# Section 319 Grant - Final Proposal Form

*FY2014 Final Proposals are due Friday, October 4, 2013*

## Section I: General Information

Project Title: Sediment Reduction in Lolo Creek Watershed

### Project Sponsor Information

Sponsor Name: Lolo Watershed Group

County: Missoula

Website: http://lolowatershed.org

Tax Identification #: 42-1664057

DUNS #:

SAMs #:

| Primary Contact | Signatory |
|---|---|
| Roberta A. Bartlette | Roberta A. Bartlette |
| Title: President | Title: President |
| Address: 9781 Lolo Creek Rd | Address: 9781 Lolo Creek Rd |
| City: Lolo State: Montana Zip Code: 59847 | City: Lolo State: Montana Zip Code: 58847 |
| Phone Number: 406-273-0652 | Phone Number: 406-273-0652 |
| Fax Number: | Fax Number: |
| E-mail Address: lolotrailbritts@bresnan.net | E-mail Address: lolotrailbritts@bresnan.net |
| Signature: | Signature: |

### Project Location

Watershed Name or HUC #: Lolo Creek Watershed, Montana

TMDL Planning Area: Upper Lolo Creek TPA & Mainstem Lolo Cr.

(1) Waterbody Name from 2012 List of Impaired Water: Lolo Creek

(1) Probable Cause(s) of Impairment: Sediment

(2) Waterbody Name from 2012 List of Impaired Waters:

(2) Probable Cause(s) of Impairment:

(3) Waterbody Name from 2012 List of Impaired Waters:

(3) Probable Cause(s) of Impairment:

| | | | | | |
|---|---|---|---|---|---|
| Activity 1 Name | Roadside riprap riparian planting | Latitude (1) | 46.752 | Longitude (1) | -114.512 |
| Activity 2 Name | Burn area planting/plant protection | Latitude (2) | 46.758 | Longitude (2) | -114.326 |
| Activity 3 Name | Monitor sediment | Latitude (3) | 46.766 | Longitude (3) | -114.333 |

### Nonpoint Source (NPS) Information

Which WRP does the project implement? Lolo

What is the WRP status? DEQ-Accepted

Does the project implement recommendations in a TMDL? Yes

Waterbody Type: River/Stream

Functional Category: Sediment Control

| | | | |
|---|---|---|---|
| 1st Pollution Category | Hydromodification (Removal of Riparian Vegetation) | Percent of Total (%) | 50 |
| 2nd Pollution Category | Urban Runoff/Stormwater (Highway/Road/Bridge Runoff) | Percent of Total (%) | 50 |
| 3rd Pollution Category | | Percent of Total (%) | |
| 4th Pollution Category | | Percent of Total (%) | |

## Project Funding

| | |
|---|---|
| 319 Funds Requested | $70,000.00 |
| Matching Funds | |
| *State Match* | |
| *State In-Kind Match* | $12,000.00 |
| *Local Funds* | |
| *Other Match* | $25,000.00 |
| Total Matching Funds | $37,000.00 |
| Other Federal Funds | |
| Total Project Budget | $107,000.00 |
| Administrative Fee | $5,000.00 |

Does the project sponsor have any open 319 contracts? No

Project Title

DEQ Contract Number

319 Award

Projected Closing Date

Project Title

DEQ Contract Number

319 Award

Projected Closing Date

## Project Description

Methods: Please describe the specific activities of this project.

Reduce sediment transfer to Lolo Creek from Highway 12 maintenance activities through use of riparian plantings on riprap slopes; Evaluate revegetation on burned areas along Lolo Creek and tributaries and augment with vegetation plantings where needed; Monitor for sediment reduction from plantings on riprap slopes and revegetation of fire impacted areas on Lolo Creek and West fork Butte Creek; Educate and inform public, landowners, and other stream users through meetings, mailing, and public displays; Evaluate Upper Lolo TMDL project implementation.

Objectives: Please describe the specific/measurable objectives that will ensure the achievement of the project goal(s).

* Establish riparian buffers on highway easement riprap measured by lineal and areal accounting of planted segments
* Monitor revegetation and re-establish and/or protect new growth on stream segments severely impacted by the 2013 Lolo Creek Fire Complex through direct vegetation measurements such as density, height attained, and survivorship and by use of photo points
* Measure sediment at 8 -12 sites above, near and below areas of new plantings (riprap) or resprouting vegetation (fire impacted areas)
* Prepare displays for 2-3 public recreation locations and hold 4-6 public meetings/tours to illustrate the value of riparian vegetation
* Write a report listing completed projects and work remaining to meet TMDL in the Upper Lolo TMDL Planning Area

Overview: Please provide a brief summary of the proposed project.

The overall goal of this project's series of tasks is improving the status of riparian vegetation and its function on riprap slopes between HWY 12 and Lolo Creek and on areas burned in the 2013 Lolo Creek Fire Complex. Lolo Creek has no protection from sediment delivery from winter highway maintenance in those sections of the creek with a narrow band of riprap separating the creek from the highway. Although MDT uses care in applying traction sand and salt, and in its recovery, the lack of vegetation in this narrow area creates an unobstructed path from the road surface to the creek surface. Vegetation planted along the lowest portion of the slopes, adjacent to the water's edge during much of the growing season, can provide a buffer to catch some of the sediment. We recognize that more time than is available in this required for adequate plant growth to assure sediment capture. Also, some areas within the fire perimeter were so severely burned that vegetation recovery may be slowed. The LWG will identify these areas, then work with private landowners to help augment vegetation recovery in riparian areas. Numerous studies and models demonstrate the value of a working riparian area to significantly reduce sediment delivery to water ways. While a narrow planting on riprap will have a much reduced capacity to catch and filter sediment, the Lolo Watershed Group has noted that even small patches of shrubs on streambanks adjacent to the highway catch and hold mounds of sediment on their uphill sides.

