habitat. The Telegraph Creek floodplain will be restored to provide the necessary form and function including enhanced habitat for wildlife through revegetation. DEQ AML in partnership with Montana Trout Unlimited plans to complete reclamation during summer and fall of 2016.

DEQ AML has consulted with the Montana Natural Heritage Program and has evaluated the site for potential impacts to any threatened or endangered plant and animal species listed by the USFWS (**Attachment 3**). There are no threatened or endangered species that were reported within a one (1) mile radius of the site. Westslope Cutthroat Trout (sensitive species) do occur within the one mile radius of the site, however they are not present in Telegraph Creek.

Based on consultation with the Montana Natural Heritage Program and DEQ AML staff evaluation of the site, DEQ AML has concluded that proposed reclamation actions are not likely to have any adverse effect on any federally listed threatened or endangered species or habitat necessary for their survival. DEQ AML is requesting that USFWS concur with this determination.

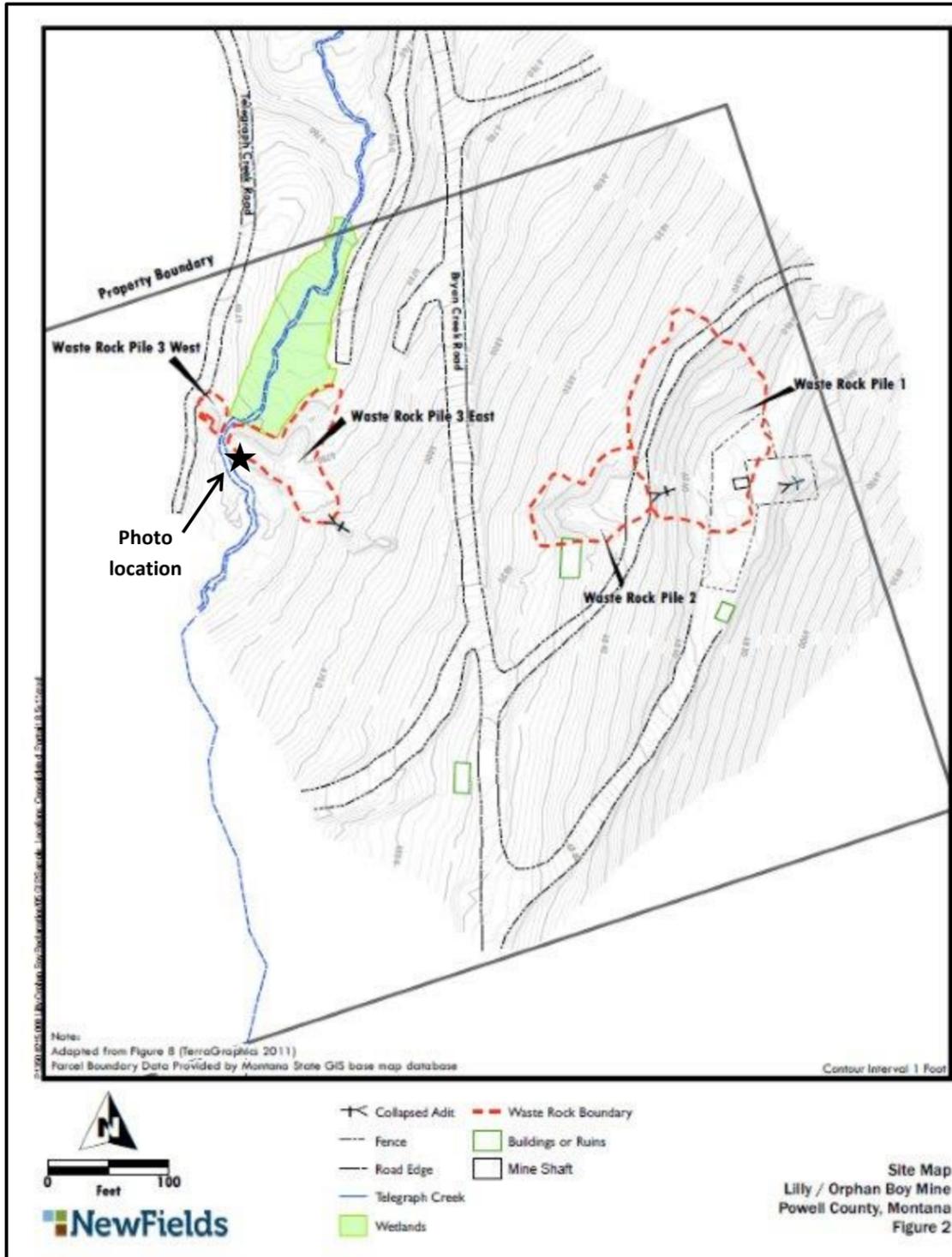
To protect human health, DEQ AML would like to keep moving on this project as quickly as possible. DEQ AML requests that USFWS review this determination and concur, in writing, with our findings. If USFWS is not able to concur, or has any disagreement with this determination, please notify me immediately at (406) 444-6555 or through email at AColeman@mt.gov.

Sincerely,

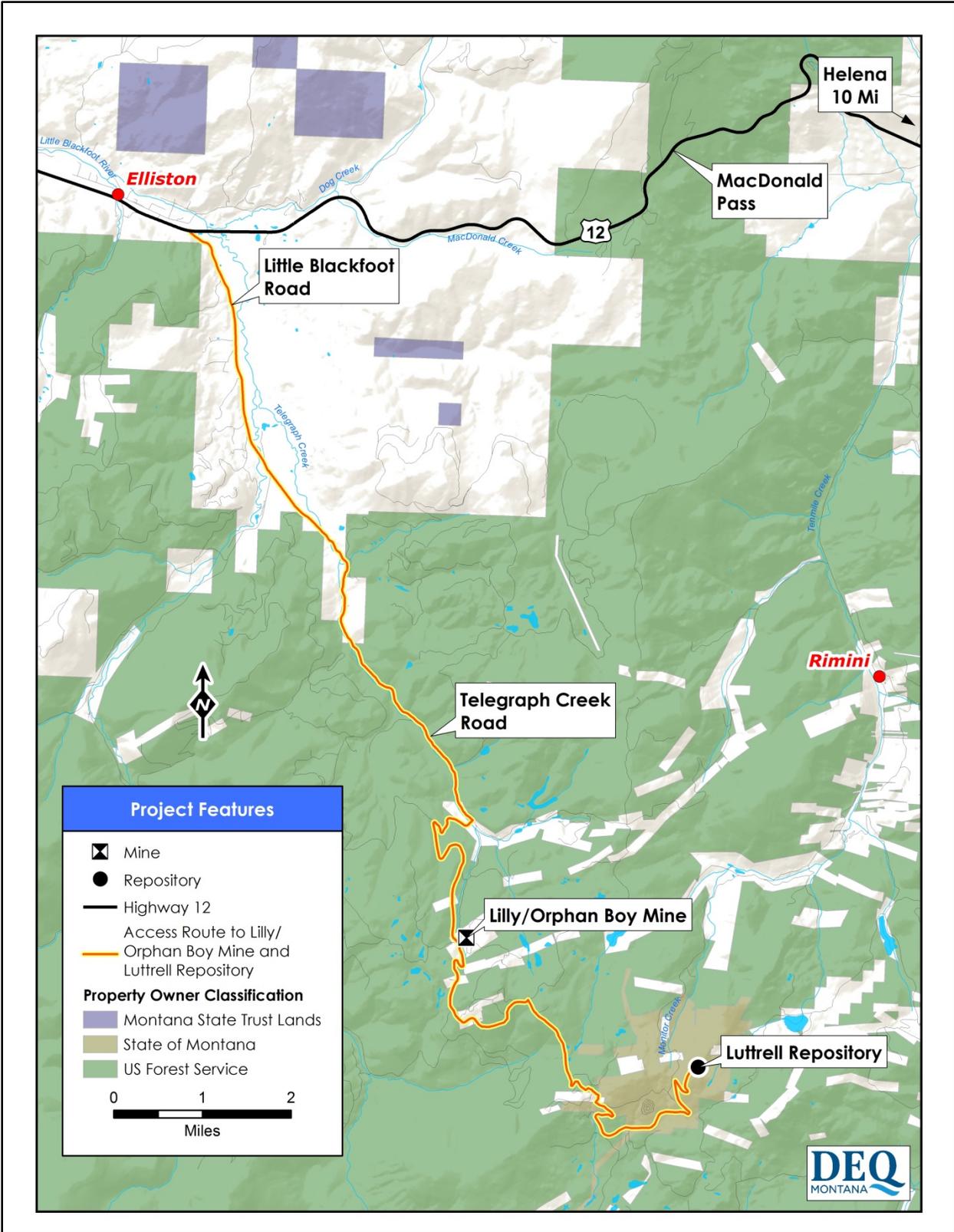


Autumn Coleman  
Abandoned Mine Lands Program Manager  
Montana Department of Environmental Quality  
Abandoned Mine Lands Program

Attachments: Attachment 1 and 2: Site location maps  
Attachment 3: Montana Natural Heritage Program Consultation



Attachment 1. Location of Waste Rock Pile 3.



Attachment 2: Project Location



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • tel 406.444.5354 • <http://mtnhp.org>

December 11, 2015

Bill Snoddy  
Montana DEQ  
P.O. Box 200901  
Helena, Montana 59620-0901

Dear Bill,

I am writing in response to your recent request regarding Montana Species of Concern in the vicinity of the Lilly Orphan Boy Mine Reclamation project, in Section 15, T08N, R06W. I checked our databases for information in this general area and have enclosed 8 species occurrence reports for 3 animal species of concern, a map depicting species of concern and wetland locations, and explanatory material, including agency contacts that may have additional information about the area. 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. Documentation is included.

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 the requested township, range and section(s) 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. Please let us know if a buffer greater than 1 mile would be of use to your efforts. 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 organization. In particular, public release of specific location information may jeopardize the welfare of threatened, endangered, or sensitive species or biological communities.
- (4) The accompanying map(s) display land management status, which may differ from ownership. 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). For additional fisheries information in your area of interest, you may wish to contact Montana Fish, Wildlife, and Park's Montana Fisheries Information System (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, Animal, and ecological Systems 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.

In order to help us improve our services to you, we invite you to take a simple survey. The survey is intended to gather some basic information on the value and quality of the information and services you recently received from the Montana Natural Heritage Program. The survey is short and should not take more than a few minutes to complete. All information will be kept confidential and will be used internally to improve the delivery of services and to help document the value of our services. Use this link to go to the survey: <http://www.surveymonkey.com/s/RYN8Y8L>.

