



# VALUING THE UPPER TENMILE CREEK:

A STUDY OF FUTURE LAND USES

AT A SUPERFUND SITE

LEWIS AND CLARK COUNTY, MONTANA

PROJECT REPORT

AUGUST 2004

PROJECT TEAM

E<sup>2</sup> INC.

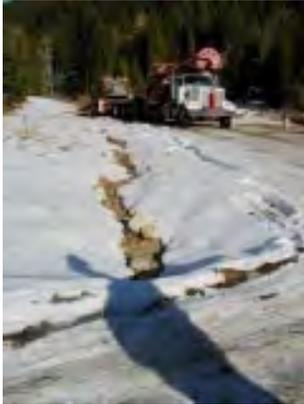
D.I.R.T. WEST

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
SUPERFUND REDEVELOPMENT INITIATIVE (SRI)

## Project Timeline

**October 1999**  
Upper Tenmile Creek Site Listed on  
the National Priorities List



**Fall 2002**  
Community Receives Funding from  
Superfund Redevelopment Initiative to  
undertake Reuse Planning Process



**November 2002**  
Project Team's First  
Site Visit

**May 2003**  
First Land Use Committee Meeting at  
the Old School House in Rimini

**June 2003**  
Community Values Survey sent to  
the Upper Tenmile Creek  
Land Use Committee



**August 2003**  
Final Land Use Committee Meeting held to  
Present Draft Land Use Guidelines and Draft  
Land Use Proposals for Discussion



## Project Scope

The U.S. Environmental Protection Agency (U.S. EPA)'s primary responsibility at Superfund sites is the protection of human health and the environment. Since 1995, it has also been U.S. EPA policy to consider potential future land uses when making remedy decisions at Superfund sites, so that the remediation of Superfund sites does not preclude future use for commercial, recreational, ecological, or other purposes. Since 1999, U.S. EPA's Superfund Redevelopment Initiative (SRI) has been helping communities and stakeholders plan for reuse at more than 70 National Priorities List (NPL) sites across the country.

Reuse planning at NPL sites presents a unique set of obstacles, challenges, and opportunities. Superfund site designation represents a commitment from U.S. EPA that a site's contamination will be remediated and that the site will be made safe for human health and the environment. However, reuse considerations at these sites can be complicated by many factors, including the level and complexity of contamination, unclear or resistant site ownership, or community concerns about health and the environment, all of which can lead to a lengthy and contentious process. Any successful reuse planning effort must be mindful of how a site's reuse and remediation will work together, involve the capacity of diverse stakeholders to meaningfully participate in the process, and take into account the long time frames often involved in NPL site remediation.

In 2002, the City of Helena and Lewis and Clark County received assistance from SRI to undertake a community-based planning process to develop future land use recommendations for the 53 square mile (33,900 acres) Upper Tenmile Creek Superfund site. During the planning process, a committee of local residents from the Upper Tenmile Creek watershed and individuals from the city of Helena met with environmental consultants from E<sup>2</sup> Inc. and landscape architects from D.I.R.T. West (the Project Team), and with support from U.S. EPA. The process resulted in the Draft Land Use Guidelines and Draft Land Use Proposals presented in part three of this report. While members of the committee (referred to as the Land Use Committee) all shared a deep commitment to and respect for the Upper Tenmile Creek watershed, they had a wide range of interests and priorities for land use within the watershed site. As such, the Draft Land Use Guidelines and Draft Proposals are an attempt to balance the various goals of the Land Use Committee members. After they were presented to the community in August 2003, it became clear that reaching consensus for approval would be difficult and, therefore, it was determined that no effort would be made to develop a more detailed land use plan for the Upper Tenmile Creek Superfund site. The Draft Land Use Guidelines and Draft Land Use Proposals are presented in this report to further encourage discussion within the community, as well as potentially inform and direct the site's remedial design and implementation, ensuring that land use considerations are taken into account in future community planning efforts.

This report includes site background information in addition to the Draft Land Use Guidelines and Draft Proposals. The recommendations within the report were informed by the Land Use Committee over the course of two community meetings. At these meetings, discussions focused on both the natural and industrial history of the site, existing land use patterns within the watershed and the status of remediation. A survey of important community values was also sent to the Land Use Committee and helped inform the Project Team's recommendations. Based on these discussions and the values survey, the Project Team developed this report as a resource to help guide future land use within the watershed. Additionally, the Team reviewed the Lewis and Clark Growth Policy to determine how land use guidelines could be applied to the Upper Tenmile Creek watershed should the community want to pursue this option. The review is included in the appendices of the report. Finally, the Project Team identified resources for historic preservation and road removal, which are also included in the appendices of this report.

Currently, E<sup>2</sup> Inc. is working with the City of Helena, Lewis and Clark County, state agencies, and US EPA to evaluate integrated land transfer and water management opportunities in the Upper Tenmile Creek watershed. These opportunities could enable the development of effective, lower-cost remedial components and enhance local water planning efforts and infrastructure.

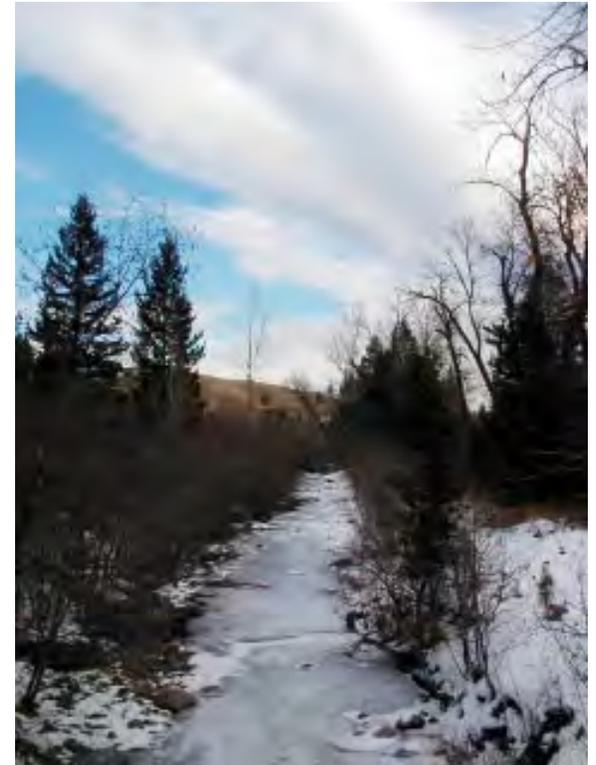
## Acknowledgments

The Project Team would like to thank the following people for their participation in the reuse planning process for the Upper Tenmile Creek Superfund site:

### *Land Use Committee Members:*

|                |                        |
|----------------|------------------------|
| Doug Abelin    | Douglas Herold         |
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| Carl Anderberg | Keith Large            |
| Jaime Arnold   | Kathy Lloyd            |
| John Arrico    | Tom Mandera            |
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| Randy Beckner  | Neil Marsh             |
| Fred A Bailey  | Michael McHugh         |
| Bret Boundy    | Leonard Pickett        |
| Tim Burton     | Jim Posewitz           |
| Joan Connole   | Don Reimer             |
| Kurt Cuneo     | John Rundquist         |
| Jorjena Daly   | David Rusoff           |
| Dave Gardner   | Don Skaar              |
| Jon Gatchell   | Colonel Allan Stricker |
| Don Gordon     | Chuck Watters          |
| Eric Griffin   | Jim Wilbur             |
| Eric Grove     |                        |
| Diana Hammer   |                        |

In particular, the Project Team would like to thank Mike Bishop, site Remedial Project Manager for the Upper Tenmile Creek Superfund site, for his commitment to the project and the people who reside within the watershed.