Monitoring will include standard and accepted stream measurements for sediment as well as counts of plant survival and physical growth measurement. Photo points will aid in illustrating growth over time and once established can be useful beyond the duration of this projects' timeline. Outreach and education will demonstrate the value of vegetation in riparian zones. An administrative task has been added to manage purchases, payments and reporting for the overall project.

## Section II: Background Information

### A: Statement of Need and Intent

The Lolo Watershed is characterized by a variety of uses from silviculture, transportation, agriculture, and residential development. With this in mind, The Lolo Watershed Restoration Plan highlights the need for sediment reduction to attain water quality standards to levels that support all designated beneficial water uses as identified by DEQ (in the Water Quality Restoration Plan - for Lolo Creek TMDLs). Sediment delivery from old logging roads, silvicultural activities that predate modern Best Management Practices, and from Highway 12 maintenance continue to impact Lolo Creek and its tributaries. Some private landowners continue to misunderstand the value of riparian vegetation in reducing streambank erosion or lack the funding or knowledge to complete stabilization projects that incorporate riparian vegetation planting or management. The Lolo Creek Fire Complex burned across both Lolo Creek and some tributaries. Some of these areas show severe fire effects of removal of all or most surface vegetation.

This project intends to reduce sediment delivery to Lolo Creek could be through targeted riparian planting. Education and outreach will be used to demonstrate the value of riparian vegetation in reducing sediment delivery to the creek and for stabilizing burned or disturbed areas. This project will also provide measures of water quality (sediment load indicators) and the progress and success of riparian planting to showcase sediment reduction and stream health improvement. Some sediment data collected prior to the fire currently is available for comparison. Also voluntary documentation of the status of post fire vegetation is necessary will be conducted for use in future comparisons due to the lag time between the occurrence of the fire and the availability of 319 funding. This project will also delineate completed projects on Lolo National Forest and Plum Creek ownerships in the watershed and those still needing completion. This information can be used to prioritize future work needed to reach identified TMDL values.

### B: Collaborative Effort

| Partner | Role |
|---|---|
| Montana Department of Transportation | Identify sites for riparian vegetation planting and supervise planting projects (Task 1 and Task 2) Identify work completed toward reaching Upper Lolo Creek TMDL guidelines (Task 5) |
| Lolo National Forest | Provide updates on completed work as identified in DEQ TMDL documents (Task 5) |
| Watershed Education Network (WEN) | Provide water monitoring, data and information to LWG throughout the project (Task 3) |
| Crete Biological Services | Provide macroinvertebrate sampling and results (Task 3) |
| Plum Creek | Provide updates on restoration actions within the area burned by 2013 Lolo Creek Fire Complex (Task 2) |

*Additional Information (Collaborative Effort)*

The Lolo Watershed Group has an advisory board made up of representatives from numerous local, state and federal agencies including Clark Fork Coalition, Lolo National Forest hydrology and fisheries, Montana Fish Wildlife and Parks, Missoula Water Quality District, Plum Creek, and Montana Trout Conservancy. In addition, the LWG benefits from advice from the Missoula Conservation District. Each of the partners listed above has also participated in Lolo Watershed Group public meetings as well as in collaborative discussions. These partners will play roles in Task 4, Outreach and Education as they provide materials for public meetings and displays and/or participate in meetings.

**C: Project Planning and Management**

| Funding Organization | Award Amount | Project Description | Project Status | Contact Information |
|---|---|---|---|---|
| Plum Creek Foundation | $2000 | Sample biological measures of stream health. Sample and identify macroinvertebrates through the year in Lolo Creek and some selected tributaries. | sampling has begun. | Robert J. Jirsa<br>President, Plum Creek Foundation<br>999 Third Avenue,<br>Suite 4300<br>Seattle, WA 98104 |
| Bitteroot Chapter of Trout Unlimited | $1000 | Deploy and monitor water temperature data loggers in Lolo Creek's mainstem and tributaries. | data loggers in place and active | Douglas Nation<br>douglas.p.nation@gmail.com<br>PO Box 262<br>Hamilton, MT 59840 |
| Preserving Missoula County's History Grant Historical Museum at Fort Missoula | $5000 | Linking Generations: Collecting history of Lolo Creek Watershed. LWG is working with uppler middle school teachers to send students on an exploration of Lolo history through interviewing "old timers" and collecting a recorded oral history of creek uses, land uses and personal memories. Stories will be compiled for sharing or publication | teachers being contacted. Training plan in development | Dr. Robert Brown<br>Historical Museum at Fort Missoula<br>Building #322<br>Fort Missoula<br>Missoula, MT 59804 |
| Soil and Water Conservation Districts of Montana, Inc | $2000 | Understanding channel migration to decrease future streambank erosion on Lolo Creek. Conduct meetings, collect historical air photos, map historical channel migration zone, develop landowner brochure to help guide them through permitting and stabilization project design. | air photos collected. meetings completed Landowner brochure in draft form | Jan Fontaine<br>SWCDMI<br>790 Colleen Street<br>Helena, MT 59601 |
| Soil and Water Conservation Districts of Montana, Inc | $1500 | Ebb and Flow: understanding streambank stabilization, erosion and dewatering on Lower Lolo Creek. Conducted a series of streamwalks from Fort Fizzle to below the HWY 93 bridge. Amount of erosion, stabilization and areas of low water were compared to data collected in past surveys from a number of years ago. | completed | Jan Fontaine<br>SWCDMI<br>790 Colleen Street<br>Helena, MT 59601 |

*Additional Information (Planning and Management)*

## Section III: Project Components

**A: Education and Outreach: Please briefly describe the education and outreach component of this proposal, the target audience, and the method of delivery.**

Conduct a series of informational mailings, public meetings, prepare displays to be used at facilities such as Travelers Rest State Park , USFS recreational sites and public schools. Outreach and education will focus on methods of planting and protecting riparian vegetation and the value of maintaining riparian vegetation in reducing sediment in Lolo Creek. Vegetation recovery following fire will be illustrated along with the impact of the temporary loss of vegetation due to fire or other disturbance. The target audience will include both adults and children who are residents of the watershed, watershed recreational users, or visitors who may pass through the watershed. This project can help demonstrate the importance of riparian vegetation to stream health and ecosystem balance, including wildlife, fisheries and clean water while showing change over time, both positive and negative, of natural processes and human intervention in natural processes.