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](mailto:martinm@mt.gov)

# Montana Species of Concern Lilly Orphan Boy Mine Reclamation

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

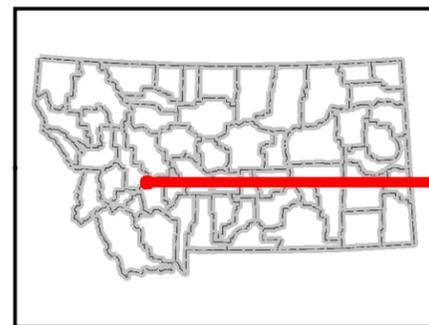
-  Lichens
-  Bryophytes
-  Vascular Plants
-  Invertebrates
-  Amphibians
-  Fish
-  Reptiles
-  Birds
-  Mammals

**Sites**

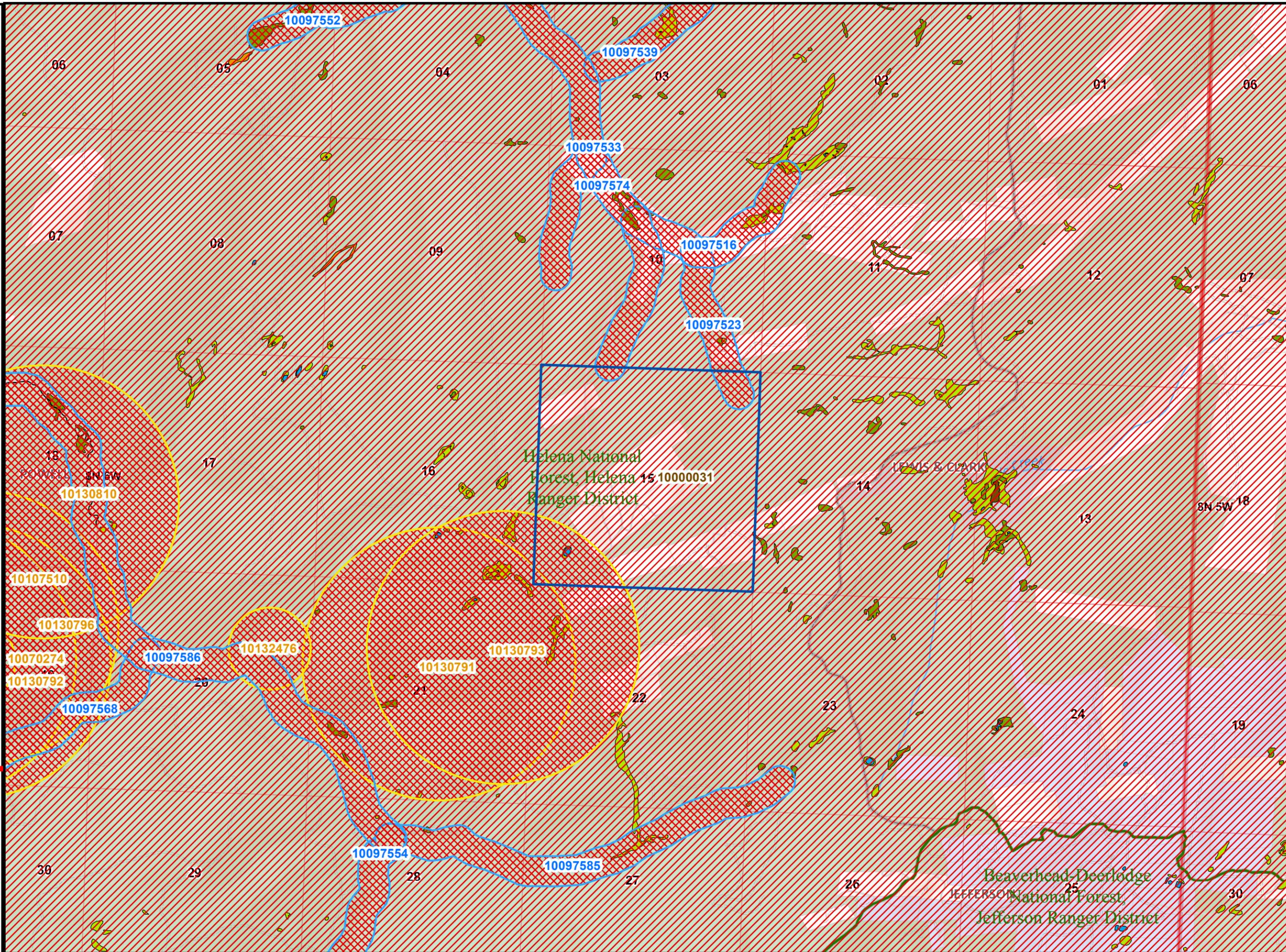
-  Sites

**Wetland Types**

-  Lake
-  River
-  Freshwater Pond
-  Freshwater Emergent Wetland
-  Freshwater Scrub-Shrub Wetland
-  Freshwater Forested Wetland
-  Riparian Emergent
-  Riparian Scrub-Shrub
-  Riparian Forested

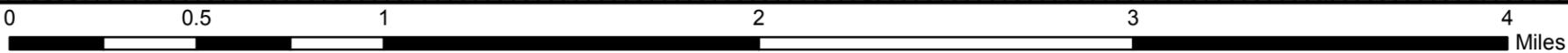


Not all legend items may occur on the map.  
 Features shown on this map do not imply public access to any lands.  
 Land ownership information shown on this map is not suitable for legal purposes.



Montana Natural Heritage Program, Montana State Library  
 1515 East Sixth Ave., Helena, MT 59620-1800

406 444-3290 <http://mtnhp.org> [mtnhp@mt.gov](mailto:mtnhp@mt.gov)



Map Document: K:\REQUESTS\Requests\16\DEQ\16deq0059\16deq0059.mxd (12/11/2015)



# Species of Concern Data Report

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

Report Date:  
 Friday, December 11, 2015

## Nucifraga columbiana [View Species in MT Field Guide](#)

**Common Name:** Clark's Nutcracker **General Habitat:** Conifer forest

**Description:** Birds

**Mapping Delineation:**

Observations with evidence of breeding activity buffered by a minimum distance of 1,000 mca maximum distance of 10,000 meters.

### Species Status

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

[State:](#) S3  
[Global:](#) G5

**Federal Agency Status:**

[U.S. Fish & Wildlife Service:](#)

[U.S. Forest Service:](#)

[U.S. Bureau of Land Management:](#)

**FWP SWAP Status:** SGCN3

**MT PIF Code:** 3

### Species Occurrences

<b>Species Occurrence Map Label:</b> 10130791			
<b>First Observation Date:</b> 06/01/2007		<b>SO Number:</b>	
<b>Last Observation Date:</b> 06/01/2007		<b>Acreage:</b> 776	

<b>Species Occurrence Map Label:</b> 10130793			
<b>First Observation Date:</b> 06/01/2007		<b>SO Number:</b>	
<b>Last Observation Date:</b> 06/01/2007		<b>Acreage:</b> 776	

## Oncorhynchus clarkii lewisi [View Species in MT Field Guide](#)

**Common Name:** Westslope Cutthroat Trout **General Habitat:** Mountain streams, rivers, lakes

**Description:** Fish

**Mapping Delineation:**

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

### Species Status

[Click Status for Explanations](#)

**Natural Heritage Ranks:**

[State:](#) S2  
[Global:](#) G4T3

**Federal Agency Status:**

[U.S. Fish & Wildlife Service:](#)

[U.S. Forest Service:](#) SENSITIVE

[U.S. Bureau of Land Management:](#) SENSITIVE

**FWP SWAP Status:** SGCN2

**MT PIF Code:**



# Species of Concern Data Report

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

Report Date:  
Friday, December 11, 2015

## Species Occurrences

Species Occurrence Map Label:	10097533	SO Number:	
First Observation Date:		Acreage:	62
Last Observation Date:			
Species Occurrence Map Label:	10097523	SO Number:	
First Observation Date:		Acreage:	70
Last Observation Date:			
Species Occurrence Map Label:	10097516	SO Number:	
First Observation Date:		Acreage:	88
Last Observation Date:			
Species Occurrence Map Label:	10097585	SO Number:	
First Observation Date:		Acreage:	177
Last Observation Date:			
Species Occurrence Map Label:	10097574	SO Number:	
First Observation Date:		Acreage:	223
Last Observation Date:			

## Gulo gulo

[View Species in MT Field Guide](#)

**Common Name:** Wolverine

**General Habitat:** Boreal Forest and Alpine Habitats

**Description:** Mammals

### Mapping Delineation:

Confirmed area of occupancy supported by recent (post-1980), nearby (within 10 kilometers) observations of adults or juveniles.

Tracking regions were defined by areas of primary habitat and adjacent female dispersal habitat as modeled by Inman et al. (2013).

These regions were buffered by 1 kilometer in order to link smaller areas and account for potential inaccuracies in independent variables used in the model.

## Species Status

[Click Status for Explanations](#)

### Natural Heritage Ranks:

**State:** S3  
**Global:** G4

### Federal Agency Status:

**U.S. Fish & Wildlife Service:**

**U.S. Forest Service:** SENSITIVE

**U.S. Bureau of Land Management:** SENSITIVE

**FWP SWAP Status:** SGCN3

**MT PIF Code:**



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:  
Friday, December 11, 2015

## Species Occurrences

<b>Species Occurrence Map Label:</b>	10000031		
<b>First Observation Date:</b>	03/01/1958	<b>SO Number:</b>	
<b>Last Observation Date:</b>	03/15/2013	<b>Acreage:</b>	1,326,340



# Montana Natural Heritage Program

1515 East Sixth Ave., Helena, Montana 59620-1800

(406) 444-5354

<http://mtnhp.org>

## Explanation of Species of Concern Reports

Since 1985, the Montana Natural Heritage Program (MTNHP) has been compiling and maintaining an inventory of elements of biological diversity in Montana. This inventory includes plant species, animal species, plant communities, and other biological features that are rare, endemic, disjunct, threatened, or endangered throughout their range in Montana, vulnerable to extirpation from Montana, or in need of further research.

**Species Occurrences:** (formerly called 'Element Occurrences') A "Species Occurrence" (SO) is an area depicting only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature. If an observation can be associated with a map feature that can be tracked (e.g., a wetland) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the Species Occurrence. A "Species Occurrence" generally falls into one of the following three categories:

**Plants:** A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and are within approximately one air mile of one another).

**Animals:** The location of a specimen collection or of a verified sighting; known or assumed to represent a breeding population. Additional collections or sightings are often appended to the original record.

**Other:** Significant biological features not included in the above categories, such as bird rookeries, peatlands, or state champion trees.

**Ecological Information:** Areas for which we have ecological information are represented on the map as either shaded polygons (where small and/or well defined) or simply as map labels (where they are large generally-defined landscapes). Descriptive information about these areas is contained in the associated report. Such information can be useful in assessing biological values and interpreting Species of Concern data.

The quantity and quality of data contained in MTNHP reports is dependent on the research and observations of the many individuals and organizations that contribute information to the program. Please keep in mind that the absence of information for an area does not mean the absence of significant biological features, since no surveys may have been conducted there. Reports produced by the Montana Natural Heritage Program summarize information documented in our databases at the time of a request. These reports are not intended as a final statement on the species or areas being considered, nor are they a substitute for on-site surveys, which may be required for environmental assessments.

---

As a user of MTNHP, your contributions of data are essential to maintaining the accuracy of our databases. New or updated location information for all species of concern is always welcome.

We encourage you to visit our website at <http://mtnhp.org>. On-line tools include a species observation viewer: the Natural Heritage TRACKER and *The Montana Field Guide* which contains photos, illustrations, and supporting information on Montana's animals and plant species of concern. Additional data are available on most species and ecological areas identified in our reports.

**If you have questions or need further assistance, please contact us either by phone at (406/444-5354), e-mail ([mtnhp@mt.gov](mailto:mtnhp@mt.gov)) or**

## Data Descriptions

The section below lists the names and definitions for descriptions of the data fields used in the reports. Certain codes and abbreviations are used in Species Occurrence reports. Although many of these are very straightforward, the following explanations should answer most questions.

**Map Label:** The label for the species occurrence as it appears on the map.

**Element Subnational ID:** The unique code used by the state or province to identify a specific element (species).

**SO Number:** Number that identifies the particular occurrence of the element (species).

**Scientific Name:** Latin (scientific) name.

**Common Name:** Commonly recognized name.

**Species of Concern/Potential Concern:** This value indicates whether the species is a “Species of Concern” (Y) or of “Potential Concern” (W).

**Last Observation Date:** The date the Species Occurrence was last observed extant at the site (not necessarily the date the site was last visited).

**First Observation Date:** The date the Species Occurrence was first reported at the site.

**EO Rank:** indicates the relative value of the Species Occurrence (SO) with respect to other occurrences of the Species, based on an assessment of estimated viability (species).

### Values:

- A - Excellent estimated viability/ecological integrity
- A? - Possibly excellent estimated viability/ecological integrity
- AB - Excellent or good estimated viability/ecological integrity
- AC - Excellent, good, or fair estimated viability/ecological integrity
- B - Good estimated viability/ecological integrity
- B? - Possibly good estimated viability/ecological integrity
- BC - Good or fair estimated viability/ecological integrity
- BD - Good, fair, or poor estimated viability/ecological integrity
- C - Fair estimated viability/ecological integrity
- C? - Possibly fair estimated viability/ecological integrity
- CD - Fair or poor estimated viability/ecological integrity
- D - Poor estimated viability/ecological integrity
- D? - Possibly poor estimated viability/ecological integrity
- E - Verified extant (viability/ecological integrity not assessed)
- F - Failed to find
- F? - Possibly failed to find
- H - Historical
- H? - Possibly historical
- X - Extirpated
- X? - Possibly extirpated
- U - Unrankable
- NR - Not ranked

**SO Data:** Data collected on the biology of this Species Occurrence. Specific information may include number of individuals, vigor, habitat, soils, associated species, and other characteristics.