view of the Upper Tenmile Creek

## Table of Contents

|  |                   |
|--|-------------------|
| Project Timeline   | page 2            |
| Project Scope  | page 3            |
| Acknowledgements   | page 4            |
| Table of Contents  | page 5            |
| <b>Part One: The Upper Tenmile Creek Watershed</b>                           | page 6-12         |
| Ecology  | page 7            |
| Social + Industrial History  | page 9            |
| Post-Industrial Landscape  | page 9            |
| Current Land Use   | page 10-11        |
| Reclamation  | page 12           |
| <b>Part Two: Community Values + Goals</b>                                    | page 13           |
| <b>Part Three: Future Considerations</b>                                     | page 15-17        |
| Draft Land Use Guidelines  | page 15           |
| Draft Land Use Proposals   | page 16-17        |
| <b>Appendices:</b>   |                   |
| <i>Appendix A: List and Map of Species of Special Concern in Montana</i>     | <i>page 18-19</i> |
| <i>Appendix B: First Land Use Committee Meeting Notes</i>                    | <i>page 20-21</i> |
| <i>Appendix C: Planning Development in the Upper Tenmile Creek Watershed</i> | <i>page 22</i>    |
| <i>Appendix D: Opportunities for National Historic Registration</i>          | <i>page 23</i>    |
| <i>Appendix E: Guide to Removing Unwanted Roads in Wilderness Areas</i>      | <i>page 24</i>    |
| <i>Appendix F: California Gulch Case Study, Lake County, CO</i>              | <i>page 24</i>    |



clockwise from left: water map of the Upper Tenmile Creek watershed; Scott Reservoir; Chessman Reservoir

## **PART ONE: The Upper Tenmile Creek Watershed**

### **Ecology**

The Upper Tenmile Creek watershed sits in the East Front of the Rocky Mountains. This area is a spectacular and expansive landscape at the juncture of the Rocky Mountains and the western margin of the Northern Great Plains. In Montana, the East Front encompasses an area that extends northwest from near the city of Helena to the Canadian border. The East Front's abrupt change from rolling prairie to mountain topography produces significant elevational and climactic gradients, creating a high level of species and ecological diversity. Ecosystems range from high-elevation alpine tundra to mountain forest, and from glaciated wetlands to mid-grass prairie.

The East Front's native plant and animal populations are generally intact due to sparse settlement and an economy based principally on ranching. The East Front is an integral part of the Northern Continental Divide Ecosystem, one of the only remaining areas in the continental United States with an intact assemblage of large mammalian carnivores. The Continental Divide itself forms the western boundary of the Upper Tenmile Creek Watershed. Grizzly bear, gray wolf, wolverine, and lynx – all considered rare or endangered species in the United States – still exist here. Rare birds found along the East Front include boreal owls, ferruginous hawks, and trumpeter swans – all listed as Species of Special Concern in Montana (see Appendix A). Populations of westslope cutthroat trout, bull trout, and harlequin ducks can still be found in higher mountain streams. Arctic grayling have been extirpated from the East Front, but efforts are underway to reestablish grayling in historic streams. The plant communities in the watershed are dominated by alpine meadows, with some grasslands/rangelands, and some land classified as barren. Dominant tree species within the watershed include Quaking Aspen, Douglas Fir, Lodgepole Pine, Engelmann Spruce, Whitebark Pine, Limber Pine and Alpine Fir, among others.

### *Tenmile Creek*

The headwaters of Tenmile Creek are about six miles upstream of the town of Rimini. Tenmile Creek flows northward for 28 miles before entering Lake Helena, although only the first 13 miles of the creek are included within the boundaries of the Superfund site. The Tenmile Creek watershed drains 200 square miles of mountainous and valley terrain primarily to the south and west of the city of Helena. The Lower Tenmile Creek Watershed, which extends downstream from the Tenmile Water Treatment Plant, drains 150 square miles and is used primarily for agricultural irrigation. The Upper Tenmile Creek watershed, which consists of those waters upstream from the Tenmile Water Treatment Plant, drains 50 square miles.

Water diverted from Upper Tenmile Creek provides 70 percent of Helena's municipal water from June through September, and 100 percent of the city's water from October through May. Diversions for municipal water are located on the Tenmile Creek south of Rimini and near the mouths of Beaver, Minnehaha, Moose, and Walker creeks. Additional water is obtained from the Scott and Chessman reservoirs, which collect water from several watershed tributaries during periods of high stream-flow. This water is held in reserve and accessed on an as-needed basis.



## Social + Industrial History

Prior to the mining industry's dominance over much of the landscape of Montana, the Blackfoot Indians were the largest and most dominant Indian Tribe in Montana. Once considered "The Lords of the Great Plains," like other tribes during this time, their way of life was eventually overtaken by the expansion of the West and the development of hard rock mining.

Historic mining activity occurred within the Rimini Mining District and included mining for gold, lead, zinc and copper. According to the July 1935 issue of the *Mining Review of the Greater Helena Region*, Rimini is likely "the oldest silver-lead-zinc camp in Montana if not the Northwest." While the first major gold strike in Montana occurred in the Helena mining district in 1862, it was not until 1864 that miners entered the Rimini area. In 1864, the Lee Mountain lode was discovered and, within ten years, the Rimini mining district was producing nearly one-third of the territory's mineral wealth. In the 1880s, mining in the district received a boost from the construction of the Alta-Montana Smelter and the Helena and Red Mountain Railroad. By 1891, the Rimini mining district was shipping 400 tons of silver ore per week. However, by the end of 1893, with silver prices plummeting, most of the mines in the region had shut down. In total, between 1864 and 1937, the Rimini mining district produced minerals with an estimated total value of \$7,000,000. The district yielded 80,000 ounces of gold, 3,310,000 ounces of silver, and 13,500,000 pounds of lead, in addition to small amounts of other metals.

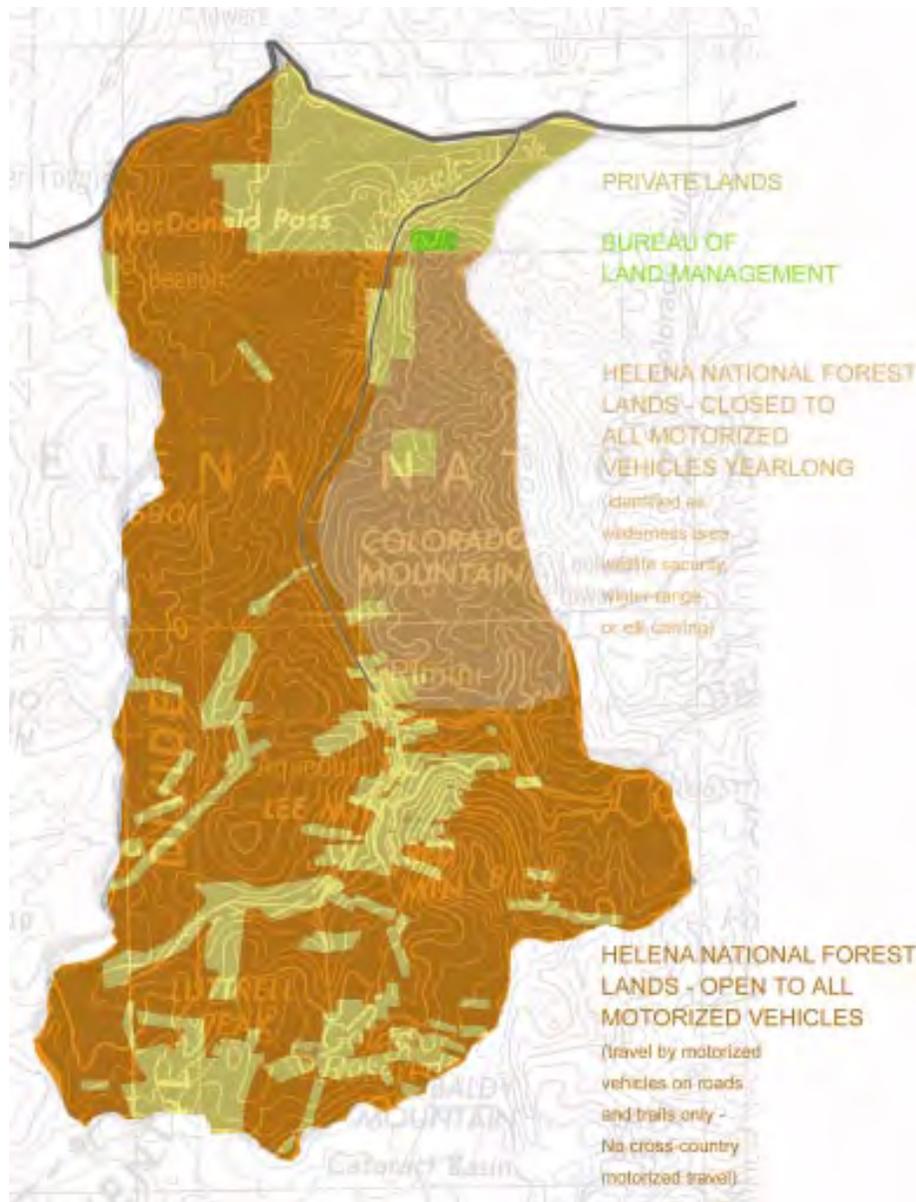
Mining operations for other minerals continued into the 1930s. In 1929, for example, the Montana Lead Company, organized by the estate of James J. Hill, the former president of the Great Northern Railroad, drove the Red Mountain Tunnel 1000 feet through Red Mountain to consolidate the Red Mountain mines along a single tunnel. By 1934, the company was one of the major producers of lead in Montana. Declining prices, however, forced the closure of the mines in 1937. The last active commercial mining of the Rimini Mining District ended in 1953.