**C: Operation and Maintenance**

Task 2, planting and/or protecting emerging vegetation my require a maintenance element depending on human and animal traffic through planting areas. If browse protectors or fencing is in place, it will need regular checking and perhaps maintenance over the life of the project. Animals or humans may disrupt protective wraps or fences. LWG will need to coordinate closely with landowners to assure plantings and protective equipment is not placed in such as way as to create a hazard.

**D: Monitoring: Please briefly describe the monitoring component of this proposal.**

Monitoring occurs in three tasks. Primary monitoring of sediment related measures of stream health will be conducted by the Watershed Education Network's (WEN) volunteer stream team who is trained and supervised by qualified WEN staff. Please see attached biographies for two of the WEN team leaders. Macroinvertebrates, as they relate to sediment, will be sampled by Crete Biological Services.

Monitoring of plant growth, planting success and survivorship is inherent in two tasks. The first task involves planting riparian shrubs on the lower stream edge portion of riprap between HWY 12 and Lolo Creek. The second task involves planting and/or protecting re-emerging vegetation in areas burned by the 2013 Lolo Fire Complex. Growth in height, stem count density and survival will be used to monitor planting and plant protection techniques.

## Section IV: Scope of Work

Task 1 Title: Plant vegetation on riprap slopes adjacent to Highway 12

Description

Lolo Watershed Group (LWG) volunteers and Montana Department of Transportation (MDT) staff will identify areas of riprap between HWY 12 and Lolo Creek that are feasible planting areas from access, visibility, and safety perspectives during late summer of 2014. Proposed planting areas are between the MDT maintenance facility east (downstream) to the Bear Creek Road.
Cuttings of dormant riparian shrubs will be gathered along Lolo Creek by volunteers in the near vicinity of planting sites during late winter of 2015. Cuttings will be stored in cool, shaded staging areas until planting dates.

Contracted mechanized planting (stinger/excavator) and operators will place riparian shrub cuttings into the lower third of riprap slopes adjacent to Highway 12. Planting will occur in March and early April of 2015 as weather permits and will be supervised by both LWG volunteers and MDT staff. Insertion of a soil/rooting medium slurry at planting sites will be used on some sites to assess if survival is improved with this technique. Traffic control will be carried out by MDT staff. Planting techniques will follow guidelines specified in the USDA, NRCS publication: How to plant willows and cottonwoods for riparian restoration.
Some funding (up to $5000) will be reserved to contract water tenders to apply water to planted areas weekly from the third week of June 2015 through mid September 2015 for any week during which less than .25 inches of rain has been received.

Deliverables

Written report and photo documentation of planted areas including growth records, survivorship and ability to trap sediment during early winter of 2016 will be documented. While the planning and planting activities will be completed in 2015, monitoring and reporting will continue to December of 2016.

Task 1 Funding

| | |
|---|---|
| 319 Funds | $35,000.00 |
| Non-Federal Match | $14,000.00 |
| Other Federal Funds | |
| Total Cost | $49,000.00 |
| Is Match Secured? | No |

Timeline: August 2014 - December 2016

Match Source: MDT salaried staff time and LWG volunteer time

Task 2 Title: Plant and/or protect emerging vegetation along waterways severely burned by 2013 Lolo Creek Fire Complex

Description

LWG volunteers will visually assess survival of vegetation along Lolo Creek and tributaries within the area burned in the 2013 Lolo Creek Fire Complex during July 2014. LWG will compare vegetation status to preliminary photo documentation from autumn 2013. Private landowners within the fire complex area will be contacted in areas that lack significant natural regeneration as viewed in summer of 2014. Given letters of support from these landowners, the LWG will begin planting on their lands in late autumn 2014. Some of the most severely burned riparian area along Lolo Creek is on Montana State Land. (See attached map and pictures).

LWG volunteers will obtain containerized or rooted plants of native shrubs that are appropriate candidate species for planting. State nursery staff will be asked to assist in species selection. Shrubs will be planted only in areas where natural revegetation is sparse. Planting will occur in September through October 2014 and March through April 2015, depending on timing of frozen soils and weather. Planting in spring or fall gives the best opportunity for adequate precipitation to occur for shrub establishment.

Vegetation, natural or planted, may require protection from browsing. Where needed, LWG volunteers will deploy plastic or wire planting tubes to protect from browse damage. Fencing may be needed in some areas.

Deliverables

A written report of vegetation growth following planting or re-emergence (in fire areas). Photo documentation of plant growth will be detailed through use of established photo points.
In addition, Plum Creek will be following its Native Fish Habitat Conservation Plan to implement a number of restoration activities on the burned area. Plum Creek will communicate with the LWG for reporting on restoration progress.