# Species Status Codes

Provided below are definitions for species conservation status ranks, categories and other codes designated by MTNHP, Federal and State Agencies and non-governmental organizations.

- [Montana Species of Concern](#)
- [Montana Potential Species of Concern](#)
- [Status Under Review](#)
- [Exotic Species](#)
- [Montana Species Ranking Codes](#)
- [U.S. Fish and Wildlife Service](#)
- [Forest Service](#)
- [Bureau of Land Management](#)
- [MFWP Conservation Need](#)
- [Partners In Flight \(PIF\)](#)
- [MNPS Threat Category](#)

## Species of Concern

Species of Concern are native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. Designation as a Montana Species of Concern or Potential Species of Concern is based on the Montana Status Rank, and is not a statutory or regulatory classification. Rather, these designations provide information that helps resource managers make proactive decisions regarding species conservation and data collection priorities. See the latest [Species of Concern Reports](#) for more detailed explanations and assessment criteria.

## Potential Species of Concern

Potential Species of Concern are native taxa for which current, often limited, information suggests potential vulnerability. Also included are animal species which additional data are needed before an accurate status assessment can be made.

## Status Under Review

Species designated "Status Under Review" are plant species that require additional information and currently do not have a status rank but may warrant future consideration as Species of Concern. This category also includes plant species whose status rank is questionable due to the availability of new information or the availability of conflicting or ambiguous information or data. Species listed in this category will be reviewed periodically or as new information becomes available.

## Exotic Species

Exotic species are not native to Montana, but have either been reported in Montana or have established populations in Montana outside of their native range.

## Montana Species Ranking Codes

Montana employs a standardized ranking system to denote global (G) and state (S) status (NatureServe 2003). Species are assigned numeric ranks ranging from 1 (critically imperiled) to 5 (demonstrably secure), reflecting the relative degree to which they are "at-risk". Rank definitions are given below. A number of factors are considered in assigning ranks - the number, size and distribution of known "occurrences" or populations, population trends (if known), habitat sensitivity, life history traits and threats.

For example, Clustered lady's slipper (*Cypripedium fasciculatum*) is ranked G4 S2. Globally the species is uncommon but not vulnerable, while in Montana it is at risk because of limited and potentially declining numbers, extent and/or habitat.

### G1 S1

At high risk because of extremely limited and potentially declining numbers, extent and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.

### G2 S2

At risk because of very limited and potentially declining numbers, extent and/or habitat, making it vulnerable to global extinction or extirpation in the state.

### G3 S3

Potentially at risk because of limited and potentially declining numbers, extent and/or habitat, even though it may be abundant in some areas.

### G4 S4

Uncommon but not rare (although it may be rare in parts of its range), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern.

### 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

Possibly Extinct or Extirpated - Species is known only from historical records, but may nevertheless still be extant; additional surveys are needed.

**GNR SNR**

Not yet ranked.

**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:

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

**Other Codes and Modifiers**

**HYB**

Hybrid-Entity not ranked because it represents an interspecific hybrid and not a species.

**T**

**Infraspecific Taxon (trinomial)** - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

**?**

**Inexact Numeric Rank** - Denotes inexact numeric rank.

**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.

**C**

**Captive or Cultivated Only** - Species at present is extant only in captivity or cultivation, or as a reintroduced population not yet established.

**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 one or two occasions they were recorded.

**SYN**

**Synonym** - Species reported as occurring in Montana, but the Montana Natural Heritage Program does not recognize the taxon; therefore the species is not assigned a rank.

**B**

**Breeding** - Rank refers to the breeding population of the species in Montana.

**N**

**Nonbreeding** - Rank refers to the non-breeding population of the species in Montana.

**M**

**Migratory** - Species occurs in Montana on during migration.

**U.S. Fish and Wildlife Service**

**LE**

**Listed endangered** - Any species in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)).

**PE**

**Proposed endangered** - Any species for which a proposed rule has been published in the Federal Register to list the species as endangered.

**LT**

**Listed threatened** - Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)).

**PT**

**Proposed threatened** - Any species for which a proposed rule has been published in the Federal Register to list the species as threatened.

**E(S/A) or T(S/A)**

Any species listed endangered or threatened because of similarity of appearance.

**C**

**Candidate** - Those taxa for which sufficient information on biological status and threats exists to propose to list them as threatened or endangered. We encourage their consideration in environmental planning and partnerships; however, none of the substantive or procedural provisions of the Act apply to candidate species.

**PDL**

**Proposed for delisting** - Any species for which a final rule has been published in the Federal Register to delist the species.

**DM**

**Recovered, delisted, and being monitored** - Any previously listed species that is now recovered, has been delisted, and is being monitored.

**NL**

**Not listed** - No designation.

**XE**

**Essential experimental population** - An experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.

**XN**

**Nonessential experimental population** - An experimental population of a listed species reintroduced into a specific area that receives more flexible management under the Act.

**CH**

**Critical Habitat** - The specific areas (i) within the geographic area occupied by a species, at the time it is listed, on which are found those physical or biological features (I) essential to conserve the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by the species at the time it is listed upon determination that such areas are essential to conserve the species.

**PS**

**Partial status** - status in only a portion of the species' range. Typically indicated in a "full" species record where an infraspecific taxon or population, that has a record in the database has USESA status, but the entire species does not.

**PS:value**

**Partial status** - status in only a portion of the species' range. The value of that status appears in parentheses because the entity with status is not recognized as a valid taxon by Central Sciences (usually a population defined by geopolitical boundaries or defined administratively, such as experimental populations).

## Forest Service

The status of species on Forest Service lands as defined by the U.S. Forest Service manual (2670.22). These taxa are listed as such by the Regional Forester (Northern Region). The Forest Service lists animal species as:

**Endangered**

Listed as Endangered (LE) by the USFWS.

**Threatened**

Listed as Threatened (LT) by the USFWS.

**Sensitive**

Any species for which the Regional Forester has determined there is a concern for population viability within the state, as evidenced by a significant current or predicted downward trend in populations or habitat.

**Species of Concern**

USFS Species-of-Concern (FSH 1909.12, 43.22b) are species for which the Responsible Official determines management actions may be necessary to prevent listing under the Endangered Species Act (ESA). The Responsible Official, as appropriate, may identify the following plant and animal species, including macro-lichens, as species-of-concern:

1. Species identified as proposed and candidate species under the ESA.
2. Species with ranks of G-1 through G-3 on the NatureServe ranking system.
3. Infraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.
4. Species that have been petitioned for federal listing and for which a positive "90-day finding" has been made (a 90-day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review will be conducted).
5. Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

**Species of Interest**

USFS Species-of-Interest (FSH 1909.12, 43.22c) are species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple-use objectives. The Responsible Official may review the following sources for potential species-of-interest:

1. Species with ranks of S-1, S-2, N1, or N2 on the NatureServe ranking system.
2. State listed threatened and endangered species that do not meet the criteria as species-of-concern.
3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies.
4. Bird species on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list (for the U.S. portion of the northern Rockies that occur on National Forest system lands).
5. Additional species that valid existing information indicates are of regional or local conservation concern (this includes all Forest Service Northern Region sensitive species) due to factors that may include:
  - a. Significant threats to populations or habitat.
  - b. Declining trends in populations or habitat.
  - c. Rarity.
  - d. Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
6. Species that are hunted or fished and other species of public interest. Invasive species may also be considered.

## Bureau of Land Management

BLM Sensitive Species are defined by the BLM 6840 Manual as those that normally occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. The State Director may designate additional categories of special status species as appropriate and applicable to his or her state's needs. The sensitive species designation, for species other than federally listed, proposed, or candidate species, may include such native species as those that:

1. could become endangered in or extirpated from a state, or within a significant portion of its distribution in the foreseeable future,
2. are under status review by FWS and/or NMFS,
3. are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution,

4. are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or State listed status may become necessary,
5. have typically small and widely dispersed populations,
6. are inhabiting ecological refugia, specialized or unique habitats, or
7. are State listed but which may be better conserved through application of BLM sensitive species status. Such species should be managed to the level of protection required by State laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation.

## MFWP Conservation Need

In recent years states have received federal funding to develop Comprehensive Fish and Wildlife Conservation Strategies. Montana Fish, Wildlife, and Parks completed [Montana's Comprehensive Fish and Wildlife Conservation Strategy](#) in 2005. Under this conservation strategy individual animal species were assigned levels of conservation need as follows:

### Tier I:

**Tier I:** Greatest conservation need. Montana Fish, Wildlife & Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

### Tier II:

**Tier II:** Moderate conservation need. Montana Fish, Wildlife & Parks could use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

### Tier III:

**Tier III:** Lower conservation need. Although important to Montana's wildlife diversity, these species, communities, and focus areas are either abundant and widespread or are believed to have adequate conservation already in place.

### Tier IV:

**Tier IV:** Species that are non-native, incidental, or on the periphery of their range and are either expanding or very common in adjacent states.

## Partners In Flight (PIF)

[Partners In Flight \(PIF\)](#) is a partnership of federal and state agencies, industry, non-governmental organizations, and many others, with the goal of conserving North American birds. In 1991, PIF began developing a formal species assessment process that could provide consistent, scientific evaluations of conservation status across all bird species in North America, and identify areas most important to the conservation of each species. This process applies quantitative rule sets to complex biological data on the population size, distribution, population trend, threats, and regional abundance of individual bird species to generate simple numerical scores that rank each species in terms of its biological vulnerability and regional status. The process results in global and regional conservation assessments of each bird species that, among other uses, can be used to objectively assign regional and continental conservation priorities among birds. The species assessment scores and process has recently been updated! Check out the [new scores](#) and make sure to download and read the updated [Handbook on Species Assessment](#), which contains important information on the how scores are derived and used in the assessment process. Note that currently only breeding-season regional scores are available for BCRs. We hope to have non-breeding scores available soon. For those needing access to the previous versions of the PIF Species Assessment Database, including past regional scores for physiographic areas, [click here](#).

## Montana Native Plant Society (MNPS) Threat Category

The MNPS Threat Category process was initiated in 2006 at the Montana Plant Conservation Conference with the formation of a committee represented by federal, state and private botanists, ecologists and biologists. The objectives were to: 1) Evaluate threats impacting Montana's Plant Species of Concern and to classify species according to their level of imperilment/risk as a result of these threats. 2) Develop a ranking system based on the impacts of the identified threats to the species' viability in the state. The result of this process is a 4-tier threat ranking system for Plant Species of Concern in Montana. The threat categories are:

### Category 1:

The viability of the species in the state is Highly Threatened by one or more activities. Associated threats have caused or are likely to cause a major reduction of the state population or its habitat that will require 50 years or more for recovery, 20% or more of the state population has been or will be affected, and the negative impact is occurring or is likely to occur within the next 5 years.

### Category 2:

The viability of the species or a portion of the species habitat in the state is Threatened by one or more activities, though impacts to the species are expected to be less severe than those in Category 1. Associated threats exist but are not as severe, wide-ranging or immediate as for Category 1, though negative impacts are occurring or are likely to occur.

### Category 3:

The viability of the species in the state is Not Threatened or the Threats are Insignificant. Associated threats are either not known to exist, are not likely to occur in the near future or are not known to be having adverse impacts that will severely affect the species' viability in the state.

### Category 4:

Assessment not possible due to insufficient and/or conflicting information on potential threats to the species.

Please visit the MNPS website at <http://www.mtnativeplants.org> for additional information on MNPS Threat Categories or for MNPS contact information.