## Post-Industrial Landscape

Beginning in the mid-1930s, new activities developed in the district beyond mining. In 1936, a Civilian Conservation Corps Camp was established near Rimini and was later converted for military use under the Dogs for Defense program during World War II. The War Dog Reception and Training Center began training sled and pack dogs to support special service forces during the planned invasion of Norway. In June 1943, the invasion of Norway was canceled and soldiers at Camp Rimini focused on search and rescue training.



left, clockwise from top left: former rail bed; remnant mining structure; Rimini school house; old Headquarters Saloon. This page: remains from Rimini's past



land use map of Upper Tenmile Creek watershed (source: USGS)

## Current Land Use

The Upper Tenmile Creek NPL site extends from U.S. Highway 12 south to the drainage divide adjoining the basin creek, Cataract Creek, and Telegraph Creek watersheds. To the west, the site is bounded by the Continental Divide, which stretches from Canada into Arizona. The United States Forest service owns over 70 percent of the site's land area. Additional landowners at the site include the Bureau of Land Management and several private landowners who reside within the watershed.

In addition to serving as the source for Helena's primary municipal water supply, the Upper Tenmile Creek Watershed is a popular resource for people and wildlife alike. Residents and individuals who reside nearby enjoy hunting, hiking, biking, snow-related activities, and motorized vehicle riding in areas throughout the watershed. With the Continental Divide adjacent to the site, the watershed also serves as a vital wildlife habitat and migration corridor. Additional land uses in the watershed include timber harvesting and mine reclamation.

### *Rimini*

The town of Rimini, once the hub of the Rimini Mining District, is situated in the center of the Upper Tenmile Creek Watershed, approximately eight miles southwest of Helena. While the city of Helena has 25,780 residents, Rimini is much less populated (approximately 20 people), with no zoning regulations or authorities. The city of Helena and town of Rimini are located within Lewis and Clark County, which has a population of 55,716.

During its heyday, Rimini was home to a dozen bars and brothels, and nearly 2,000 people. Although the population is much smaller today, Rimini and its surroundings still retain many memories from the past, evident in the number of historic structures and artifacts located throughout the area, including former mines, mining structures, and historic buildings, that document Rimini's industrial and post-industrial heritage.

### *Site Access + Circulation*

The Upper Tenmile Creek Watershed is currently accessed by a single primary access road, County Route 695. This unpaved road extends from

Route 12, near the Tenmile Water Treatment Plant, into the watershed. Plans are under development to pave the road from Route 12 south into the community of Rimini. Two secondary unpaved roads provide access from the valley to the Continental Divide at Bear Gulch and Minnehaha Creek. Other unpaved roads extend from the community of Rimini south toward Luttrell Peak and east toward Chessman Reservoir. In addition to these designated roads, additional unmapped primitive roads exist throughout the watershed.

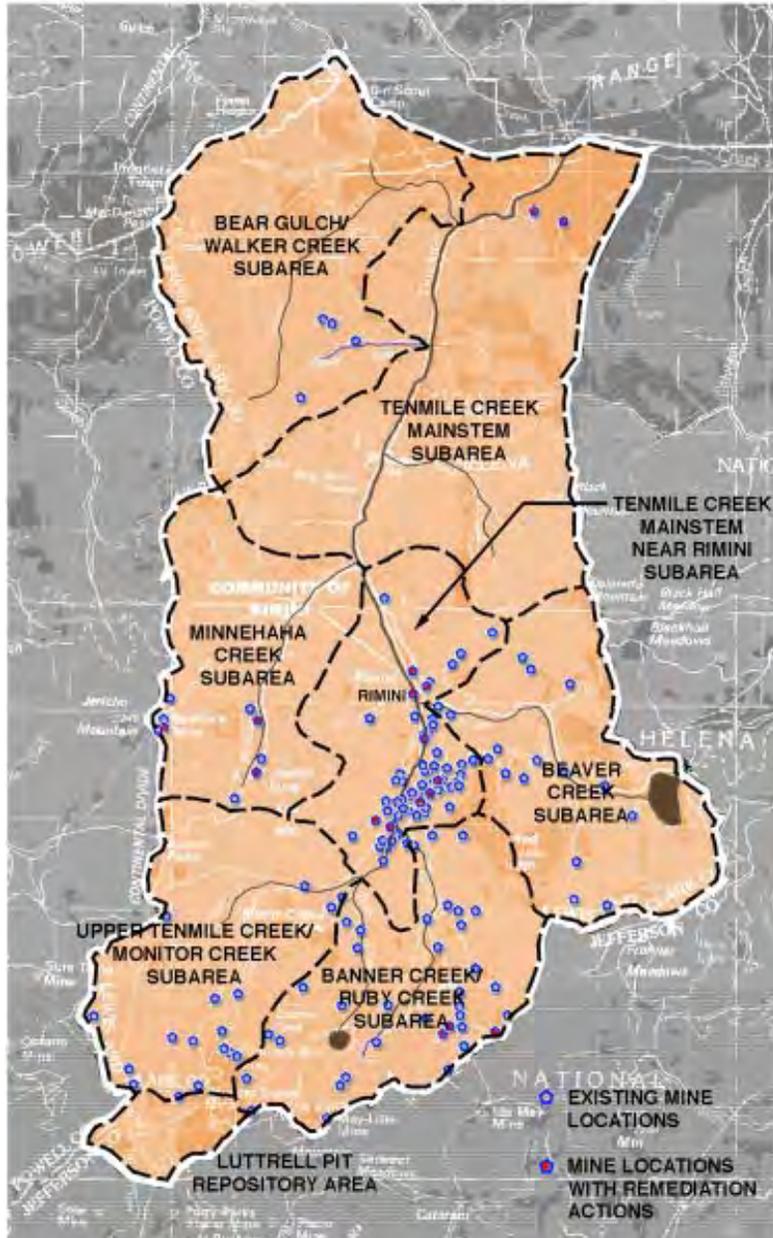
There are several trail and road systems in the watershed, including secondary roads and an Environmental Educational Trail at Lazyman Gulch. The Continental Divide Trail runs along the western boundary of the Superfund Site, while many additional trails and wildlife corridors cross the watershed. The U.S. Forest Service is currently inventorying these trails and creating a Travel Plan for access and circulation within the watershed site. Near Helena, an extensive system of trails covers more than 1,600 acres of city-owned public land.