Task 2 Funding

| | |
|---|---|
| 319 Funds | $5,000.00 |
| Non-Federal Match | $2,000.00 |
| Other Federal Funds | |
| Total Cost | $7,000.00 |
| Is Match Secured? | Yes |

Timeline: July 2014 - December 2016

Match Source: LWG volunteer time

Task 3 Title Monitor Lolo Creek for indicators of sediment and vegetation growth

Description

The Watershed Education Network (WEN)'s volunteer Stream Team will measure sedimentation monthly using standardized grid toss techniques, the Wolmann pebble count procedure, and turbidity measurement using the Secchi Tube procedure to estimate the annual sediment load reductions achieved by the projects. Vegetation growth in our climate is slow so we recognize effects may take a period of three or more years to be observed. However, sampling before and following completion of Tasks 1 and 2 will provide baseline data needed to determine eventual success of planting in reducing sediment delivery to Lolo Creek. Site selection and sampling listed above will follow guidelines detailed in Paul Kusnierz, Andy Welch and Darrin Kron. 2013. The Montana Department of Environmental Quality Sediment Assessment Method: Considerations, Physical and Biological Parameters, and Decision Making. Helena, MT: Montana Dept. of Environmental Quality. The specific standardized water monitoring protocols are detailed in attachments.
Zach Crete, Crete Biological Services will sample the macro-invertebrates key locations. Kusnierz et al, 2013 indicated biological indicators may also help identify if sediment is causing impairment in a reach. Sample sites will span the project area and include sites above, below and within the project area. Volunteers will establish photo points in burned areas to monitor creek-side vegetation response and will measure survival and height growth and stem count in planted areas.

Deliverables

A written report of sediment, turbidity, and macro- invertebrates. Data will be compared to pre planting and pre fire conditions. The LWG and WEN recognize slow growth of planted or re-emerging vegetation may limit the ability to observe changes in sediment load. However, preliminary and intermediate measurements are needed to eventually be able to verify if planting assists in reducing sediment.

A written report of vegetation growth following planting or re-emergence (in fire areas). Photo documentation of plant growth through use of established photo points.

Task 3 Funding

| | |
|---|---|
| 319 Funds | $12,000.00 |
| Non-Federal Match | $6,000.00 |
| Other Federal Funds | |
| Total Cost | $18,000.00 |
| Is Match Secured? | Yes |

Timeline July 2014 - June 2016

Match Source WEN volunteer stream team time, LWG volunteer time

Task 4 Title Outreach and Education

Description

Conduct a series of informational mailings, public meetings, prepare displays to be used at facilities such as Travelers Rest State Park , USFS recreational sites and public schools. Outreach and education will focus on methods and value of riparian vegetation in reducing sediment in Lolo Creek. Natural recovery following fire will be demonstrated as well as success in planting with browse protection. The target audience will include both adults and children who are residents of the watershed, but also recreational users and one-time visitors. This project can help demonstrate the importance of riparian vegetation to stream health and ecosystem balance, including wildlife, fisheries and clean water while showing change over time.

Deliverables

Public meeting notices, public meeting display items and presentation materials, public display items.

Task 4 Funding

| | |
|---|---|
| 319 Funds | $10,000.00 |
| Non-Federal Match | $5,000.00 |
| Other Federal Funds | |
| Total Cost | $15,000.00 |
| Is Match Secured? | Yes |

Timeline July 2014 - December 2016

Match Source LWG volunteer time, meeting speaker and attendee time

Task 5 Title Evaluate progress toward TMDL guidelines in Upper Lolo Creek

Description

Work with US Forest Service to determine project completion as listed in the 2010 Upper Lolo Creek Sediment TMDL Implementation Evaluation.
USFS personnel will supply completed project information to LWG. LWG will compile the information, compare it to the 2010 DEQ Implementation Evaluation and write a report comparable to that document. The report will update information as reported in 2010. The updated document can be used to prioritize work remaining for reaching Lolo Creek's TMDL values.

This task will be delayed for one field season to allow completion of more work by the Forest Service. In the second field season LWG members assigned to this task will begin to work with USFS to view completed projects, projects in progress with a goal to review completed work and begin to compile completed tasks by winter 2015. Additional completed work can be added to the list as it occurs during the field season of 2016. Final report will be written the first quarter of 2017

Deliverables

Written report and tables detailing specific tasks completed such as number of culverts repaired or replaced, and number of miles of roads decommissioned or storm proofed, as well as tasks remaining to be completed to meet TMDL targets for Lolo Creek. This report would also indicate rehabilitation work completed on the Lolo Creek Fire Complex burned area. The report would be comparable to DEQ-PPA-WQPB-WPS. 2010. Upper Lolo Sediment TMDL Implementation Evaluation. Helena, MT: Montana Dept. of Environmental Quality.

Task 5 Funding

| | |
|---|---|
| 319 Funds | $3,000.00 |
| Non-Federal Match | $2,500.00 |
| Other Federal Funds | $2,500.00 |
| Total Cost | $8,000.00 |
| Is Match Secured? | No |

Timeline July 2015 - March 2017

Match Source Salaried USFS staff time, LWG volunteer time

Task 6 Title Contract administration

Description

Prepare and submit annual and final reports. Prepare and submit reimbursement requests. Provide office space, equipment and supplies; overhead costs, expense and budget tracking, phone and copy expenses, and insurance.

Deliverables

Annual and Final reports, budget tracking spreadsheets, and expense and reimbursement tracking spreadsheets.