# 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.

## Suggested Contacts for State and Federal Natural Resource Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of planning processes and management decisions. In addition to the information you receive from us, we encourage you to contact state and federal resource management agencies in the area where your project is located. They may have additional data or management guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high profile management species and to use the U.S. Fish and Wildlife Service's Information Planning and Conservation (IPAC) website <http://ecos.fws.gov/ipac/> regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species. For your convenience, we have compiled a list of relevant agency contacts and links below:

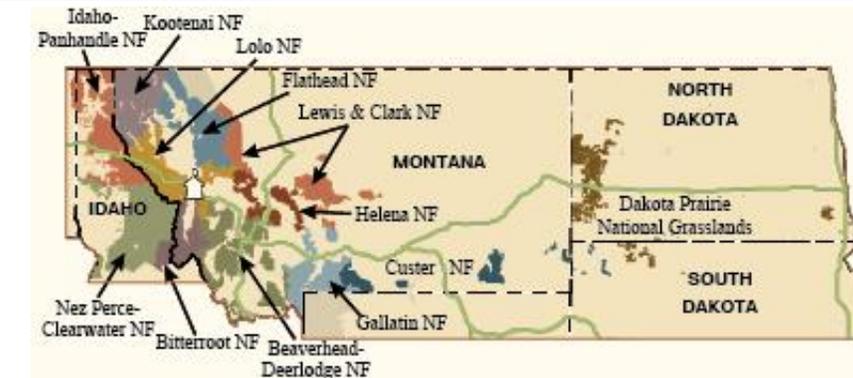
Montana Fish, Wildlife & Parks																							
Regional Contacts 	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;"><a href="#">Region 1</a></td><td style="padding: 2px;">(Kalispell)</td><td style="padding: 2px;">(406) 752-5501</td></tr> <tr><td style="padding: 2px;"><a href="#">Region 2</a></td><td style="padding: 2px;">(Missoula)</td><td style="padding: 2px;">(406) 542-5500</td></tr> <tr><td style="padding: 2px;"><a href="#">Region 3</a></td><td style="padding: 2px;">(Bozeman)</td><td style="padding: 2px;">(406) 994-4042</td></tr> <tr><td style="padding: 2px;"><a href="#">Region 4</a></td><td style="padding: 2px;">(Great Falls)</td><td style="padding: 2px;">(406) 454-5840</td></tr> <tr><td style="padding: 2px;"><a href="#">Region 5</a></td><td style="padding: 2px;">(Billings)</td><td style="padding: 2px;">(406) 247-2940</td></tr> <tr><td style="padding: 2px;"><a href="#">Region 6</a></td><td style="padding: 2px;">(Glasgow)</td><td style="padding: 2px;">(406) 228-3700</td></tr> <tr><td style="padding: 2px;"><a href="#">Region 7</a></td><td style="padding: 2px;">(Miles City)</td><td style="padding: 2px;">(406) 234-0900</td></tr> </table>	<a href="#">Region 1</a>	(Kalispell)	(406) 752-5501	<a href="#">Region 2</a>	(Missoula)	(406) 542-5500	<a href="#">Region 3</a>	(Bozeman)	(406) 994-4042	<a href="#">Region 4</a>	(Great Falls)	(406) 454-5840	<a href="#">Region 5</a>	(Billings)	(406) 247-2940	<a href="#">Region 6</a>	(Glasgow)	(406) 228-3700	<a href="#">Region 7</a>	(Miles City)	(406) 234-0900	<b>Fish and Wildlife Recommendations for Subdivision Development:</b> Renee Lemon <a href="mailto:RLemon@mt.gov">RLemon@mt.gov</a> (406) 444-3738 and see:  <a href="http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/buildingWithWildlife/subdivisionRecommendations/">http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/buildingWithWildlife/subdivisionRecommendations/</a>
<a href="#">Region 1</a>	(Kalispell)	(406) 752-5501																					
<a href="#">Region 2</a>	(Missoula)	(406) 542-5500																					
<a href="#">Region 3</a>	(Bozeman)	(406) 994-4042																					
<a href="#">Region 4</a>	(Great Falls)	(406) 454-5840																					
<a href="#">Region 5</a>	(Billings)	(406) 247-2940																					
<a href="#">Region 6</a>	(Glasgow)	(406) 228-3700																					
<a href="#">Region 7</a>	(Miles City)	(406) 234-0900																					
<b>American Bison, Black-footed Ferret, Black-tailed Prairie Dog, Bald Eagle, Golden Eagle, Common Loon, Least Tern, Piping Plover, Whooping Crane:</b> Lauri Hanauska-Brown <a href="mailto:LHanauska-Brown@mt.gov">LHanauska-Brown@mt.gov</a> (406) 444-5209																							
<b>Grizzly Bear, Greater Sage Grouse, Trumpeter Swan, Big Game, Upland Game Birds, or Furbearers:</b> John Vore <a href="mailto:jvore@mt.gov">jvore@mt.gov</a> (406) 444-3940																							
<b>Managed Terrestrial Game and Nongame Animal Data:</b> Adam Messer <a href="mailto:amesser@mt.gov">amesser@mt.gov</a> (406) 444-0095																							
<b>Fish Species:</b> Zachary Shattuck <a href="mailto:zshattuck@mt.gov">zshattuck@mt.gov</a> (406) 444-1231 or Lee Nelson <a href="mailto:leenelson@mt.gov">leenelson@mt.gov</a> (406) 444-2447																							
<b>Fisheries Data:</b> Jane Horton <a href="mailto:jhorton@mt.gov">jhorton@mt.gov</a> (406) 444-3759																							
<b>Wildlife and Fisheries Scientific Collector's Permits:</b> <a href="http://fwp.mt.gov/doingBusiness/licenses/scientificWildlife/default.html">http://fwp.mt.gov/doingBusiness/licenses/scientificWildlife/default.html</a> Merissa Hayes for Wildlife <a href="mailto:merhayes@mt.gov">merhayes@mt.gov</a> (406) 444-7320 or Beth Giddings for Fisheries <a href="mailto:begiddings@mt.gov">begiddings@mt.gov</a> (406) 444-7319																							

Montana Department of Environmental Quality
<b>Permitting and Compliance Division:</b> <a href="http://svc.mt.gov/deq/staffdirectory#pca">http://svc.mt.gov/deq/staffdirectory#pca</a> (406) 444-4323
<b>Wetlands:</b> Lynda Saul <a href="mailto:lsaul@mt.gov">lsaul@mt.gov</a> (406) 444-6836

U.S. Fish and Wildlife Service
<b>Information Planning and Conservation (IPAC) website:</b> <a href="http://ecos.fws.gov/ipac/">http://ecos.fws.gov/ipac/</a>
<b>Montana Ecological Services Field Office:</b> <a href="http://www.fws.gov/montanafieldoffice/">http://www.fws.gov/montanafieldoffice/</a> (406) 449-5225

Bureau of Land Management

<b>BLM Montana Field Office Contacts</b> Billings: (406) 896-5013 Butte: (406) 533-7600 Dillon: (406) 683-8000 Glasgow: (406) 228-3750 Havre: (406) 262-2820 Lewistown: (406) 538-1900 Malta: (406) 654-5100 Miles City: (406) 233-2800 Missoula: (406) 329-3914

United States Forest Service

<b>USFS Regional Office – Missoula, Montana Contacts</b> Wildlife Program Leader: Tammy Fletcher <a href="mailto:tammyfletcher@fs.fed.us">tammyfletcher@fs.fed.us</a> (406) 329-3588 Wildlife Ecologist: Cara Staab <a href="mailto:cstaab@fs.fed.us">cstaab@fs.fed.us</a> (406) 329-3677 Fish Program Leader: Scott Spaulding <a href="mailto:scottspaulding@fs.fed.us">scottspaulding@fs.fed.us</a> (406) 329-3287 Fish Ecologist: Cameron Thomas <a href="mailto:cathomas@fs.fed.us">cathomas@fs.fed.us</a> (406) 329-3087 TES Program: Kristi Swisher <a href="mailto:kswisher@fs.fed.us">kswisher@fs.fed.us</a> (406) 329-3558 Interagency Grizzly Bear Coordinator: Scott Jackson <a href="mailto:sjackson03@fs.fed.us">sjackson03@fs.fed.us</a> (406) 329-3664 Regional Botanist: Steve Shelly <a href="mailto:sshelly@fs.fed.us">sshelly@fs.fed.us</a> (406) 329-3041

# Directions for Using Adobe GeoPDFs

---

June 2010

A GeoPDF differs from a PDF in that it contains spatial information. When a GeoPDF is created it retains the latitude and longitude information. Using the GeoSpatial Location Tool in Adobe Reader, the latitude and longitude of your cursor location is displayed.

In order to access the GeoSpatial Location Tool make sure you have the latest version of Adobe Reader. The most current version is Adobe Reader 9 Version 9.3.2. To check your version of Adobe Reader open Adobe Reader and click on “Help” at the top and then click on “About Adobe Reader”.

Click on the following link to download the latest version: <http://get.adobe.com/reader/>

## Using the GeoSpatial Location Tool

1. Open a GeoPDF in Adobe Reader
2. Click on “Tools” in the top menu
3. Click on Analysis
4. Click on GeoSpatial Location Tool
5. A gray band with the Latitude and Longitude will not be displayed in the lower right-hand corner of the GeoPDF.
6. Place your cursor within the map to update the Latitude and Longitude



## Displaying Map Features

Map features including the spatial data layers, labels, and attributes may be displayed. To turn on or off map layers, click on the “Layers” button on the left side of the GeoPDF.

The “Layers” button looks like two overlapping diamonds.



If the “Layers” button is not visible then right click within the gray bar on the left side of the GeoPDF and then left click on “Layers”. To turn the layers or labels off, click on the “eye” in the box. To turn the layers back on click back in the box until you see the “eye”.





January 5, 2016

Mr. Todd Tillinger

U.S. Army Corps of Engineers  
10 West 15<sup>th</sup> Street  
Suite 2200  
Helena, MT 59626

Dear Mr. Tillinger:

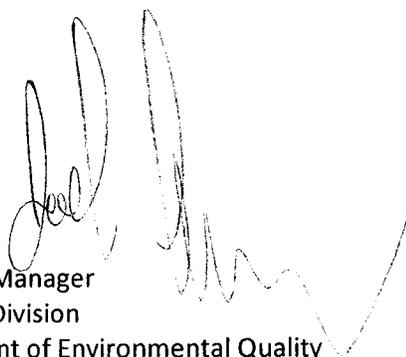
The Montana Department of Environmental Quality (DEQ) in partnership with Trout Unlimited (TU) and with the cooperation of the United States Forest Service (USFS) is planning to reclaim the abandoned Lilly Orphan Boy mine located west of Helena, MT in the Telegraph Creek drainage (map attached). Also attached is brief synopsis of the project prepared by Rob Roberts of TU.

The purpose of this letter is to give the Army Corps a "heads up" about the project. You asked on the phone if this was a Comprehensive Environmental Response and Liability (CERCLA) action. It is not. Also (per our phone conversation) I want to reiterate that this letter and attachments is not an application for a 404 Permit. DEQ and TU will be submitting a formal 404 application to you and your office in about six weeks. The purpose here is to provide some background information, so the application won't "hit you cold."

The site is relatively small, and pretty easy to clean up. However, the contaminant values in and adjacent to the drainage are quite high. I would be a good thing to get this one cleaned up.