### *The Continental Divide Trail*

In 1978, Congress designated a 50-mile-wide corridor on either side of the Continental Divide for the Continental Divide Trail (CDT). This is one of eight National Scenic Trails in the U.S. The CDT runs from Canada to Mexico, routed through five states: Montana, Idaho, Wyoming, Colorado, and New Mexico. Approximately 70 percent of the Trail is complete. According to the Continental Divide Trail Society the CDT is a resource for hikers. The Helena segment of the trail is described as “less rugged country, mostly forested,” with some road sections that exist in this portion of the trail. The USFS has the responsibility of coordinating its completion, along with the National Park Service (NPS) and the Bureau of Land Management (BLM).



view towards site from Continental Divide trail

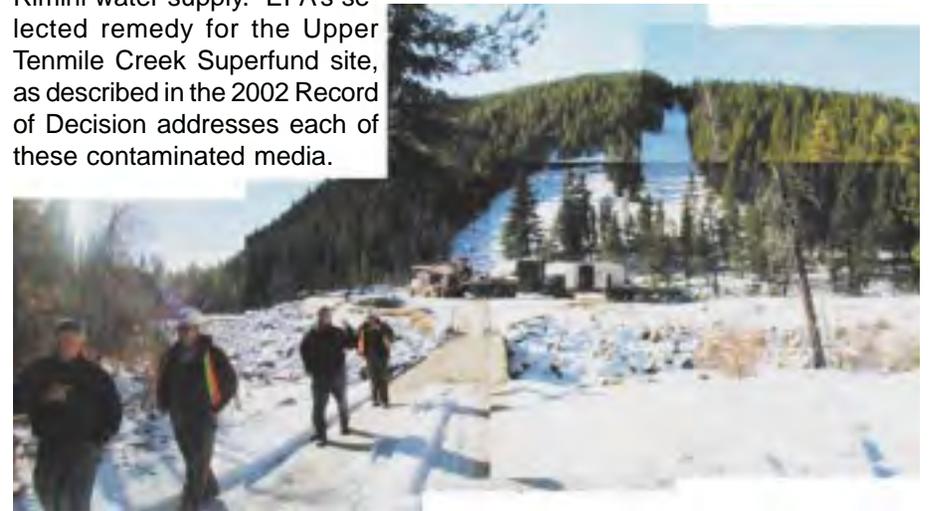


## Reclamation

The U.S. EPA added the Upper Tenmile Creek Mining Area to its Superfund National Priorities List in 1999 due to contamination from abandoned gold, lead, zinc, and copper mines and mine wastes on water quality in the watershed, as well as concern for the general health and safety of residents and the environment. To date, 150 mine sites have been identified within the watershed - 70 of which are high-priority for remedial action.

The site's history of remedial activities includes a series of waste removal and containment actions by the State of Montana over the last 15 years. EPA and the U.S. Forest Service conducted several high-priority mine waste removal actions between 1999 and 2000. Areas addressed by the waste removal actions include the Red Mountain, Bunker Hill, and Susie Peerless/Jenny/King mines, as well as the Upper Valley Forge Mine Sites. Mine waste removal actions occurred within the Town of Rimini in 2003.

According to the EPA, contaminated media at the Upper Tenmile Creek Superfund site include waste rock and tailings, acid mine drainage (AMD), groundwater, surface water, stream sediments, yard soils at permanent residences and occasional-use recreational cabins, roadway materials, and the Rimini water supply. EPA's selected remedy for the Upper Tenmile Creek Superfund site, as described in the 2002 Record of Decision addresses each of these contaminated media.



left: map of mining locations within the Upper Tenmile Creek NPL site; Lee mine undergoing reclamation

## **PART TWO: Community Values and Goals**

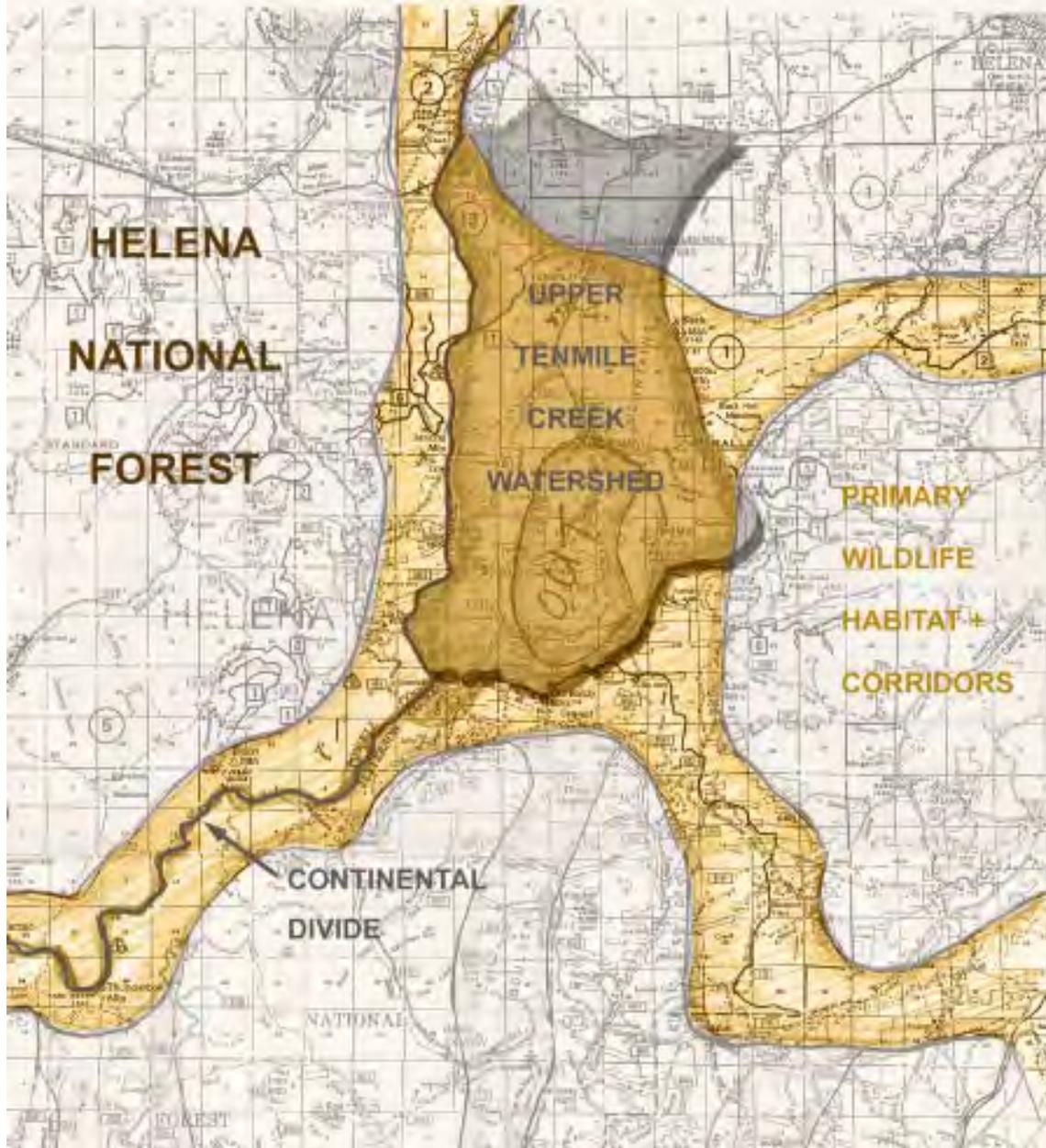
The Project Team and site Remedial Project Manager assembled a group of concerned citizens who live within the watershed, the City of Helena and Lewis and Clark County to take part in a Land Use Committee to help guide and inform the planning exercise. The Project Team looked to the Land Use Committee to provide valuable input and information to direct their recommendations regarding future growth and land use patterns in the watershed. Over the course of two meetings, the Project Team and the Land Use Committee discussed important issues regarding the site's history, natural resources, and site access and circulation. Between meetings, the Project Team sent to the LUC a short survey of important values held by those who live within the watershed and the region. Questions posed included: "What do you most value about the Upper Tenmile Creek watershed?", "How do you feel about the current land uses that occur in the watershed?" and "What additional uses would you like to see or see more of? What uses would you NOT like to see or NOT see more of?" The results of the survey are summarized below, divided into community values and current and future land use goals.

### *Community Values*

- **Wildlife**  
Based on comments, the highest values attributed to the Upper Tenmile Creek Watershed is as both a crucial region for wildlife habitat and an invaluable wildlife migratory corridor.
- **Recreation**  
Respondents noted the value of the watershed's diverse recreational amenities, for the use of private landowners and the general public.
- **Historic Preservation and Interpretation**  
Limited mention of the value of historic preservation in the Upper Tenmile Creek watershed. Histories and structures that were mentioned as important to preserve and interpret included the mining and Forest Service history, the WWII camp, and the historic structures and character of the town of Rimini.
- **Character and Integrity of Landscape**  
Other values included the tranquility of the area, the "wild" character of the landscape, the aesthetic value of the gulch, the lack of traffic and a "slower pace" than that found in the city.