Task 6 Funding

| | |
|---|---|
| 319 Funds | $5,000.00 |
| Non-Federal Match | $5,000.00 |
| Other Federal Funds | |
| Total Cost | $10,000.00 |
| Is Match Secured? | Yes |

Timeline July 2014 - March 2017

Match Source LWG volunteer time

Task 7 Title

Description

Deliverables

Task 7 Funding

| | |
|---|---|
| 319 Funds | |
| Non-Federal Match | |
| Other Federal Funds | |
| Total Cost | |
| Is Match Secured? | |

Timeline

Match Source

Task 8 Title

Description

Deliverables

Task 8 Funding

| | |
|---|---|
| 319 Funds | |
| Non-Federal Match | |
| Other Federal Funds | |
| Total Cost | |
| Is Match Secured? | |

Timeline

Match Source

Task 9 Title

Description

Deliverables

Task 9 Funding

| | |
|---|---|
| 319 Funds | |
| Non-Federal Match | |
| Other Federal Funds | |
| Total Cost | |
| Is Match Secured? | |

Timeline

Match Source

Task 10 Title

Description

Deliverables

Task 10 Funding

| | |
|---|---|
| 319 Funds | |
| Non-Federal Match | |
| Other Federal Funds | |
| Total Cost | |
| Is Match Secured? | |

Timeline

Match Source

## Section V: Supporting Documents

**A: Detailed Project Budget**

| | Cash Match | | | In-Kind Match | | | | |
|---|---|---|---|---|---|---|---|---|
| **Task Number and Specific Action** | **Private** | **State** | **Federal** | **Private** | **State** | **Federal** | **319 Funds** | **Total Costs** |
| Task 1 - site identification, permits | | | | $100 | $4,000 | | | **$4,100** |
| Task 1 - shrub cutting collection | | | | $1,200 | | | | **$1,200** |
| Task 1 - supervision of planting | | | | $700 | $8,000 | | | **$8,700** |
| Task 1 - stinger planting | | | | | | | $30,000 | **$30,000** |
| Task 1 - water delivery to new plants | | | | | | | $5,000 | **$5,000** |
| Task 2 - site selection | | | | $200 | | | $250 | **$450** |
| Task 2 - planting/protecting | | | | $800 | | | $4,000 | **$4,800** |
| Task 2 - photo point setup | | | | $500 | | | $250 | **$750** |
| Task 2 - maintenance | | | | $500 | | | $500 | **$1,000** |
| Task 3 - sediment monitoring | | | | $4,000 | | | $10,000 | **$14,000** |
| Task 3 - sediment linked bio sample | | | | | | | $2,000 | **$2,000** |
| Task 3 - monitor vegetation growth | | | | $2,000 | | | | **$2,000** |
| Task 4 - meetings planning/attend | | | | $1,000 | | | $4,000 | **$5,000** |
| Task 4 - display development | | | | $3,000 | | | $5,000 | **$8,000** |
| Task 4 - meetings mailings/advertise | | | | $1,000 | | | $1,000 | **$2,000** |
| Task 5 - compiling completed tasks | | | | | | $2,500 | | **$2,500** |
| Task 5 - researching | | | | $1,200 | | | $1,000 | **$2,200** |
| Task 5 - report writing | | | | $1,300 | | | $2,000 | **$3,300** |
| Task 6 - acounting | | | | $1,000 | | | $1,000 | **$2,000** |
| Task 6 - reporting | | | | $4,000 | | | $4,000 | **$8,000** |
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| **TOTAL** | | | | **$22,500** | **$12,000** | **$2,500** | **$70,000** | **$107,000** |

**B: Project Milestone Table:** Please complete the following Project Milestone Table by entering task numbers and titles in the left hand column, then check the box(es) for the appropriate quarter(s) and year(s) in which the task will take place.

| Milestone | 3QT 2014 | 4QT 2014 | 1QT 2015 | 2QT 2015 | 3QT 2015 | 4QT 2015 | 1QT 2016 | 2QT 2016 | 3QT 2016 | 4QT 2016 | 1QT 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Task 1 Riprap planting - site identification | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Task 1 Riprap planting - shrub cutting collection | ☐ | ☐ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Task 1 Riprap planting - planting | ☐ | ☐ | ■ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Task 2 Burned area planting and monitoring - site selection | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Task 2 Burned area planting, maintenance and monitoring | ☐ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ☐ |
| Task 3 Monitor Lolo Creek for indicators of sediment and vegetation growth | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ☐ | ☐ |
| Task 4 Outreach and Education | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Task 5 Evaluate progress toward TMDL guidelines in Upper Lolo Creek | ☐ | ☐ | ☐ | ☐ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Task 6 Contract administration | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Please ensure that you submit a **project map(s)** and **letters of support (at least 3)** along with this Final Application form. If design drawings are available please provide those as well. For on-the-ground work please include copies of the applicable permits.

☑ **C: Project Map**

☑ **D: Letters of Support**

☑ **E: Design Drawings**

☐ **F: Applicable Permits**

☐ **G: Draft of amended WRP**

**H: Comments: Please use the space provided for any additional information that may not have been captured by this application form.**

Letters of support from the Montana De[partment of Transportation await final discussions. While MDT has been verbally supportive of this project in emails and in a conference call, too many members who will be involved in final decisions regarding the extent of MDT's assistance have been away on sick leave. We hope to be able to obtain this letter next week along with a list of permits that MDT would obtain on our behalf once funding is assured.

**Brian D. Sugden**
*Hydrologist*

Plum Creek Timber Company, Inc.
PO Box 1990
500-12th Avenue West
Columbia Falls, MT 59912
406-892-6368 fax: 406-892-6171
brian.sugden@plumcreek.com

Plum Creek

October 4, 2013

Roberta Bartlett
Lolo Watershed Group
PO Box 1354
Lolo, MT 59847

**Re: Lolo Watershed Group 319 Grant Application**

Dear Ms. Bartlett:

This letter serves as support for the Lolo Watershed Group (LWG) efforts to assist in post-fire vegetation monitoring and restoration in the watershed. The fire burned approximately 10,000 acres in the drainage. Of these, approximately 7,000 acres were on Plum Creek forestlands. Plum Creek will be undertaking reforestation and other watershed restoration efforts under the company's Native Fish Habitat Conservation Plan in the coming years in the area. The US Forest Service is undertaking several culvert replacements as part of their Burned Area Environmental Response.