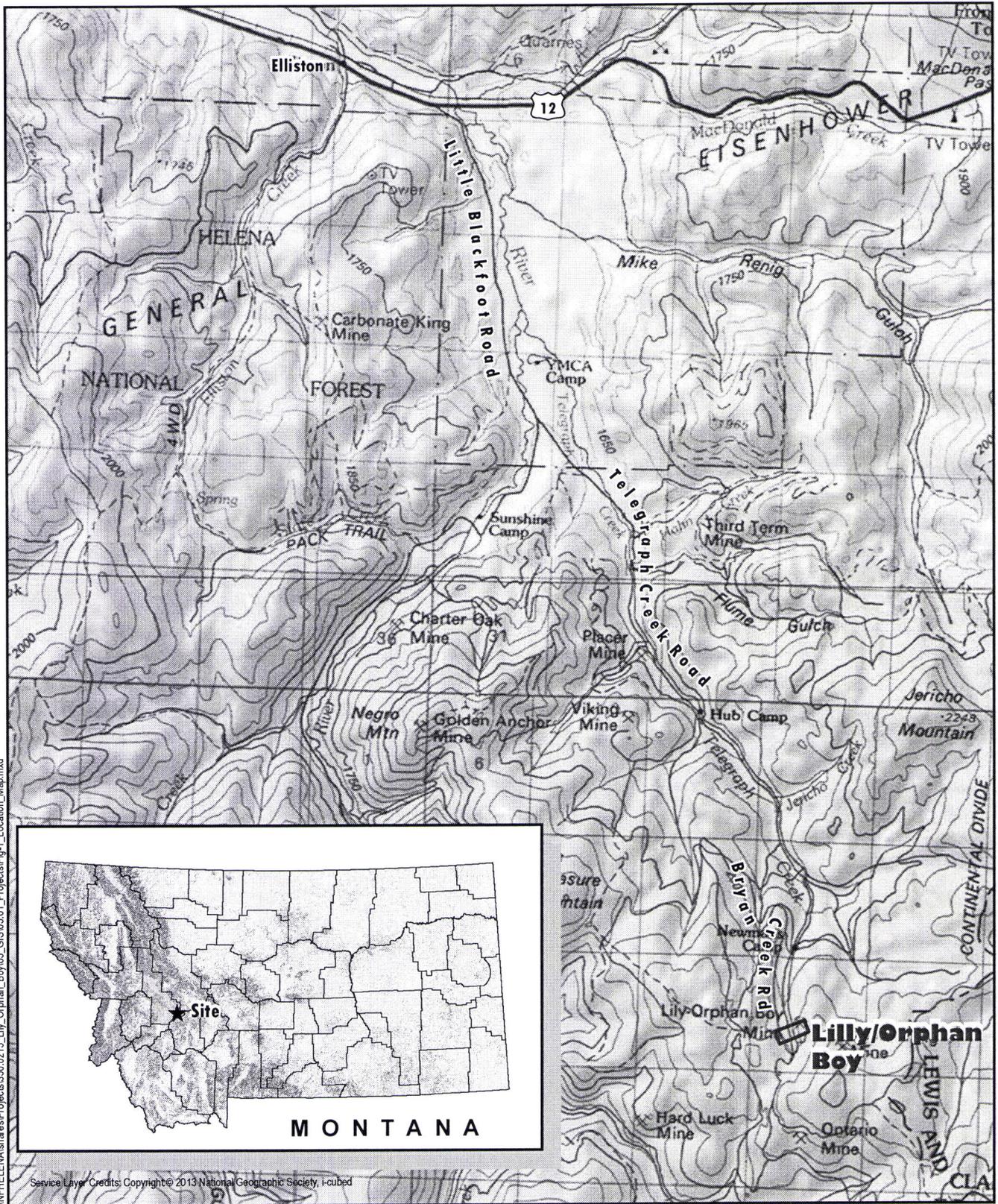
If you have any questions or comments prior to receiving our formal application, feel free to call me any time (444-6407). Thanks.

Sincerely,

  
Joel Chavez  
Construction Manager  
Remediation Division  
MT Department of Environmental Quality

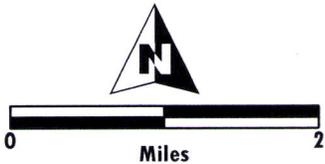
Cc:

Autum Coleman  
Rob Roberts (TU)



M:\HELENA\shares\Projects\550.0215\_Lilly\_Orphan\_Boy\05\_GIS\05.01\_Projects\Fig-1\_Location\_Map.mxd

Service Layer Credits: Copyright © 2013 National Geographic Society, I-cubed



**NewFields**

Location Map  
 Lilly/Orphan Boy Mine  
 Powell County, Montana  
 FIGURE 1



Google earth

Imagery Date: 7/25/2014 46°26'33.20"N 112°20'33.14"W elev 6827 ft eye alt 7621 ft

1995

## **Lilly Orphan Boy Mine Reclamation Telegraph Creek – Little Blackfoot River Watershed**

The Lilly Orphan Boy Mine Site is an abandoned hard rock mine located in Powell County, seven miles south of Elliston, Montana. The site is composed of one and a half acres of land along Telegraph creek - a tributary of the Little Blackfoot River - that is contaminated by metal mining dating from the late 1890's to the early 1950's (by a previous landowner). Characteristics of the site include a headframe, 250-foot shaft and three waste rock piles, totaling approximately 4,000 cubic yards, including one pile that spans Telegraph Creek. As a result, the site was ranked number 14 on the Montana Hard Rock Mine Priority List.

Montana DEQ completed Phase I and Phase II Reclamation Investigations in 2008 and 2010, respectively. Samples collected from the soils in the area and the waste rock dumps indicate elevated levels of metals including arsenic, barium, cadmium, copper, iron, lead, manganese, silver and zinc. Metal concentrations in the soil samples were screened against the DEQ risk-based recreational cleanup guidelines for the 50-day gold panner/rock hound scenario to identify preliminary contaminants of concern. Fifteen solid matrix samples collected at the Lily/Orphan Boy Mine Site contained arsenic at concentrations (444 to 74,100 mg/kg) above the recreational cleanup guidelines of 323 mg/kg for the 50-day gold panner/rock hound exposure scenario.

The project is currently being undertaken as a partnership between Montana DEQ, Trout Unlimited, the Deer Lodge Valley Conservation District and the Helena National Forest. Montana DEQ will be responsible for the reclamation activity – removal of contaminated mining waste and regrading of the site – and Trout Unlimited will be responsible for the reconstruction of Telegraph Creek and restoration of the riparian area. The project is funded by various sources including MTDEQ 319, MTFWP Future Fisheries, MTDEQ Orphan Share Funds, and DNRC Planning Grants and is expected to be completed between July and November 2016.

The Lilly Orphan Boy Mine Reclamation project will remove contaminated mine waste from Telegraph Creek and the adjacent streambanks, restore Telegraph Creek to a naturally functioning stream channel and streambanks, and improve water quality to protect fisheries and human health. Specifically, site reclamation will include removal of the mine wastes and transport to the Luttrell Repository, which is a regional repository used by the EPA, Montana DEQ, and the Forest Service. The following are project activities that will facilitate this process, in chronological order:

**Task 1 – Project planning.** Finalize engineering drawings and design specifications. Prepare contracts and interagency agreements and permits to authorize response actions.

**Task 2 – Improve and realign existing access road and haul routes to facilitate equipment mobilization.**

**Task 3 – Construct diversion berms on Telegraph Creek to dewater the creek through the Lilly Orphan Boy Mine site and install BMPs for erosion control. Install approximately 300 feet of diversion piping and construct sediment retention basins.**

**Task 4 – Clear and grub existing vegetation, where applicable, from mine waste removal sites. Rough grade waste removal sites and excavate and stockpile clean topsoil and vegetative debris for soil capping.**

Task 5 – Excavate, load, and haul mine waste from Waste Rock Piles 1, 2, and 3 – approximately 4,000 cubic yards. Move primary toxic material to repository site and cap with 24 inches of subsoil and 12 inches of topsoil to prevent contact with surface water and other erosional forces.

Task 6 – Backfill and regrade waste removal sites to create floodplain and match existing hillslopes. Import and spread topsoil and complete final fine grading of sites.

Task 7- Stream reconstruction to restore the natural components and functions of stream dimension, pattern, and profile to Telegraph Creek. Please see attached ***Design Information*** for more specifics on stream channel reconstruction portions of the project.

Task 8 – Site cleanup. Straw and mulch disturbed areas and remove BMPs where appropriate. Remove stream diversion. Revegetation of the mine sites and repository with native grass seed mixes, and conifers/woody species where appropriate.

Please see attached documents and photos for existing conditions of the mine site and Telegraph Creek.

## Lilly Orphan Boy Mine - Photos



View across Telegraph Creek



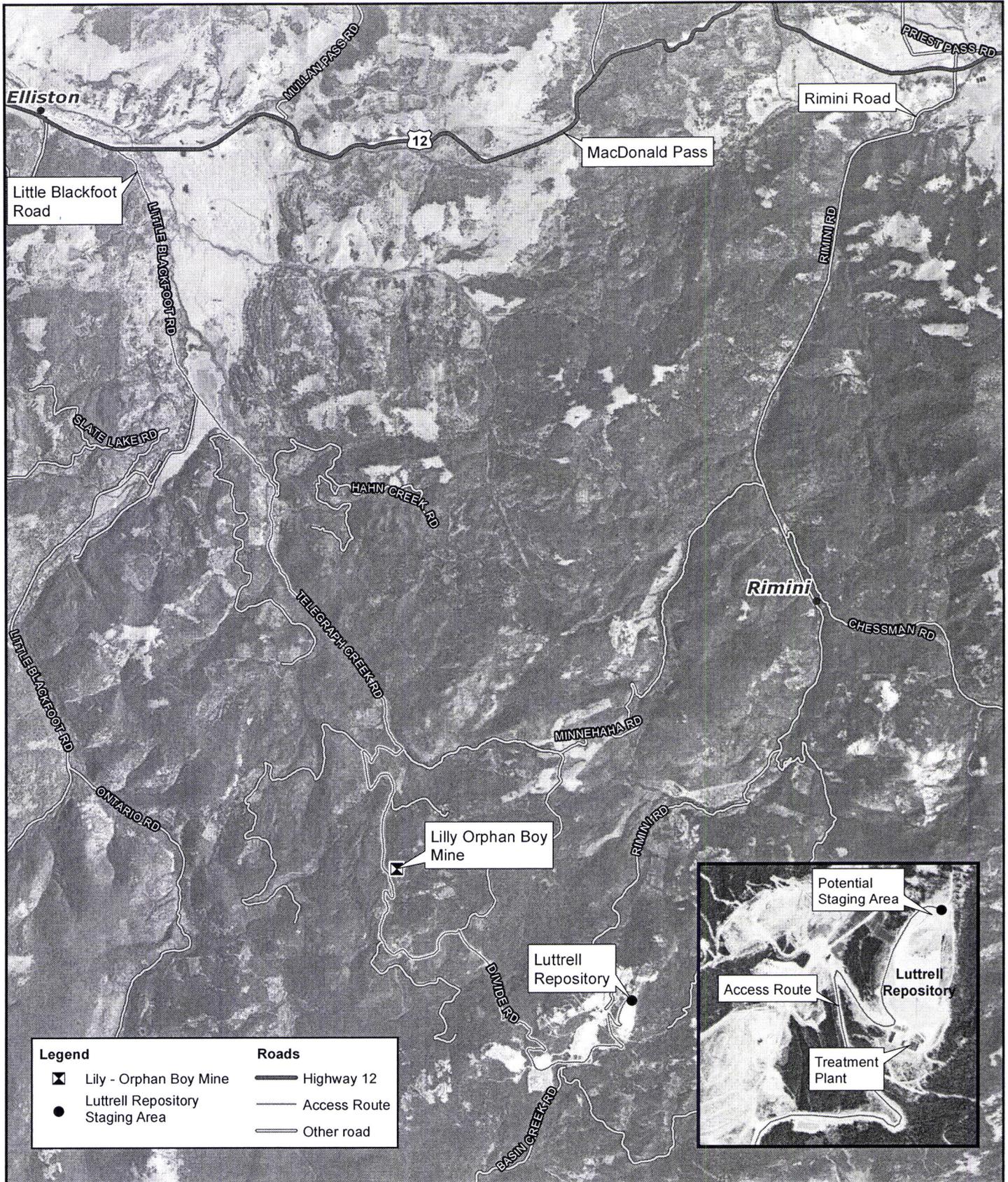
Upper waste rock pile and shaft



Contaminated runoff



Downstream of Waste Rock Pile

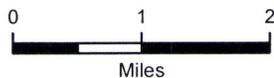


**Legend**

- ☒ Lilly - Orphan Boy Mine
- Luttrell Repository Staging Area

**Roads**

- Highway 12
- Access Route
- Other road



Aerial Imagery: NAIP (July 2013)