### *Current and Future Land Use Goals*

- **Maintain Existing Land Uses**  
Most individuals who responded are comfortable with the existing land uses within the watershed, which traditionally include recreation, living, hunting, logging, thinning and other efforts to reduce the fuel load in the watershed to maintain a healthy forest ecosystem.
- **Reclamation Activities and Roads**  
Many land use concerns relate to the mining reclamation activities at the site and the affects on the residents of Rimini and the wildlife that inhabit and move through the area. One fear is that reclamation will create roads that divide the watershed and encourage unwanted activity. Additionally, there is concern that the plan for a paved road into Rimini will negatively impact the existing community and current land uses.
- **Controlled Development**  
Controlled development in the watershed is a primary goal. May respondents mentioned a desire to see no new developments within the watershed, including commercial enterprises, paved roads, and subdivisions as well as limited to no residential growth, tourist attractions and new campgrounds that destroy the "wild" and public nature of the watershed.
- **Upper Tenmile Creek Water System**  
A future that does not include the use of the Tenmile Creek as the primary municipal water supply for Helena was a popular idea among survey respondents.



left: wildlife habitat and corridors in the Upper Tenmile Creek watershed (source: Gayle Joslin, Montana Dept. of Fish, Wildlife, and Parks); above: grizzly bear (source: Milo Burcham, from brochure "Effects of Recreation on Rocky Mountain Wildlife," Montana Chapter of The Wildlife Society)

**PART THREE: Future Considerations for the Upper Tenmile Creek Watershed**

Upon receiving of the results of the survey of community values and land use goals for the watershed, the Project Team developed the following Draft Land Use Guidelines:

*Draft Land Use Guidelines*

**MAINTAIN ALL OF THE EXISTING LAND USES IN THE UPPER TENMILE CREEK WATERSHED**

- Maintain the diversity of recreation amenities, forest uses and access options.
- Enhance existing amenities BEFORE creating new amenities.
- Allow for living and dwelling within the watershed.

**PRESERVE AND ENHANCE THE EXISTING WILDLIFE HABITAT AND CORRIDORS**

- Recognize and promote the watershed as a crucial wildlife habitat and corridor.
- Protect and enhance habitat (forests, meadows, streams).
- Keep corridors in tact and continuous, particularly along the Continental Divide.

**CONTINUE TO SUPPORT EFFORTS FOR A CLEAN WATERSHED AND WATER SYSTEM**

- Help EPA to work quickly and efficiently at cleaning up the watershed.
- Support work of the Upper Tenmile Creek Watershed Steering Group.
- Support the proposal to remove the Upper Tenmile Creek as a primary water supply. for the City of Helena

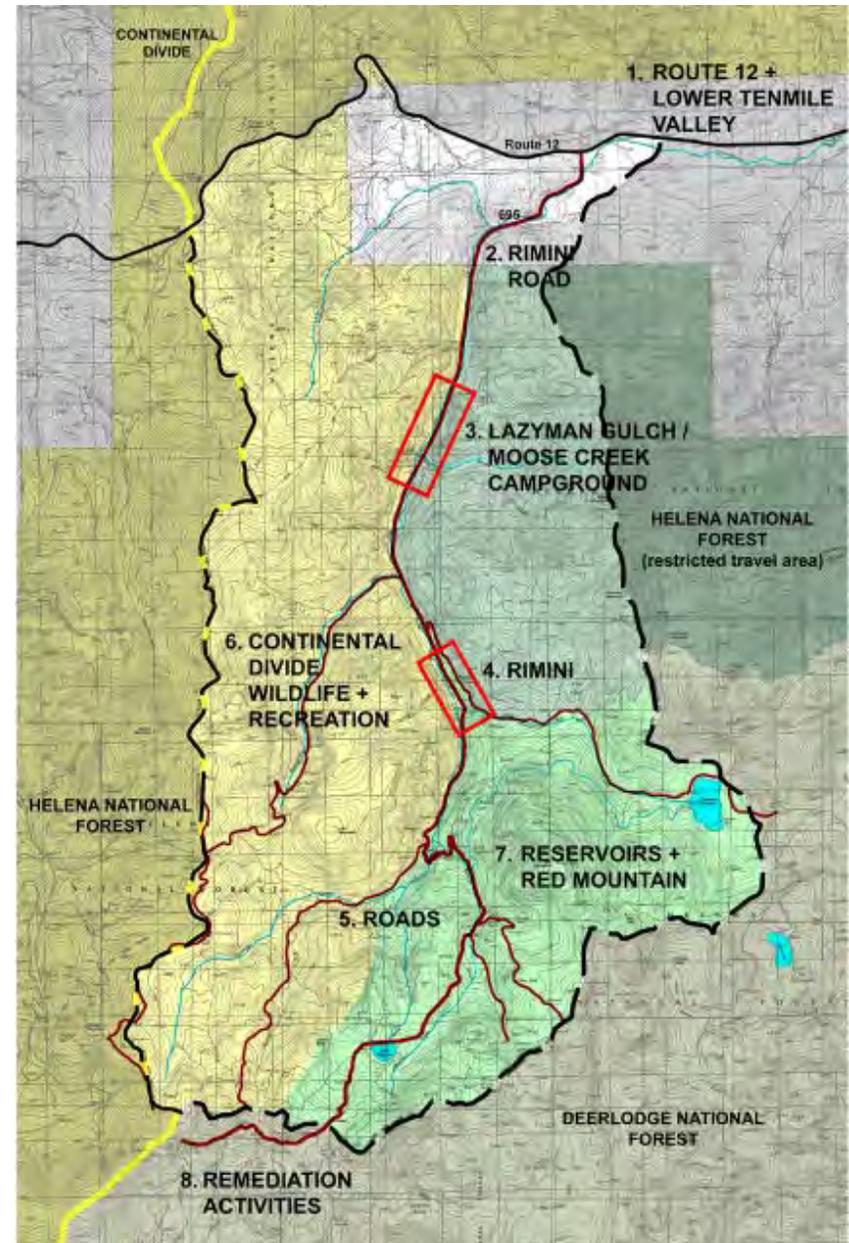
**MAINTAIN THE CHARACTER, INTEGRITY AND EXPERIENCE OF THE LANDSCAPE**

- Control large scale developments within the Watershed and Lower Tenmile Creek Valley.
- Create and define an entry experience into the valley (limit road width, paving and alignment; remove unnecessary spur roads; define and enhance public areas; preserve integrity of Rimini; respect property rights).
- Utilize remediation activities to create a better watershed (document the history of the area; protect and enhance habitat; control expansion of roads and trails).

## Draft Land Use Proposals

The following Land Use Proposals correspond to the “Draft Land Use Proposals Diagram” at right. Numbers located on the map relate to the areas designated below. Suggestions under each designated area are intended to provide broad guidelines for reuse within the 33,900 acres that comprise the Upper Tenmile Creek Watershed Superfund site.

1. **ROUTE 12 AND LOWER TENMILE CREEK VALLEY**  
(Continental Divide to the City of Helena).
  - Protect valley as a visual and cultural entry corridor to the Continental Divide and to the City of Helena. Route 12 is the front door and front yard to the Upper Tenmile Creek Watershed.
  - Consider development / non-development options. This valley is prime land for development with easy access to city and recreation amenities. Valley terrain is flat and would allow for easy parceling or subdivision development, if community desires.
2. **RIMINI ROAD AND UPPER TENMILE CREEK VALLEY**  
(Route 12 to Rimini)
  - Rethink Rimini Road (route 695) as the ‘Recreation Highway.’ Create the narrowest possible road with limited paving, narrow shoulders and as far away from the creek as possible.
  - Remove and control spur roads, trails, and parking areas along route 695.
  - Limit developments, excessive entry drives, logging and new uses along route 695.
  - Continue stream revegetation efforts.
3. **LAZYMAN GULCH DAY-USE AREA, MOOSE CREEK CAMPGROUND AND MOOSE CREEK RANGER STATION**
  - Improve and link existing amenities including Lazyman Day-Use Area, Moose Creek Campground the former Ranger Station. Create adequate parking areas and connect via trails.
  - Create a defined winter parking area at Moose Creek Campground and connect to winter access routes via former rail line.
  - Consider former Ranger Station as a public facility allowing for infor-



mation and interpretation of the watershed and its history. Consider nomination of Ranger Station to the National Register of Historic Places.