The LWG can serve a useful niche in assisting smaller private landowners – particularly those along Lolo Creek - in revegetation efforts. Plum Creek serves on the LWG technical committee and will be provide the LWG with a summary of work we complete in the watershed in our post-fire watershed response.

Sincerely,

Brian D. Sugden

Brian D. Sugden
Forest Hydrologist

# Watershed Education Network

*Growing the next generation of watershed stewards*

**The Swift Building**
**Suite 203**
**315 South 4th Street East**
**Missoula, MT 59801**

**406-541-9287**
**water@montanawatershed.org**


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Bobbie Bartlett
Lolo Watershed Group

October 4, 2013

Dear Ms. Bartlett:

The Watershed Education Network (WEN) is pleased to join the Lolo Watershed Group in their monitoring project as a collaborating partner. WEN was founded in 1996 as a community group dedicated to fostering knowledge, appreciation and understanding of watershed health through science and education. In 2004, WEN formally became a nonprofit organization serving western Montana teachers, students and community members, and bringing water monitoring and education programs to local classrooms and field sites.

WEN's volunteer monitoring program, Stream Team, has an established set of monitoring protocols and sampling sites within the Lolo watershed. Protocols include sediment assessment parameters and monitoring sites extend from the Lolo headwaters to the confluence with the Bitterroot River. The sediment related data obtained from weekly Stream Team monitoring in the Lolo watershed can contribute to Lolo Watershed Group's restoration project, specifically in the evaluation of restorative plantings in burn areas and along riprap slopes.

Through these activities, WEN agrees to assist with the Lolo Watershed Group's monitoring project on Lolo Creek from July 2014 through June 2016. We look forward to working with all of the partners on this project, and contributing to critical restoration in the Lolo watershed.

Sincerely,

Shelby Marshall


Watershed Education Network
The Swift Center for Conservation
315 S. 4th East, Suite 203
Missoula, MT 59801

# CRETE BIOLOGICAL SERVICES

Lolo Watershed Group,

Crete Biological Services will commit to any contract derived through the State of Montana Department of Environmental Quality for sampling of Lolo Creek through 319 funds. Upon review of the contract I, Zach Crete, will determine the locations and the quantity of samples relevant to understanding the current state of invertebrate diversity within the constraints of the eligible money released for this type of work.

Sincerely,

Zach Crete

5166 Avalon Lane
Lolo, Montana 59847

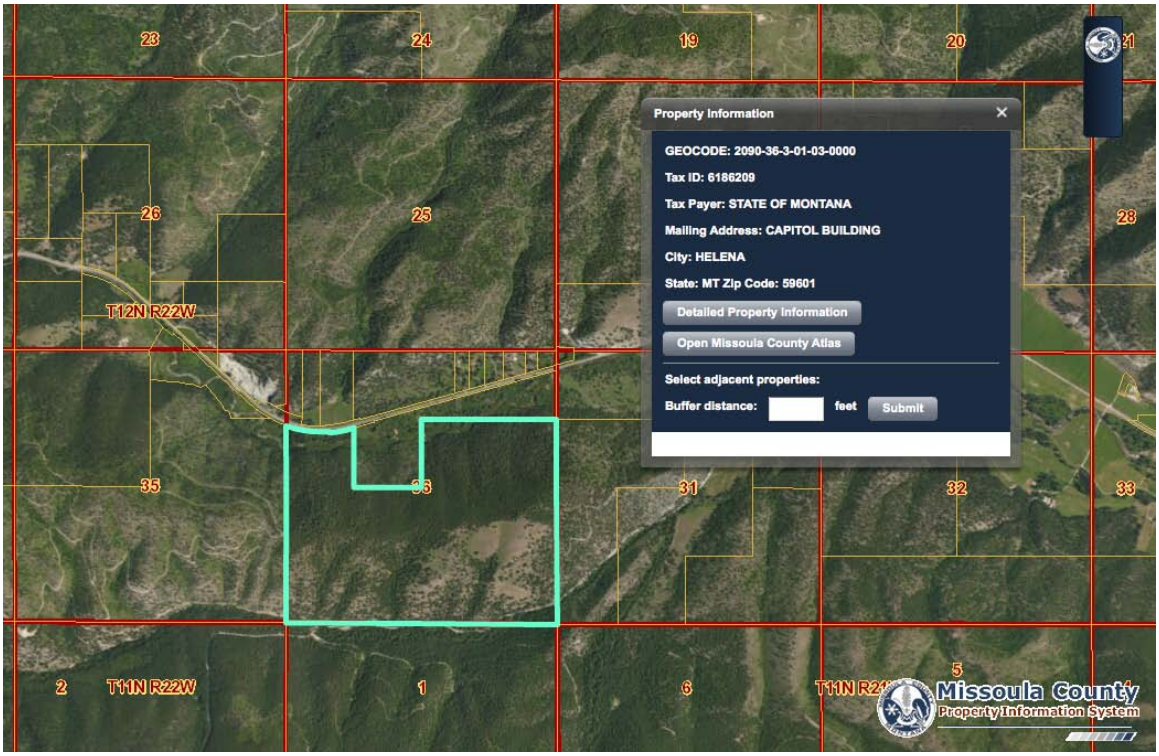
PHONE 406-546-3847
EMAIL zachcrete101010@gmail.com

# Burned area and Task 2


Photo taken 8/29/2013 by USFS. Gray area to the right is a gravel pit. The burned area along the creek contains a great deal of meadow and shrub as well as trees. Vegetation in this area is re-emerging.