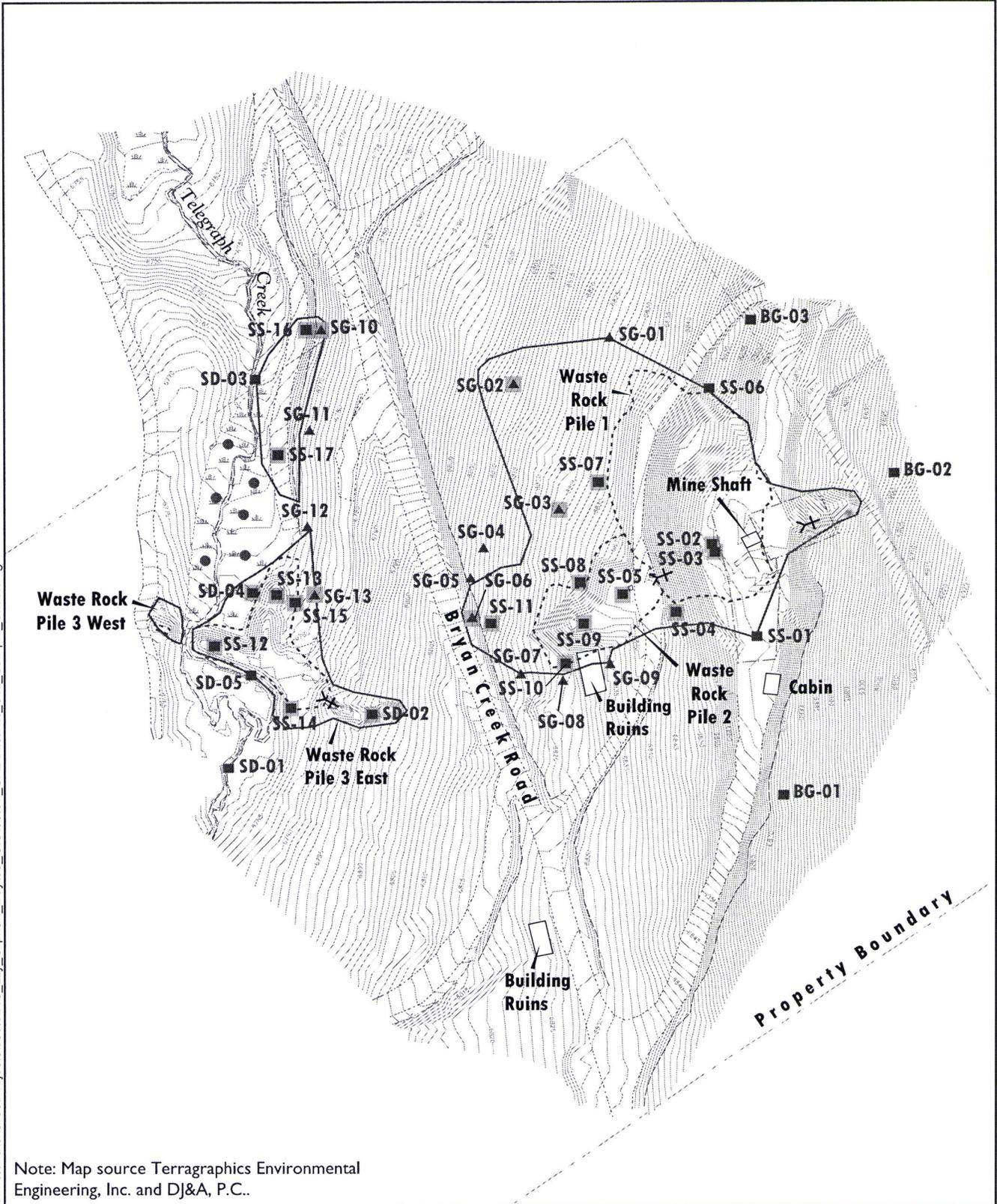


1:95,040  
One In = 1.5 Mi

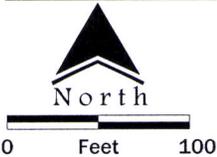
**Access to Luttrell Repository**

Lewis & Clark and Jefferson  
Counties, Montana  
November 2015

\\infelena\shares\Projects\350.0215\_Lilly\_Orphan\_Boy\05\_GIS\05.07\_CAD\Historic\_Soil\_Sample\_Sites.dwg



Note: Map source Terragraphics Environmental Engineering, Inc. and DJ&A, P.C..

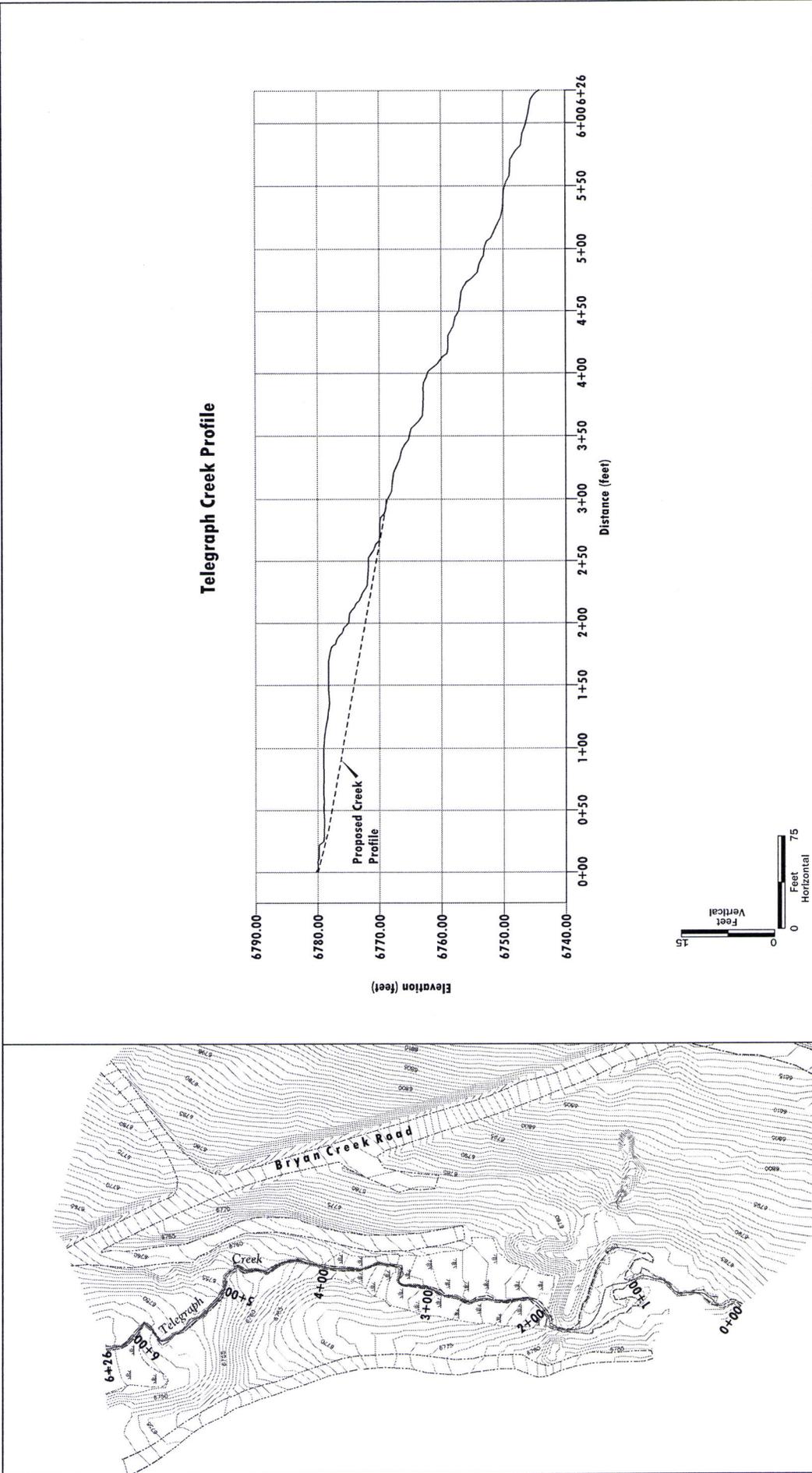


**NewFields**

- Phase I Sample Location (2008)
- ▲ Phase II Sample Sample Location (2010)
- Waste Boundary (Phase I)
- Waste Boundary (Phase II)
- Proposed Sediment Sample

- Sample Labels:
- BG - Background Soil Sample
  - SD - Sediment Sample
  - SS - Surface Sample
  - SG - Soil Grab
  - Exceeds Recreational Cleanup Guideline for Arsenic (323 mg/kg)
  - ✕ Collapsed Adit

Site Map  
Lilly/Orphan Boy Mine  
Powell County, Montana  
FIGURE 2



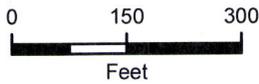
Telegraph Creek Stream Profile  
 Lilly/Orphan Boy Mine  
 Powell County, Montana  
 FIGURE 1

\\henns\henns\Projects\350.0215\_Lilly\_Orphan\_Boy\05\_GIS\05\_07\_CAD\IWB3D\Stream\_Profile.dwg



**Legend**

 Powell Co. Ownership (December 2015)



Aerial Imagery: NAIP (July 2013)  
NE 1/4, SW 1/4, Sec 15, T8N R6W

1:3,000  
One In = 250 Ft

**Location of Lilly-Orphan Boy Mine**

Powell County, Montana  
December 2015



## Chavez, Joel

---

**From:** Miner, Jason E NWO <Jason.E.Miner@usace.army.mil>  
**Sent:** Monday, January 11, 2016 12:47 PM  
**To:** Chavez, Joel  
**Cc:** Davies, Jess J NWO  
**Subject:** NWO-2016-00044-MTH (MT DEQ, T.U. - Lily Orphan Boy Mine Reclamation - Telegraph Creek (Powell County))

Dear Applicant,

I am in receipt of your correspondence. We may contact you if additional information is required. Please reference the above file number in all future correspondence with our office related to this request. You may contact the project manager listed below. Thank you for contacting the Corps.

Project Manager  
Jess Davies  
US Army Corps of Engineers  
Omaha District - Regulatory  
Phone 406-441-1365

PLEASE NOTE: THIS IS NOT A PERMIT

Thank you,

Jason E. Miner  
Office Automation Assistant  
US Army Corps of Engineers  
Montana Regulatory Office  
10 West 15th Street, Suite 2200  
Helena, Montana 59626

Phone: 406-441-1375  
Fax: 406-441-1380

## Chavez, Joel

---

**From:** Chavez, Joel  
**Sent:** Monday, January 11, 2016 2:15 PM  
**To:** 'Miner, Jason E NWO'  
**Cc:** Rob Roberts (rroberts@tu.org); Coleman, Autumn  
**Subject:** RE: NWO-2016-00044-MTH (MT DEQ, T.U. - Lily Orphan Boy Mine Reclamation - Telegraph Creek (Powell County))

Thanks Jason: we will reference the official application with the file number you provided. Joel

-----Original Message-----

From: Miner, Jason E NWO [<mailto:Jason.E.Miner@usace.army.mil>]  
Sent: Monday, January 11, 2016 12:47 PM  
To: Chavez, Joel  
Cc: Davies, Jess J NWO  
Subject: NWO-2016-00044-MTH (MT DEQ, T.U. - Lily Orphan Boy Mine Reclamation - Telegraph Creek (Powell County))

Dear Applicant,

I am in receipt of your correspondence. We may contact you if additional information is required. Please reference the above file number in all future correspondence with our office related to this request. You may contact the project manager listed below. Thank you for contacting the Corps.

Project Manager  
Jess Davies  
US Army Corps of Engineers  
Omaha District - Regulatory  
Phone 406-441-1365

PLEASE NOTE: THIS IS NOT A PERMIT

Thank you,

Jason E. Miner  
Office Automation Assistant  
US Army Corps of Engineers  
Montana Regulatory Office  
10 West 15th Street, Suite 2200  
Helena, Montana 59626

## Appendix B - Scoping and Public Comment

### Public Comment Period

Date	Lilly/Orphan Boy Public Comment Period	Attachment No.
2/7/16	DEQ published the draft EEE/CA on its website and published a legal ad in the paper of record seeking public comment.	1
2/8/16	DEQ issued a press release seeking comment on the draft EEE/CA.	2
2/9/16	DEQ and Trout Unlimited attended the Deer Lodge Valley Conservation District Meeting soliciting public comment on the draft EEE/CA	3
2/15/16	The Helena Independent Record featured an article on the mine cleanup plans	4
2/17/16	DEQ and Trout Unlimited hosted a public meeting in Elliston, Montana.	5, 6 & 7
3/8/16	Public comment received in support of Alternative 3 (no response required)	8
3/8/16	Public comment period closes	
April 2016	EEE/CA Finalized and published on the DEQ's AML Website	

**Chavez, Joel**

**From:** Wiggins, Joann  
**Sent:** Wednesday, February 03, 2016 8:56 AM  
**To:** Flatow, Jeni; Chavez, Joel  
**Subject:** FW: Legal Ads

---

**From:** Billie Jo Williams [<mailto:BillieJo.Williams@helenair.com>]  
**Sent:** Tuesday, February 02, 2016 5:01 PM  
**To:** Wiggins, Joann  
**Subject:** RE: Legal Ads

Hi Joann,

I have this legal ad scheduled for February 7, 14, 2016. The charges are \$ 110.00. Here is your proof.