4. RIMINI
  - Maintain the character of Rimini and other private properties as places for living NOT as public landscapes for viewing, tourists or interpretation.
  - Control speed, marking and paving on roads through town.
  - Consider nominating the Rimini School House to the National Register of Historic Places as a place of community pride.
  
5. WATERSHED ROADS (Roads and Trails North of Rimini)
  - Consider and evaluate USFS Travel Plan and proposed restrictions in relation to the watershed land use proposals.
  - Reduce road widths, shoulders, and pullouts on all roads north of Rimini to the narrowest possible standards. Reduce roads widened for waste relocation vehicles to off-road vehicle standards, not for autos and RVs.
  - Control spur roads and trails through remediation efforts.
  
6. CONTINENTAL DIVIDE WILDLIFE CORRIDOR AND RECREATION AREA
  - Protect and enhance habitat and corridors west of Rimini and Rimini Road to the Continental Divide.
  - No new developments, roads, road widening, trails or amenities. Consider travel restrictions as part of USFS Travel Plan.
  
7. RESERVOIRS AND RED MOUNTAIN (Chessman Reservoir, Beaver Creek, Red Mountain, Scott Reservoir, Ruby Creek and Banner Creek)
  - Create recreational amenity, wildlife habitat or combination land use area. Begin post-water swap land use planning.
  - Consider Chessman Reservoir, flumes and mines as recreation trails, historical interpretation and stream restoration areas.
  
8. REMEDIATION ACTIVITIES
  - Phase remediation from north to south. Expedite work within the public realm, i.e. Rimini, along valley floor and in Landmark subdivision.
  - Remove, not just restore to existing conditions, as many access roads as possible in the watershed.
  - Continue historic records documentation and work to find suitable public lodging or sponsor for information collected.

**APPENDICES:**

**Appendix A: List and Map of Species of Special Concern in Montana (source: Montana Natural Heritage Program)**

| 13-Jan-03  |  | Montana Natural Heritage Program |       |         |              |             |                |                |         |                        |  |
|--|--|----------------------------------|-------|---------|--------------|-------------|----------------|----------------|---------|------------------------|--|
| Species of Special Concern: Ten Mile Creek Watershed |  |                                  |       |         |              |             |                |                |         |                        |  |
| EO #   | Scientific Name                          | Common Name                      | GRANK | SRANK   | ESA Status   | USFS Status | BLM Status     | Township/Range | SECTION | SURVEY_SITE            |  |
| 044  | BIRD ROOKERY                             | BIRD ROOKERY                     | Z     | Z       |              |             |                | 011N003W       | 27      | LAKE HELENA            |  |
| 238  | HALIAEETUS LEUCOCEPHALUS                 | BALD EAGLE                       | G4    | S3B,S3N | (PS:LT,P DL) | THREATENED  | SPECIAL STATUS | 011N003W       | 27      | LAKE HELENA            |  |
| 034  | STATE CHAMPION TREE                      | STATE CHAMPION TREE              | Z     | Z       |              |             |                | 010N003W       | 31      | HELENA                 |  |
| 001  | ASTRAGALUS CONVALLARIUS VAR CONVALLARIUS | LESSER RUSHY MILKVETCH           | G5T5  | S2      |              |             | WATCH          | 010N003W       | 31      | HELENA SOUTH HILLS     |  |
| 004  | AGAPETUS MONTANUS                        | AN AGAPETUS CADDISFLY            | G2?   | S2?     |              |             |                | 008N003W       | 6       | LUMP GULCH CREEK       |  |
| 003  | ATRIPLEX TRUNCATA                        | WEDGE-LEAVED SALTBUCH            | G5    | S1      |              |             | WATCH          | 010N003W       | 19      | HELENA                 |  |
| 042  | CYPRIPEDIUM PARVIFLORUM                  | SMALL YELLOW LADY'S-SLIPPER      | G5    | S3      |              | SENSITIVE   | WATCH          | 010N004W       | 26      | HELENA                 |  |
| 002  | ASTRAGALUS CONVALLARIUS VAR CONVALLARIUS | LESSER RUSHY MILKVETCH           | G5T5  | S2      |              |             | WATCH          | 010N004W       | 25      | MT. HELENA             |  |
| 008  | OTUS FLAMMEOLUS                          | FLAMMULATED OWL                  | G4    | S3B,SZN |              | SENSITIVE   | SPECIAL STATUS | 009N004W       | 21      | GRIZZLY GULCH          |  |
| 001  | TETRAPLONDON ANGUSTATUS                  |                                  | G4    | S1      |              |             |                | 009N005W       | 20      | MOOSE CREEK            |  |
| 053  | AEGOLIUS FUNEREUS                        | BOREAL OWL                       | G5    | S4      |              |             | SPECIAL STATUS | 009N006W       | 1       | MACDONALD PASS         |  |
| 004  | PHLOX KELSEYI VAR MISSOULENSIS           | MISSOULA PHLOX                   | G2    | S2      |              | SENSITIVE   |                | 009N006W       | 2       | MACDONALD PASS         |  |
| 05   | JUNCUS HALLII                            | HALL'S RUSH                      | G4G5  | S2      |              | SENSITIVE   |                | 008N006W       | 16      | TELEGRAPH CREEK        |  |
| 025  | ONCORHYNCHUS CLARKI LEWISI               | WESTSLOPE CUTTHROAT TROUT        | G4T3  | S2      |              |             | SPECIAL STATUS |                |         | UPPER CLARK FORK BASIN |  |
| 001  | FELIS LYNX                               | LYNX                             | G5    | S3      | (PS:LT)      |             |                |                |         | STATEWIDE              |  |

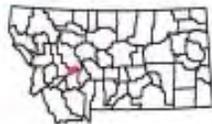
# Montana Species of Concern Ten Mile Creek Watershed

## Biological Data

- ▲ Animal
- Plant
- Other
- ◻ Plant
- Westslope Cutthroat
- Animal
- ▨ Bird
- ▨ Mammal
- ▭ Search Area

## Land Status

- BLM
- BOR (BuRec)
- CoE & other DoD
- NPS
- USFS
- Other USDA
- USFWS
- BIA Trust
- Tribal
- State Trust
- DFWP
- University & Institutions
- County & City
- Plum Creek
- Private Conservation
- Other private
- Water



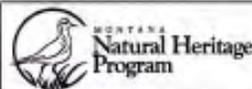
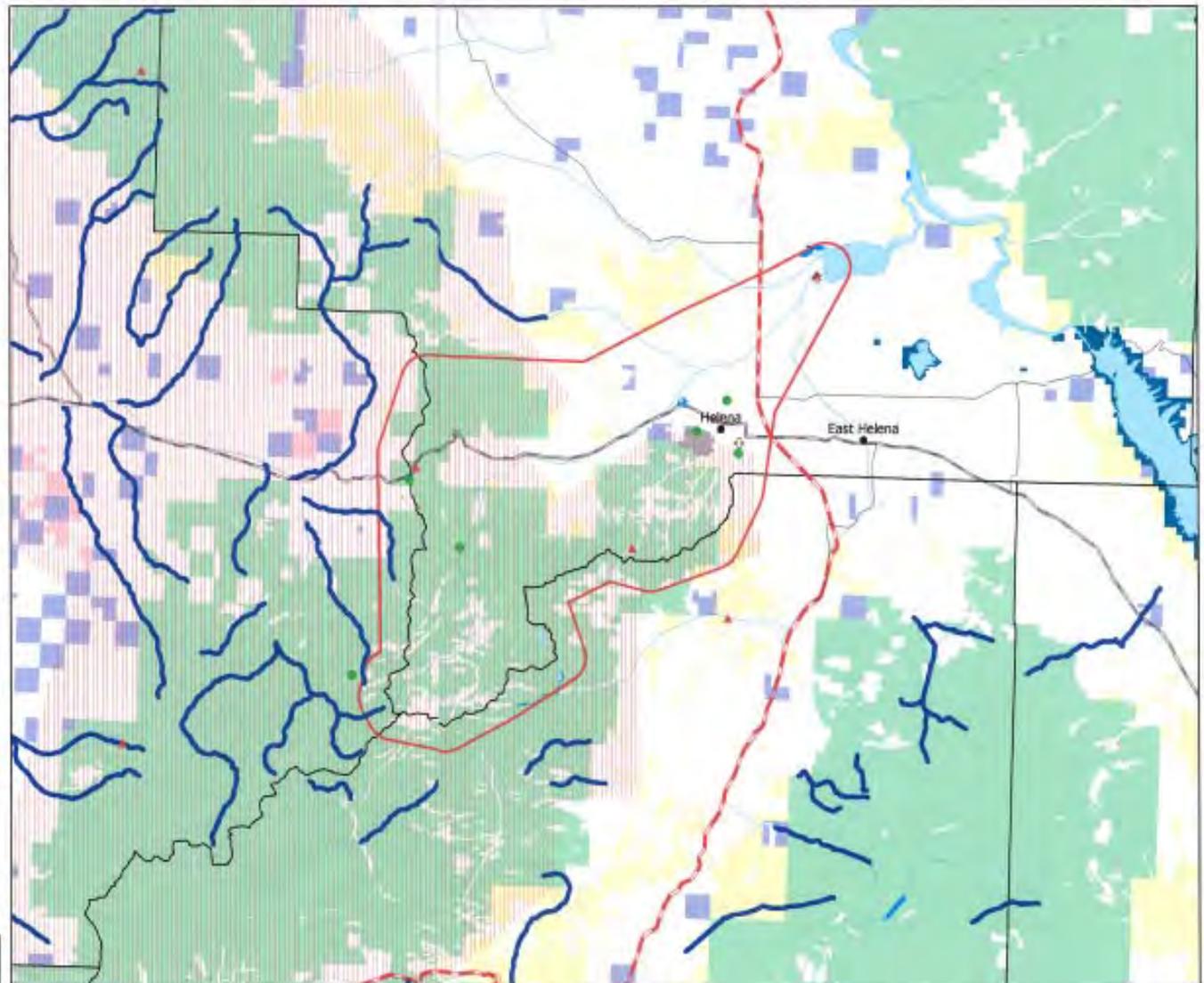
Species locations depicted outside the search area have imprecisely known locations and may actually occur within the search area.