Photo taken 8/29/2013 by USFS. This photo is taken facing roughly west. The area in the previous photo is situated just beyond the curve in the road seen in the distance of this photo.

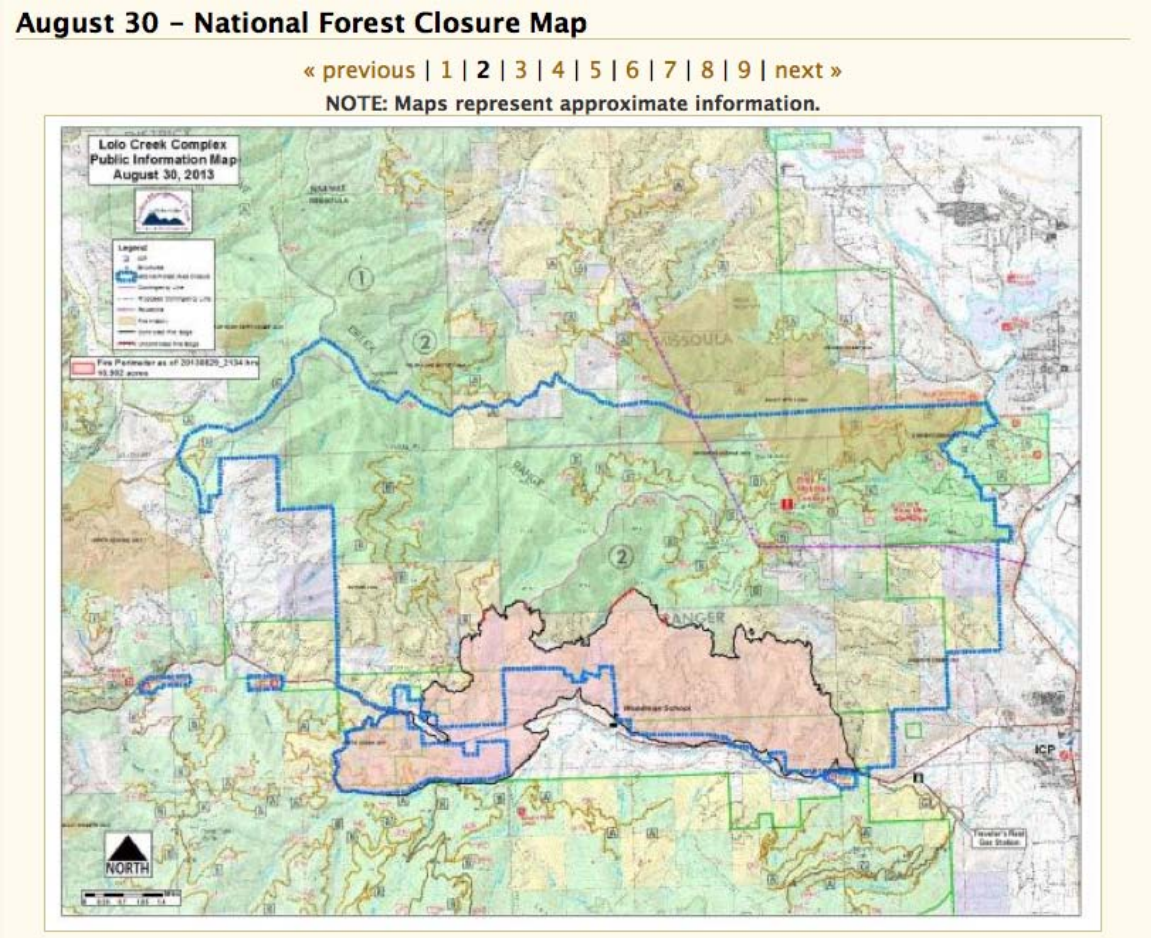
The most severely burned riparian areas along Lolo Creek are to the left or south of the road and extending to the bend in the road. Much of this land is owned by the State of Montana and was heavily forested. Camp Creek, a Lolo Creek tributary extends to the north or to the right in the upper portion of this picture. According to Brian Sugden, Plum Creek hydrologist, it holds some of the most severely burned area of the Lolo Creek tributaries.




The map above was generated by the Missoula County Property Information System. The block highlighted in blue is the Montana State parcel that was severely burned. At least one home and some outbuildings north of HWY 12 and directly north of this parcel were lost to the fire.

Camp Creek is the drainage running roughly north of the north west corner of the Montana State parcel.

This is the general area that will be studied for possible burned area vegetation planting and/or re-emerging vegetation protection from browsing as detailed in Task 2.