Thanks,  
 Billie Jo Williams

**PUBLIC NOTICE**

The Montana Department of Environmental Quality (DEQ) is seeking public comment on an Engineering Evaluation and Cost Analysis (EE/CA) for the Lilly / Orphan Boy Mine in Powell County, Montana. The EE/CA, done in partnership with Trout Unlimited, identifies and evaluates options for addressing mine tailings located on private property in the Telegraph Creek watershed south of Elliston.

The Lilly / Orphan Boy Mine produced small amounts of silver, gold, lead, copper and zinc intermittently, from the late 1890s up to the mid-1950s. The tailings from the mine contain elevated concentrations of metals and arsenic, and have been deposited adjacent to, and in, Telegraph Creek. The mine waste poses a continuing source of contamination to the creek.

The options evaluated in the EE/CA range from no action, to removing nearly all the tailings and waste rock near and in the stream and placing them in a regional repository owned by DEQ. The repository is located at the former Basin Creek Mine at the junction of Lewis and Clark, Jefferson and Powell counties. The preferred alternative would remove the great majority of the tailings in and adjacent to the creek and place them in the repository at the Basin Mine.

The public comment period begins on February 7, 2016, and ends March 8, 2016, at 11:59 p.m. MST. DEQ will also hold a public meeting to discuss the EE/CA on Wednesday February 17, 2016, at 6:00 p.m. in the Elliston School, in Elliston. The public meeting is being held so interested persons have an opportunity to learn about proposed options for activities at the Site, and to submit written comments. DEQ will also accept and record verbal comments on the EE/CA at the public meeting.

The EE/CA and other information regarding the Lilly / Orphan Boy Site e can be found online at DEQ's website (<http://deg.mt.gov/Lands/AbandonedMines/CurrentProjects>) or at the DEQ Cedar Building (1225 Cedar St. in Helena). Written comments may be submitted to Joel Chavez, project manager, Remediation Division, P.O. Box 200901, Helena, MT 59620-0901 or via email at [jchavez@mt.gov](mailto:jchavez@mt.gov). Comments received through the postal service must be postmarked no later than March 8, 2016, and comments submitted electronically must be received no later than 11:59 pm MST March 8, 2016. DEQ will make reasonable accommodations for persons with disabilities who wish to participate in this meeting. If you require an accommodation, please contact Jeni Flatow at DEQ in Helena at 406-444-6469.

February 7, 14, 2016

**MNAXLP**

---

**From:** Wiggins, Joann [<mailto:JWiggins@mt.gov>]  
**Sent:** Tuesday, February 02, 2016 3:46 PM  
**To:** Hel IR Legal Ads  
**Cc:** Chavez, Joel; Flatow, Jeni  
**Subject:** Legal Ads

Good afternoon,

Please publish the attached ad in the Sunday ,February 7 and February 14, edition of the Independent Record in the legal section.

Also, send an affidavit and tear sheet along with your invoice to me at the address listed below.

I would appreciate email verification that you received this request and ad placement dates are confirmed. Please let me know what the charges will be, per ad and for the total amount.

Thank you for your assistance.

Joann Wiggins  
DEQ Remediation Division  
Administrative Assistant  
444-6795  
[JWiggins@mt.gov](mailto:JWiggins@mt.gov)



FOR IMMEDIATE RELEASE  
February 8, 2016

**DEQ Seeking Comment on Expanded Engineering Evaluation and Cost Analysis for the Lilly/Orphan Boy Mine**

*Members of the public are invited to comment online, by mail, or at February 17 meeting in Elliston*

Helena – The Montana Department of Environmental Quality, in coordination with Trout Unlimited, is seeking public comment on an Expanded Engineering Evaluation and Cost Analysis for the Lilly/Orphan Boy Mine along Telegraph Creek in the Little Blackfoot River watershed in Powell County.

The purpose of the Expanded EE/CA is to develop and evaluate potential cleanup options to reduce or eliminate potential human health and environmental risks associated with solid waste materials at the Lilly/Orphan Boy Mine site. This includes the reduction or elimination of uncontrolled releases of metals to soil, surface water, and sediment from mine waste present at the site. The Expanded EE/CA identifies the preferred option that best satisfies the criteria developed from removal action objectives and used to evaluate the variety of potential reclamation alternatives.

The public is encouraged to attend a meeting on February 17 at 6 p.m. at the Elliston Elementary School in Elliston. An informational presentation will be given, followed by an opportunity for the public to ask questions and make official comments on the Expanded EE/CA.

The Expanded EE/CA evaluated three cleanup options that will reduce or eliminate potential human health and ecological risks associated with mine waste and impacted soil/sediment. These options include:

- Alternative 1: No Action
- Alternative 2: Excavation and disposal in an off-site repository
- Alternative 3: Excavation and disposal in the Luttrell Repository

These options only address mine waste and soil/sediment containing contaminants of concern at concentrations above reclamation goals and do not address discharge from the Lilly adit.

Alternative 3 is the preferred cleanup option. This option consists of the excavation and removal of approximately 4,415 cubic yards of mine waste, soil and sediment for disposal in the Luttrell Repository. Following removal, the site would be regraded to match existing undisturbed site slopes. Appropriate measures would be taken to encourage revegetation. Approximately 300 linear feet of Telegraph Creek would be reconstructed and graded to provide a slope consistent with upstream and downstream portions of the creek that have not been affected by mining activities.

The Lilly/Orphan Boy Mine Site is an abandoned hard rock mine located on private property approximately 10.5 miles south of Elliston. Contaminants of concern are arsenic and lead. Cleanup levels are based on recreational user cleanup guidelines which is based on a 50-day per year exposure scenario.

The Expanded EE/CA can be found online at <http://deq.mt.gov/Land/AbandonedMines/CurrentProjects> and at the DEQ Cedar Building (1225 Cedar St. in Helena).

Written comments may be submitted to Joel Chavez, project manager, at DEQ-Federal Superfund Bureau, P.O. Box 200901, Helena, MT 59620-0901 or via email at: [jchavez@mt.gov](mailto:jchavez@mt.gov) Comments received through the postal service must be postmarked no later than March 8, 2016, and comments submitted electronically must be received no later than 11:59 p.m. March 8, 2016.

To schedule an interview for this story, please contact:

Jeni Flatow  
Montana Department of Environmental Quality  
DEQ Remediation Public Information Officer  
Office: 406-444-6469  
Mobile: 406-437-1327  
[jflatow@mt.gov](mailto:jflatow@mt.gov)

### END ###

**DEER LODGE VALLEY CONSERVATION DISTRICT**  
**Regular meeting February 9, 2016**  
**6:30 PM - USDA Building**

**MINUTES OF LAST MEETING:**

**FINANCIAL STATEMENT:**

Treasurer:

District Secretary:

Petty Cash:

County Funds:

**OLD BUSINESS:**

1. WRC.
2. Lilly/Orphan Boy Project, (Joel Chavez/Rob Roberts)
3. Kohrs Manning diversion
4. No Till Drill (Granite County)
5. Livestock Seminar.

**NEW BUSINESS:**

1. 223 grant (Maggie Schmidt, Clark Fork Coalition)
2. MACD (Dwight)
3. Natural Resource Field Day.
4. Plan Soil Health/No-Till Drill field day.

**SB310:**

1. DLV-02-15, Bill Mosier, Kohrs & Manning Ditch Company, Clark Fork River Irrigation Structure/Improvement to Existing Structure. **On Hold.**
2. DLV-01-16, Kevin Horne, Bryan Creek Culvert.
3. DLV-02-16, Amadeo F. Angelo, Clark Fork River Irrigation Structure/Annual maintenance.
4. DLV-03-16, Amadeo F. Angelo, Clark Fork River Irrigation Structure/Annual maintenance.
5. DLV-04-16, Southern Montana Telephone Company, Wisdom area, see attached Utilities.

**AGENCY REPORTS:**

**Open Mike:**

**NEXT MEETING IS: Tuesday, March 8, 2016, 6:30 pm., USDA Building**

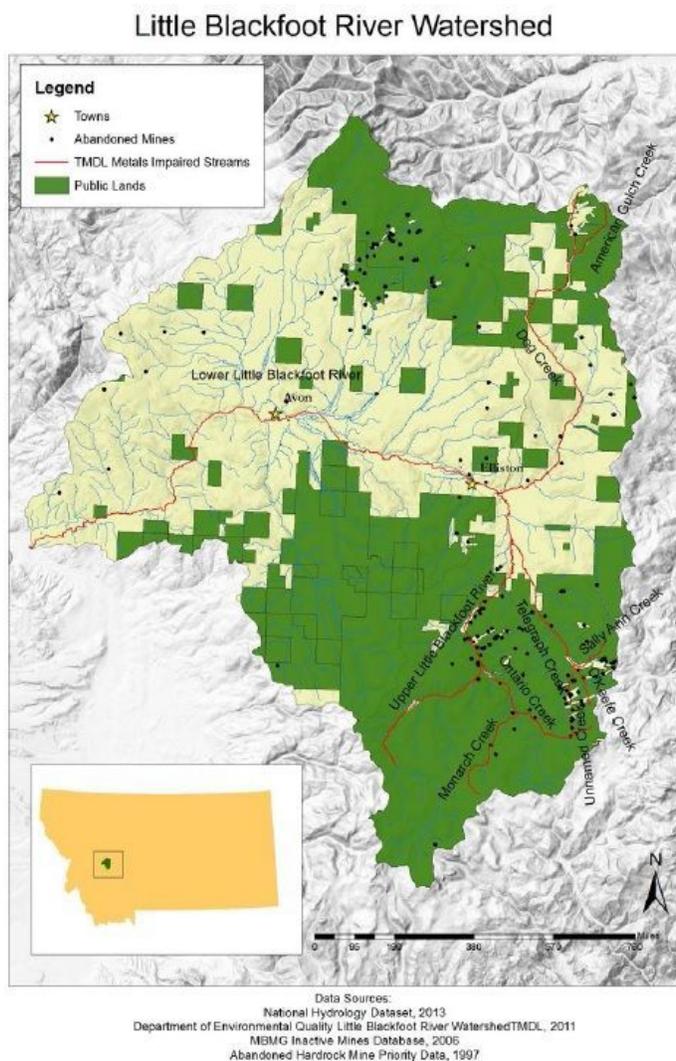
Submitted by  Date: February 9, 2016

[http://helenair.com/news/natural-resources/deq-trout-unlimited-partner-on-mine-cleanup-near-elliston/article\\_7e2be69f-9961-53f0-b6eb-e6ecf5aa1.html](http://helenair.com/news/natural-resources/deq-trout-unlimited-partner-on-mine-cleanup-near-elliston/article_7e2be69f-9961-53f0-b6eb-e6ecf5aa1.html)

FEATURED

## DEQ, Trout Unlimited partner on mine cleanup near Elliston

TOM KUGLIN Independent Record Feb 15, 2016



The Montana Department of Environmental Quality has partnered with Trout Unlimited to propose the first of what may be many legacy mine reclamations in the Little Blackfoot River drainage south of Elliston.

The Lily/Orphan Boy Mine is an abandoned hard rock mine contaminated with arsenic and lead located on private property about 10.5 miles south of Elliston. The site, which because of human and environmental health risks ranks 10th on DEQ's statewide priority list of abandoned mine lands, includes a portion of Telegraph Creek, a tributary of the river.

DEQ released environmental documents this week announcing a public meeting and requesting public comment on a proposal to remove the contaminated material and transport it to a repository. The documents, called an expanded engineering evaluation and cost analysis, include a no action alternative, an alternative to excavate and dispose of material in an unnamed off-site repository and a preferred alternative to excavate and dispose of material in the Luttrell Repository located 6.6 miles away.

"Trout Unlimited and the conservation district are partners in this, so it's really exciting for us because it's a much different way than we've operated before," said DEQ Abandoned Mine Program Supervisor Autumn Coleman. "We're used to just going in and cleaning up mines ourselves, so it's an interesting project to partner with a nonprofit."

DEQ investigated mining contamination in the drainage from roughly 2007 to 2010. The work was then dropped as the program refocused attention on coal mine reclamation, leaving the data unused, Coleman said.

"Trout Unlimited essentially picked up where DEQ left off," she said. "I think that's one of the best parts is that all this money spent on the investigation isn't just sitting on a shelf somewhere. From my perspective, it's a really good project."