Not all legend items may occur on map.

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

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

Refer to accompanying documentation for full explanation of map features.



Natural Resource Information System  
National Data Center  
PO Box 20100  
Helena, MT 59620-0100  
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January 13 2003  
03pr40237

**Appendix B: First Land Use Committee Meeting Notes**

During this first Land Use Committee meeting on May 29, 2003, the Project Team conducted an informal survey of the LUC members in the room. Following is a summary of the LUC members' responses.

When asked what are some valuable historic events and resources of the UTC, the following were responses from LUC members:

- The town of Rimini
- The mining structures and the waste piles
- The National Forest Reserves (1891-1907)
- Moose Creek Ranger Station
- Narrow Gauge Railroad bed
- Chessman Reservoir and its associated plume
- Blackfeet Indians and their travel routes
- 1923 Grizzly Protection in Montana
- Luttrell Pit
- Flood of 1981 that changed the stream configuration of the Upper Tenmile Creek
- General growth or recreation in the area
- Change in Rimini population due to mining
- Early 1900s Chessman Flood
- Earliest water rights of 1860s
- Mountaineering and dog camp for the US Special Forces
- USFS history
- The old School building
- The Saloon

When asked how the community might mark this history at the site the following were responses from LUC members:

- Utilize the School building as a historic marker on site with an associated parking lot and 'interpretive walk.'
- Develop a walking tour with an audio guide particularly focused on the Mining District and community of Rimini (turn of the century history).
- Develop new and existing trails that are both interpretive and recreational.
- The history of the site is about what has been conserved and preserved such as the wildness of the site, not about what has been exploited (meaning the mining history)
- The fact that the site is the municipal water supply should be conveyed.
- Preserving the mines and making them visible could mark the history of the site.
- Simply documenting the history of the site could be enough.
- In particular, Beatrice Mine could be marked for historic preservation.
- Collecting the remnant mining structures and tools and displaying them within the site boundaries.
- One member stated that it was disturbing to imagine turning the site into a tourist destination.

When asked what is important about the natural history of the site, the following were responses:

- The geology
- The wildlife
- The timber resources
- The Continental Divide
- The stream course and its morphology
- The watershed
- Red Mountain
- Wetlands
- From an aquatic life protection standpoint, the diversions of the streams are a problem.
- Generally there was an overall sense that current land uses should not change at the site.

When asked what should be “off limits,” the following was stated:

- Someone stated that “off limits” is the wrong word choice to use and that they still want the ability to go through the site on foot.

When the issues of site access and circulation were presented, the following were responses:

- The travel planning by the USFS concerns the citizens in particular in regards to issues of home security.
- There is a sense that paving the road into Rimini could bring more people and increase the likelihood of vandalism to Rimini homes.
- A comment was made that roads should be addressed only after landscape priorities and objectives are set. A counter response was made to this.
- Two concerns were particularly expressed regarding paving of roads: issues of erosion and invasive plant species.
- One person suggested that it would be valuable to consider alternative routes into the site (for various modes of transportation).
- Paving the roads for people to drive faster is not to be encouraged.
- Concerns regarding paving are that it will speedup traffic and the numbers of motorized vehicles into the site.
- Community wants the roads to have as little impact as possible.

### ***Appendix C: Guiding Future Development in the Upper Tenmile Creek Watershed***

The Upper Tenmile Creek NPL site is located on the southwest corner of the Helena Valley in Lewis & Clark County. The Helena Valley includes the City of Helena, the County's main population and economic center. The County's 2003 Draft Growth Policy—a new official term for Comprehensive Plan—designates the Upper Tenmile Creek watershed a rural area that allows lower density, lower intensity land uses that require a minimum of infrastructure. Formal planning began relatively recently in Lewis & Clark County. The County adopted its first Comprehensive Plan in 1983, portions of which were updated in 1989 with a focus on the Helena Valley. Planning efforts expanded in 1996 with the development of a specific area plan for Lincoln and the Upper Blackfoot Valley. Specific area plans link the goals and priorities of the County's Comprehensive Plan (Growth Policy) to a smaller regional area. Subsequently, in 1997, the County developed specific area plans for Augusta, Wolf Creek-Craig, Canyon Creek-Marysville, Canyon Ferry-York, and the Helena Valley. The goals of the Comprehensive Plan have traditionally been implemented through the County's subdivision policy, rather than through a formal zoning ordinance. Zoning has typically been reserved for smaller areas and associated with a detailed Neighborhood Plan.

The Growth Policy establishes new planning goals and priorities for Lewis & Clark County. Particular focus areas include land use, the natural environment, economic development, utilities, and public safety. The Growth Plan continues the practice of developing specific area plans, now known as planning area plans, for sub-regions of the County, including the Helena Valley. The new Growth Policy was formally adopted in early 2004. The Helena Valley planning area plan divides the valley into three land-use sub-areas. These sub-areas include: urban areas, transitional areas, and rural areas. Urban areas, located immediately adjacent to the cities of Helena & East Helena, have or will have sufficient city services to support residential, commercial, and industrial development at urban densities over the next 20 years. Transition areas, located farther from the Valley's urban centers, typically feature a mix of residential and agricultural uses and should be suitable for urban development in the long term—20 to 40 years. The rural area designation covers the remainder of the Valley, including the Upper Tenmile Creek watershed, and allows only low-density land uses that require a minimum of infrastructure. Each land-use sub-area will have its own design and implementation standards enforced through the County's subdivision ordinance. The potential impact of the new Helena Valley planning area plan on development in the Upper Tenmile Creek watershed remains to be determined and will likely not be known until sometime in 2004. Now that the Growth Policy is finalized, the County must develop design and implementation standards for each land use sub-area (ongoing), as well as update its subdivision ordinance. In general, the Upper Tenmile Creek watershed has apparently always been considered "rural" with a minimum amount of planning or development regulation.