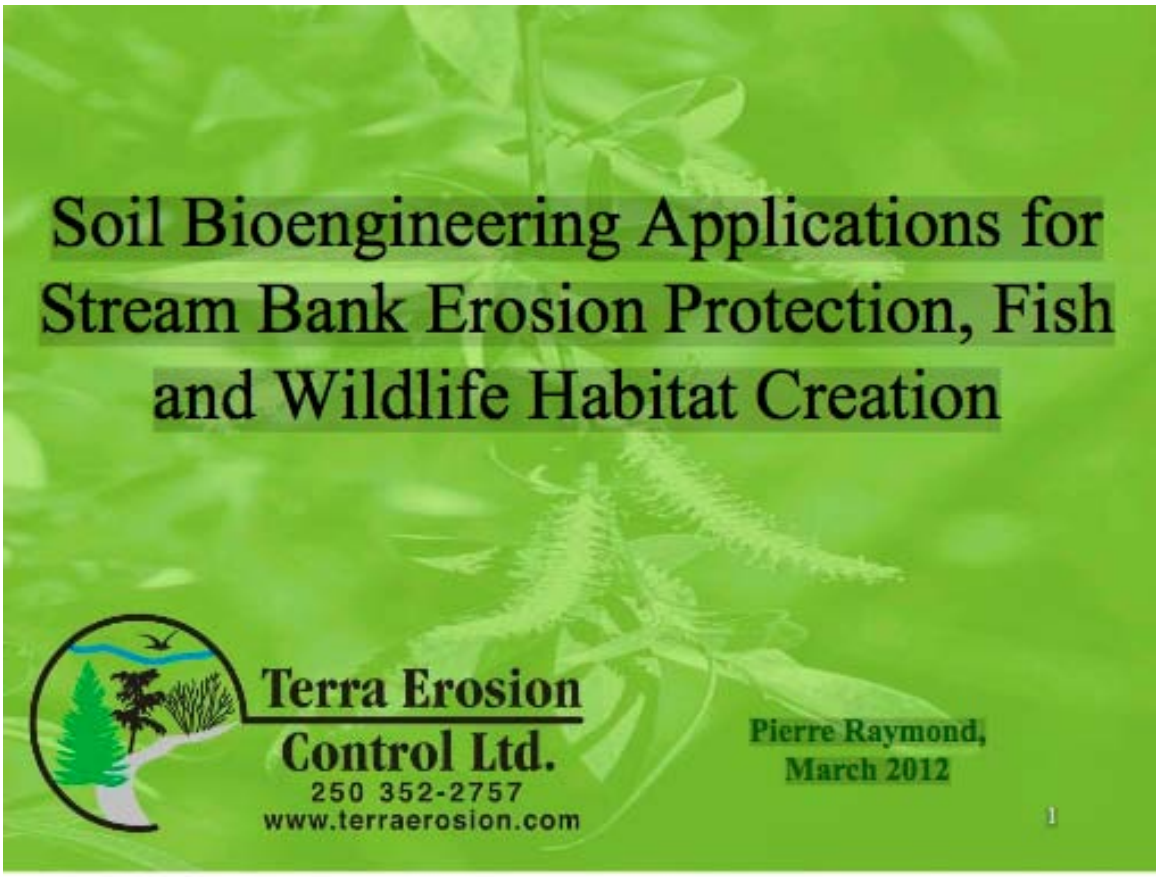



This map comes from the InciWeb incident management system
http://www.inciweb.org/incident/map/3683/1/

The burned area is outlined in black and is generally a pinkish hue. The town of Lolo is on the east south east corner of the map.


You can identify the Montana State parcel partially outlined in blue, near the west end of the fire in this close-up of the map above.

Stinger planting diagrams.




Terra Erosion
Control Ltd.
Soil Bioengineering Techniques
Stinger
Attachment
Live
Stake
Growing
Medium
Live Staking of Existing Riprap (stinger or bucket)
23


Terra Erosion Control Ltd.
Vegetated Riprap: Road-Side Application
"Vegetated riprap"
Native soil
Gravel filter
Toe apron
Native soil infill
(Raymond 2005) Terra Erosion Control Ltd.
24

Example of browse protection for riparian plantings as used by GEUM Environmental Consulting, Inc.

Each one-gallon shrub will receive a rigid plastic mesh browse protector and Tubex® vole guard to protect the shrub from browse and girdling. Browse protectors are 4 feet in height and constructed from rigid plastic netting. Netting is secured in place with 2-inch square by 4-foot tall wooden posts and UV stabilized zip ties (Photo 2). Tubex® vole guards are solid rigid plastic tubes that are approximately 8 inches high and whose diameter can be adjusted. Vole guards are pushed or trenched into the ground to ensure that rodents cannot burrow under them. Vole guards will be placed inside of each larger browse protector (Figure B-3). Due to the aggressive grasses present throughout the project reach, approximately 3 inches of bark mulch will be placed within each vole guard to provide protection from weeds at the base of the plant. Bark mulch will also function to create a favorable microclimate for plant growth by retaining soil moisture, moderating soil temperature, and providing organic material which may be lacking in upper layers of the soil due to the agricultural history of the site. In addition to browse protection, a two-foot by two-foot plastic mulch mat will be installed around the base of each one gallon shrub to reduce competition from aggressive grasses and other invasive species (Figure B-2). Five gallon plants should be large enough to resist browse and competition so these plants will not require protection.

**Photo B-2.** Photo illustrating one gallon shrub installed with mulch mat and browse protection.

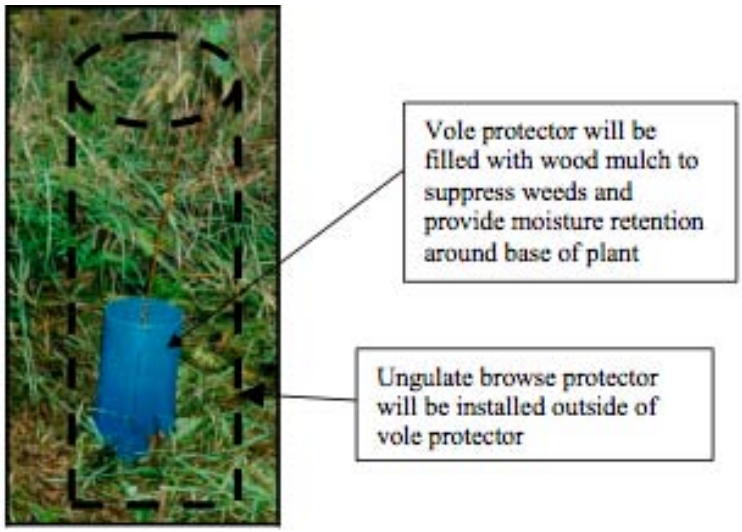



**Figure B-3.** Vole guard protecting base of plant installed inside of a larger ungulate browse protector. *Therriault Creek Riparian Revegetation Plan Geum Environmental Consulting, Inc. April, 2007*