Trout Unlimited began an abandoned mine reclamation campaign in the West around 2005, said TU project manager Rob Roberts. The initiative came through a realization of falling federal budgets and capacity to address legacy mine waste, he said.

The nonprofit established a relationship with the Lolo National Forest, partnering on several projects before Roberts switched his attention to the Upper Clark Fork River -- a federally designated Superfund site.

“As we started delving into the upper Clark Fork, we looked at the Little Blackfoot as a potential priority because it contains multiple mine sites on the state’s priority list,” he said.

Roberts and Trout Unlimited partnered with the Helena National Forest and DEQ as mine sites fall both on national forest and private lands. The Lily/Orphan Boy became the initial focus due to “mine waste literally in the stream channel” and the threat of a flood dispersing the waste to where it could not be recaptured, he said. The site’s landowner is also highly interested in getting the waste removed, he added.

Both Coleman and Roberts said they hoped the project could act as a showcase for the partnership and an example to area landowners. Lily/Orphan Boy is not an overly technical reclamation with low risks, Roberts said.

As the partners look to the future, Roberts can see at least a decade of work in the Little Blackfoot drainage reclaiming multiple mines. Reclamation projects are often a boon to local economies for local contractors, lodging and supplies, he added.

---

Reporter Tom Kuglin can be reached at 447-4076 or [tom.kuglin@helenair.com](mailto:tom.kuglin@helenair.com)

## Interested?

More information on the project is available at <http://deq.mt.gov/Land/AbandonedMines/CurrentProjects>.

A public meeting will be held on Feb. 17 at 6 p.m. at the Elliston Elementary School. An informational presentation will be given, followed by an opportunity for the public to ask questions and make official comments.

Written comments may be submitted to Joel Chavez, project manager, at DEQ-Federal Superfund Bureau, P.O. Box 200901, Helena, MT 59620-0901, or via email at: [jchavez@mt.gov](mailto:jchavez@mt.gov). Mailed comments must be postmarked no later than March 8, and comments submitted electronically must be received no later than 11:59 p.m. March 8.

---

**Tom Kuglin**



Date: 2/17/2016

Time: 6:00PM

Place: Elliston Elementary School, Elliston, Montana

For more information please contact

Joel Chavez

Phone: 406-444-6407

E-mail: [jchavez@mt.gov](mailto:jchavez@mt.gov)

Website:

<http://deq.mt.gov/Land/AbandonedMines/CurrentProjects>

## Lilly/Orphan Boy Mine Site

# Public Meeting

*The Montana Department of Environmental Quality, in coordination with Trout Unlimited, will host a public meeting to take comments on an Expanded Engineering Evaluation and Cost Analysis for the Lilly/Orphan Boy Mine along Telegraph Creek in the Little Blackfoot River Watershed in Powell County.*

*The purpose of the EE/CA is to develop and evaluate potential cleanup options to reduce or eliminate potential human health and environmental risks associated with solid waste materials at the Lilly/Orphan Boy Mine site. This includes the reduction or elimination of uncontrolled releases of metals to soil, surface water, and sediment from mine waste present at the site.*

### DEQ

1225 Cedar Street

PO Box 200901

Helena, MT 59620

Phone: 406-444-6474

[www.deq.mt.gov](http://www.deq.mt.gov)

DEQ will make reasonable accommodations for persons with disabilities who wish to participate in the public meeting. If you require an accommodation, please contact Jeni Flatow at 406-444-6469 or [jflatow@mt.gov](mailto:jflatow@mt.gov).



## Lilly/Orphan Boy Mine Restoration Project, Powell County

### Abandoned Mine Lands

February 2016

### Background

The Lilly/Orphan Boy Mine Site (LOB Mine, or site) is an abandoned hard rock mine located on private land approximately 10.5 miles south of Elliston in Powell County, Montana. Approximately 1.5 acres was disturbed by mining activities. Development of the mine began around 1893 and ended with the last shipment of ore in 1954 or 1955.

Surrounded by Helena-Lewis and Clark National Forest and adjoining private land, the site is contaminated from metal mining along Telegraph Creek, a tributary to the Little Blackfoot River, and ranks tenth on the Montana Department of Environmental Quality (DEQ) Abandoned Mine Lands (AML) Priority List. A Phase I reclamation investigation was conducted in 2008 and a subsequent Phase II reclamation investigation in 2010 in order to determine the nature and extent of mining related impacts at the site. Screening levels at the site include risk-based guidelines for recreational users (based on a 50-day per year exposure scenario). The main contaminants of concern are lead and arsenic.

Miners accessed ore via a mine shaft and three adits. The shaft and headframe are still present but all three adits have collapsed. Adjacent to and below the shaft and each adit are piles of waste rock. The lowermost waste rock pile is associated with the lowest adit (known as the Lilly Adit), and is bisected by Telegraph Creek.

### Partnership with Trout Unlimited

Last year, Trout Unlimited (TU), in partnership with the Deer Lodge Valley Conservation District, was successful in obtaining a DNRC Planning Grant to complete the Expanded Engineering Assessment/Cost Analysis (EE/CA). TU and DEQ have entered into a partnership to complete the removal of mine wastes. The DEQ AML program has secured special grant funds for the mine waste removal portion of the project and TU has secured grant funds for the stream restoration portion of the project.

### Cleanup Options

The main goal of the cleanup action under consideration for the LOB Mine is to limit potential human and ecological exposure to mine-related contaminants.

The EE/CA evaluated three cleanup options that will reduce or eliminate potential human health and ecological risks associated with mine waste and impacted soil/sediment. These options include:

Alternative 1: No Action

Alternative 2: Excavation and disposal in an off-site repository

Alternative 3: Excavation and disposal in the Luttrell Repository.

These options only address mine waste and soil/sediment containing contaminants of concern at concentrations above reclamation goals and do not address discharge from the Lilly adit, which will be managed as a separate phase of the project.

### Exposure Pathways

Humans may be exposed to elevated concentrations of arsenic and lead in the mining complex by ingestion or skin exposure to mine waste, surface water, or sediment; by inhalation of dust or ingestion of mobilized sediment. For instance, recreational forest users could be exposed to mine waste if they rested or stopped to eat in the relatively open mine areas, and ingested mine waste that had accumulated on their hands and/or food. In addition, recreational users could obtain drinking water out of the stream, which contains dissolved metals and may also contain entrained sediment.

Alternative 3 is the preferred cleanup option. It provides the same level of protection as Alternative 2, but is less costly and easier to implement because there is no requirement to either purchase land or obtain a long-term agreement with an existing property owner for the construction of a repository. This option consists of the excavation and removal of approximately 4,415 cubic yards of mine waste, soil and sediment for disposal in the Luttrell Repository. The Luttrell Repository is approximately 6.6 miles from the site and is part of the Basin Mining Area. Following removal, the site would be regraded to match existing undisturbed site slopes and appropriate measures would be taken to encourage revegetation. Approximately 300 linear feet of Telegraph Creek would be rebuilt and graded to provide a slope consistent with upstream and downstream portions of the creek that have not been affected by mining activities.

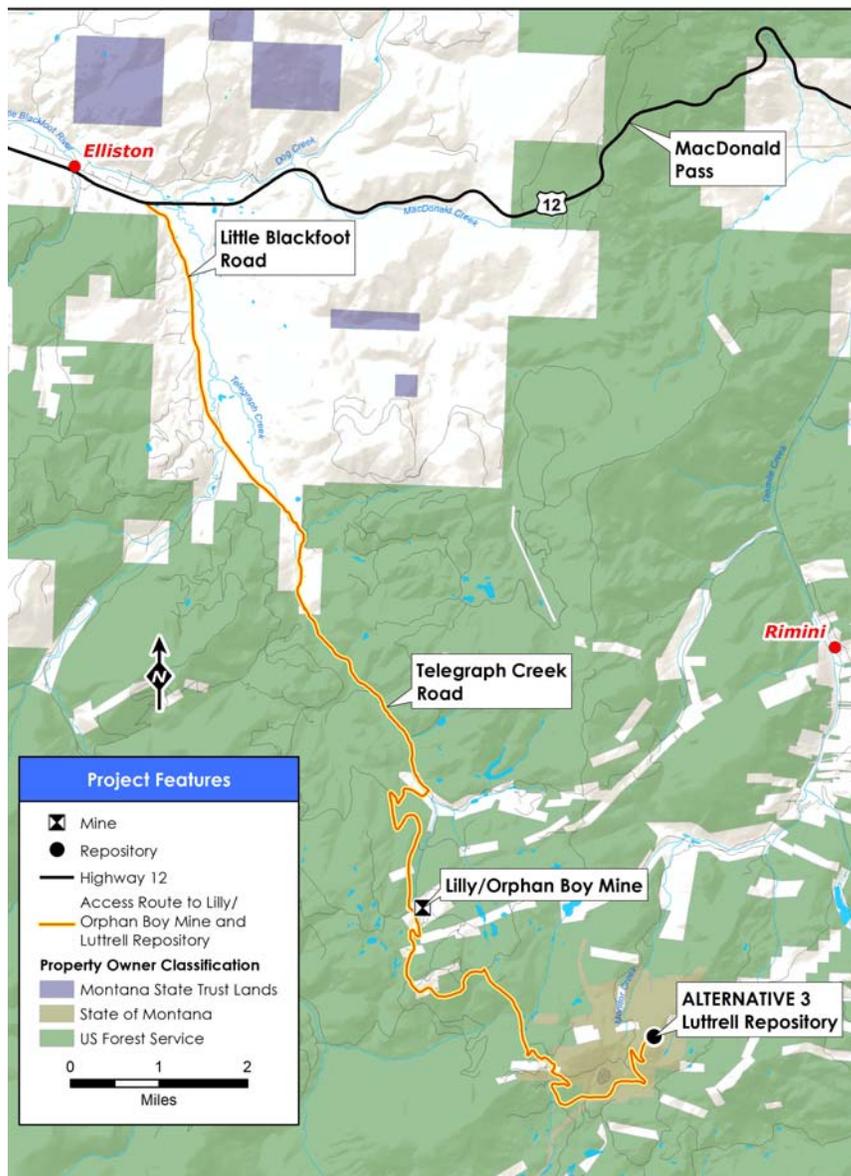
Human and ecological exposure to contaminants through direct contact with mine waste would be eliminated. It would also eliminate a source of metals impacts to surface water and sediment in Telegraph Creek.

### Public Comment Period

DEQ and Trout Unlimited are seeking public comment on the Expanded EE/CA. Written comments may be submitted to Joel Chavez, project manager, via email at [jchavez@mt.gov](mailto:jchavez@mt.gov) or at P.O. Box 200901, Helena, MT 59620-0901. Comments received through the postal service must be postmarked no later than March 8, 2016, and comments submitted electronically must be received no later than 11:59 p.m. MST March 8, 2016.

### Schedule

DEQ will begin construction activities at the Lilly/Orphan Boy Mine site in July 2016, followed by Trout Unlimited's construction in September 2016. Construction completion will reach completion at the end of October 2016.



## Contacts

### Joel Chavez

Project Manager  
Montana Department of Environmental Quality  
406-444-6407  
[jchavez@mt.gov](mailto:jchavez@mt.gov)  
<http://deq.mt.gov/Land/AbandonedMines/CurrentProjects>

### Rob Roberts

Project Manager  
Trout Unlimited  
406-540-2944  
[rroberts@tu.org](mailto:rroberts@tu.org)



## Attachment 8

**From:** [Char&Don](#)  
**To:** [Chavez, Joel](#)  
**Subject:** Comment: Lilly/Orphan Boy Mine Restoration Project, Powell County Montana  
**Date:** Tuesday, March 08, 2016 1:23:55 PM

---

Dear Mr. Chavez:

I attended the public meeting on Feb. 17th at the Elliston Elementary School. Thank you for your detailed presentation. Many of my concerns and questions were answered at this meeting. I still have doubts that contaminants from this site pose a significant risk to humans. The majority of project costs still come from tax payer dollars via government grants.

However, based on my research and the information presented at this meeting, I believe Alternative 3 which calls for the excavation and disposal in the Luttrell Repository offers the best solution to remove contaminants from the Lilly/Orphan Boy mine site. I will continue to follow the progress of this project. Thank you for giving me the opportunity to comment.

Charla Bacon  
P.O. Box 210  
Elliston, Montana 59728