While the Helena Valley planning area plan is the primary planning guide for the region, the Growth Policy also allows for the development of Neighborhood Plans, which address specific issues of concern to neighborhoods, communities, or small geographic areas. These plans typically include detailed land use, infrastructure and/or development plans and precede the development of specific zoning regulations or other land use tools. Neighborhood Plans must cover an area of at least 640 acres (1 square mile), though smaller areas are considered on a case-by-case basis. Neighborhood Plans must also be prepared in conjunction with neighborhood residents and property owners in the affected area of the Helena Valley. The large size—53 square miles— of the Upper Tenmile Creek watershed indicates the initial need for more general land-use recommendations, similar to those developed by E<sup>2</sup> Inc., to guide future development. Lewis & Clark County could formalize these recommendations through the development of a new land use sub-area for the Helena Valley specific area plan or by updating the existing rural area designation with guidelines specific to the Upper Tenmile Creek watershed. These guidelines would then be broadly enforced by amendments to the County's subdivision ordinance.<sup>1</sup> Once these general recommendations are in place, the County and/or local residents could develop Neighborhood Plans for areas of the watershed in need of more specific planning guidelines or where development is encroaching on particular areas of concern.

<sup>1</sup> Alternatively, it may be possible just to modify the existing subdivision regulations or create new ones specific to the Upper Tenmile Creek watershed, without modifying the Helena Valley specific area plan.

**Appendix D: Opportunities for National Historic Registration** (source: <http://www.cr.nps.gov/nr/> - National Register of Historic Places Home Page)

The Rimini Mining District, once a vibrant and active community hub, lies within the Upper Tenmile Creek Superfund site. Even today, it is the location of numerous historic structures and artifacts that relay the story of the district during the height of mining in the West. By listing portions of the NPL site on the National Register of Historic Places, Rimini's important mining past can be preserved and retold for generations to come.

The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a program to coordinate and support public and private efforts to identify, evaluate, and protect the nation's historic and archeological resources. Many states and communities use a National Register listing as the backbone of their planning processes and designation criteria.

**Benefits**

- Listing in the National Register enables a property to be considered in planning for Federal, federally licensed, and federally assisted projects.
- Listing in the National Register opens the door for the receipt of Federal grants for historic preservation, when funds are available.
- Tax Credit - Owners of properties listed in the National Register may be eligible for a 20 percent investment tax credit for the certified rehabilitation of income-producing certified historic structures such as commercial, industrial, or rental residential buildings.
- Tourism - Numerous benefits to the community are afforded by visitors who are attracted by local historic tourism sites.

**Listing Process**

Historic places are nominated to the National Register by the State Historic Preservation officer (SHPO) of the State in which the property is located or by the Federal Preservation Officer (FPO) for properties under Federal ownership or control. Anyone can prepare a nomination to the National Register; generally nomination forms are documented by property owners, local governments, citizens or SHPO staff. Nomination forms are submitted to a State review board, composed of professionals in the fields of American history, architectural history, architecture, prehistoric and historic archeology, and other related disciplines. The review board makes a recommendation to the SHPO either to approve the nomination if, in the board's opinion, it meets the National Register criteria, or to disapprove the nomination if it does not.

During the time the proposed nomination is reviewed by the SHPO, property owners and local officials are notified of the intent to nominate and public comment is solicited. Owners of private property are given an opportunity to concur in or object to the nomination. If the owner of a private property, or the majority of private property owners for a property or district with multiple owners, objects to the nomination, the historic property cannot be listed in the National Register. In that case, the SHPO may forward the nomination to the National Park Service only for a determination of eligibility. If the historic property is listed or determined eligible for listing, then the Advisory Council on Historic Preservation must be afforded the opportunity to comment on any Federal project that may affect it.

The SHPO forwards nominations to the National Park Service to be considered for registration if a majority of private property owners has not objected to listing. During the National Register's evaluation of nomination documentation, another opportunity for public comment is provided by the publication of pending nominations in the Federal Register.

For further information on the process of listing a site and criteria for evaluation: <http://www.cr.nps.gov/nr/publications/bulletins/nrb15/>

**Appendix E: Guide to Removing Unwanted Roads in Wilderness Areas**

(source: "The Road Ripper's Guide to Wildland Road Removal," by Scott Bagley, Copyright 1998 by Wildlands Center for Preventing Roads)

While land use values range among residents of the Upper Tenmile Creek watershed, the majority of individuals on the Land Use Committee were intent that roads into and throughout the watershed remain few and that if new ones are constructed for the sake of remedial action, they be removed upon completion of action.

Advantages of road removal are many, and are primarily related to ecological benefits. Among many other benefits, removing roads reconnects fragmented ecosystems and habitats. Revegetation of areas that roads were once reduces sedimentation load into streams, improving aquatic habitat and water infiltration. Other advantages to road removal include reducing the amount of vehicle access, which reduces road kill, provides for greater safety to nearby residents and limits non-native plant species that use vehicles to disperse seeds. Finally, road removal has economic benefits as well. Without roads there is no cost for road maintenance. Removing roads limits damage to water treatment plants due to sedimentation and reduces recovery costs for wildlife habitat degradation.

The following provides information on the advantages of removing roads and general road removal techniques and approaches. Further information can be obtained from "The Road Ripper's Guide to Wildland Road Removal," by Scott Bagley, from which this information is sourced.

Basic road removal techniques include:

*Removing Stream Crossings*

Stream crossings are removed by excavating fill materials and restoring the original channel and valley shape. The excavated materials may be reused to recontour road sections to their pre-construction slope.

*Constructing Cross Road Drains*

Cross road drains are deep ditches, too steep to be cleared by motor vehicles, cut across road surfaces to aid drainage on closed roads.

*Ripping*

Ripping means de-compacting road surfaces by a few feet to enhance subsurface flow. This lessens the density of the soil, increasing porosity and infiltration and can also aid successful revegetation.

*Recontouring*

Recontouring means re-filling locations where fill was removed for road construction. Once replaced, the slope can be reshaped as best as possible, dispersing concentrated water and increasing slope stability.

*Outsloping*

Outsloping fills inboard ditches with fill material and slopes the surface of the road toward the downhill side to disperse water.

*Conversion to a Trail*

Converting a road to a trail can be done effectively if fill materials are appropriately stabilized before constructing the trail. Partially recontouring a road to a trail may not stabilize all fill materials, meaning that trails may continue to cause similar negative impacts as roads if not redesigned properly.



A Mining Headframe Along the Mineral Belt Trail



Mineral Belt Trail Map

#### **Appendix F: California Gulch Case Study, Lake County, CO**

Leadville, the seat of Lake County, located 100 miles west of Denver in the Rocky Mountains, was once part of the richest mining district in the world. The area's silver, gold, copper, zinc, manganese, and lead deposits sustained mining and smelting operations for more than 140 years. By 1987, however, when the area's largest remaining mine closed, Lake County had lost more than 85 percent of its tax base. In 1999, the area's last active facility, the Black Cloud mine, closed.

The mining district's soil, surface water, and sediments were heavily contaminated with lead, zinc, and other heavy metals. High lead levels in soils and mining wastes posed risks in residential and commercial areas, while acid mine drainage had taken a heavy toll on the Arkansas River, destroying native vegetation and wildlife habitat, and threatening downstream water supplies for recreation, livestock, irrigation, and public drinking. In September 1983, EPA added the California Gulch site to the National Priorities List (NPL). The 16.5 square-mile site encompasses 12 Operable Units (OUs) across the entire mining district, including the City of Leadville, a portion of Lake County, and two miles of the Arkansas River.

Today, in place of an abandoned transportation corridor on the site, the nationally-recognized Mineral Belt Trail loops through the historic Leadville Mining District, coniferous forests, and open meadows, providing striking views of the Sawatch and Mosquito mountain ranges. The trail's design serves as part of the site's remedy – heavy metals were consolidated and capped along the old rail and haul road corridor. In winter, students from nearby Colorado Mountain College groom the trail for cross-country skiing, showcasing the area's alpine beauty. In all seasons, narrow-gauge railroad tracks and haul roads along the trail provide physical reminders of Leadville's mining heritage.

The trail connects Leadville's downtown area with local schools and churches, a hospital, and Colorado Mountain College, providing an important trail connector link for community residents. Since the Mineral Belt Trail's dedication in July 2000, EPA's Superfund Redevelopment Initiative (SRI) has awarded Lake County a \$100,000 pilot grant to support trail alterations and other reuse efforts within the site. The trail has become a key part of Leadville and Lake County's long-term strategies to restructure their historically mining-based economies and capitalize on new economic opportunities provided by recreation and tourism.

For more information on the California Gulch case study, see [http://www.epa.gov/superfund/programs/recycle/success/casestud/cal\\_gulch.pdf](http://www.epa.gov/superfund/programs/recycle/success/casestud/cal_gulch.pdf)



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