Roots for Rivers Targeted Implementation Plan (TIP)

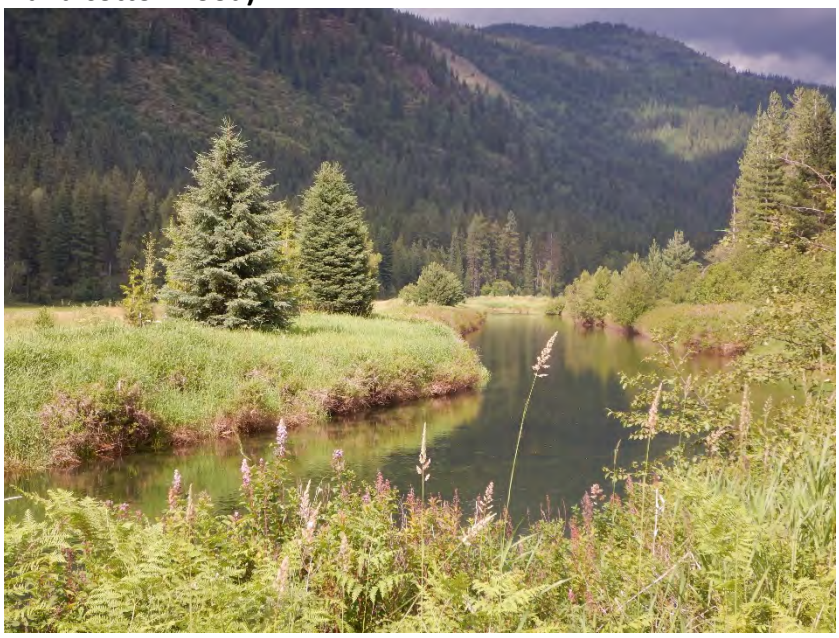
Riparian Restoration of Woody Vegetation

Natural Resources Conservation Service

Sanders County, Montana

Examples of reed canary grass, and other introduced grasses along the Bull River, and subsequent bank sloughing in riparian area cleared for hay ground.

Desired riparian condition includes robust stands of woody shrubs (such as Douglas spirea and willow) and trees (such as hawthorn and cottonwood).



Trees planted approximately 15 years ago on this NRCS wetland easement along the Bull River are now well established.

New plantings, such as these installed in fall of 2018, require browse protection and weed matting for at least 5-10 years until they are established enough to compete with surrounding vegetation and/or browse pressure. In some areas that are suitable, such as the opposite bank pictured in the photo on the left (planted in 2012), large enclosures can be installed to protect larger areas of vegetation.

Overview and Background Information

Riparian areas are critically important landscape features. Over the past 120 years human development has caused significant degradation to the riparian areas within the Bull River drainage. As was common in most areas of the west, early settlement, homesteading, and logging was concentrated in the riparian areas within the Bull River drainage. These riparian areas were highly sought after due to their productive soils, proximity to water, and their relatively flat terrain in an otherwise mountainous area. Riparian forests were cleared of timber first, followed by large-scale logging on the adjacent areas. Roads were constructed throughout the landscape to assist with these logging operations. Most of the larger riparian areas are private while the adjacent areas are mostly Forest Service lands. Large areas of the larger riparian areas were planted to reed canarygrass, which has since taken over these riparian areas creating a monoculture. This monoculture of reed canarygrass fails to provide stream and flood plain stability. One unique feature of the Bull River drainage is that grazing is relatively uncommon.

The Lower Clark Fork Watershed Group (LCFWG) in conjunction with Green Mountain Conservation District (GMCD) has been actively working to restore native riparian vegetation along the Bull River since 2002. The Natural Resource Conservation Service (NRCS) has complemented this work by restoring woody vegetation on wetland easements within the Bull River and has provided technical assistance to LCFWG and GMCD on other properties in the Bull River watershed throughout the years. Working cooperatively, NRCS, GMCD, and LCFWG have had success in establishing species such as western red cedar, western white pine, spruce, and cottonwood trees which help to provide stability to the banks, shade for the river, and large down woody debris to the stream.

This TIP will utilize the lessons learned over the past two decades to restore riparian areas within the Bull River drainage. The TIP will be completed in cooperation with the LCFWG and GMCD. The US Forest Service (USFS) has also implemented similar projects on federal property which are often adjacent to private properties that will be restored through this TIP. This TIP will work to expand the cumulative benefits that multiple partners can provide.

Problem Statement

Due to the lack of large rock and bedrock in most area streams, large diameter wood and tree roots are a key component to stream and flood plain stability. Historically, this created high quality fishery habitat for native fish species by maintaining complex stream structures with deep, cool temperature pools. These areas also provided quality habitat for terrestrial wildlife species (Sanders County Long Range Plan, page 23).

Current conditions on the Bull River consist of mostly reed canarygrass, as documented in the picture on the left. You can see some of the existing plantings that have been installed by Lower Clark Fork Watershed Group. On the right, you can see a properly functioning riparian area that currently exists on the East Fork of Bull River. Coarse woody debris has resulted in a diverse stream with riffles, pools, and structure that provides great aquatic habitat. Coarse woody debris coupled with diverse vegetation and structure also help prevent sedimentation and bank erosion issues.

This project will improve fish and wildlife habitat as well as water quality in the Bull River Watershed. Riparian corridors in this area have the potential for high biodiversity and habitat value. Not only are healthy riparian areas vital to the long-term survival of native fish, they also provide important habitat for numerous birds, ungulates such as moose, elk and deer, beaver and other furbearers, and, when composed of diverse flowering plant species, native pollinator species. Bull trout, a species listed as threatened under the Endangered Species Act, are present in the drainage but declining - maintaining and improving high quality habitat is a component of multi-part conservation efforts for the species. The project area includes bull trout critical habitat. The Sanders County Long Range Plan explicitly discusses the desire to improve wildlife habitat for both bull trout and cutthroat trout (pages 13, 14, and 24 of the Sanders County Long Range Plan).

The Bull River is listed by the Montana Department of Environmental Quality (DEQ) as impaired by sediment as well as 'physical substrate habitat alterations', affecting aquatic life and the cold-water fishery. The priority recommendation for addressing stream impairments in the Bull River drainage, identified in the Lower Clark Fork Tributary Watershed Restoration Plan, is to continue streamside revegetation efforts. The Sanders County Long Range Plan discusses the DEQ listing of the Bull River and discusses addressing these problems as well as improving riparian forest health on pages 7, 13, 14, 23, 24, and 25.

Many riparian habitat conditions suffer from the loss of native riparian vegetation due to historic uses such as logging, wildfire and land conversion to agriculture. Following human disturbances, invasive reed canarygrass has replaced native vegetation in many areas. The aggressive nature of reed canarygrass inhibits the natural regeneration of woody shrubs and trees, as well as native grasses, forbs, and reeds. Meanwhile, the invasive grass lacks the deep root structures needed to prevent excessive erosion of the river's banks which are highly susceptible to erosion during seasonal high-water events. Reed canarygrass' tendency to prevent the natural regeneration of native vegetation further degrades in-stream and riparian habitat for fish and wildlife. Reed canarygrass typically outcompetes all other vegetation creating a monoculture that is extremely difficult to control. In addition, reed canarygrass does not provide the amount of shade trees and shrubs are able to provide to the stream resulting in increased water temperatures.

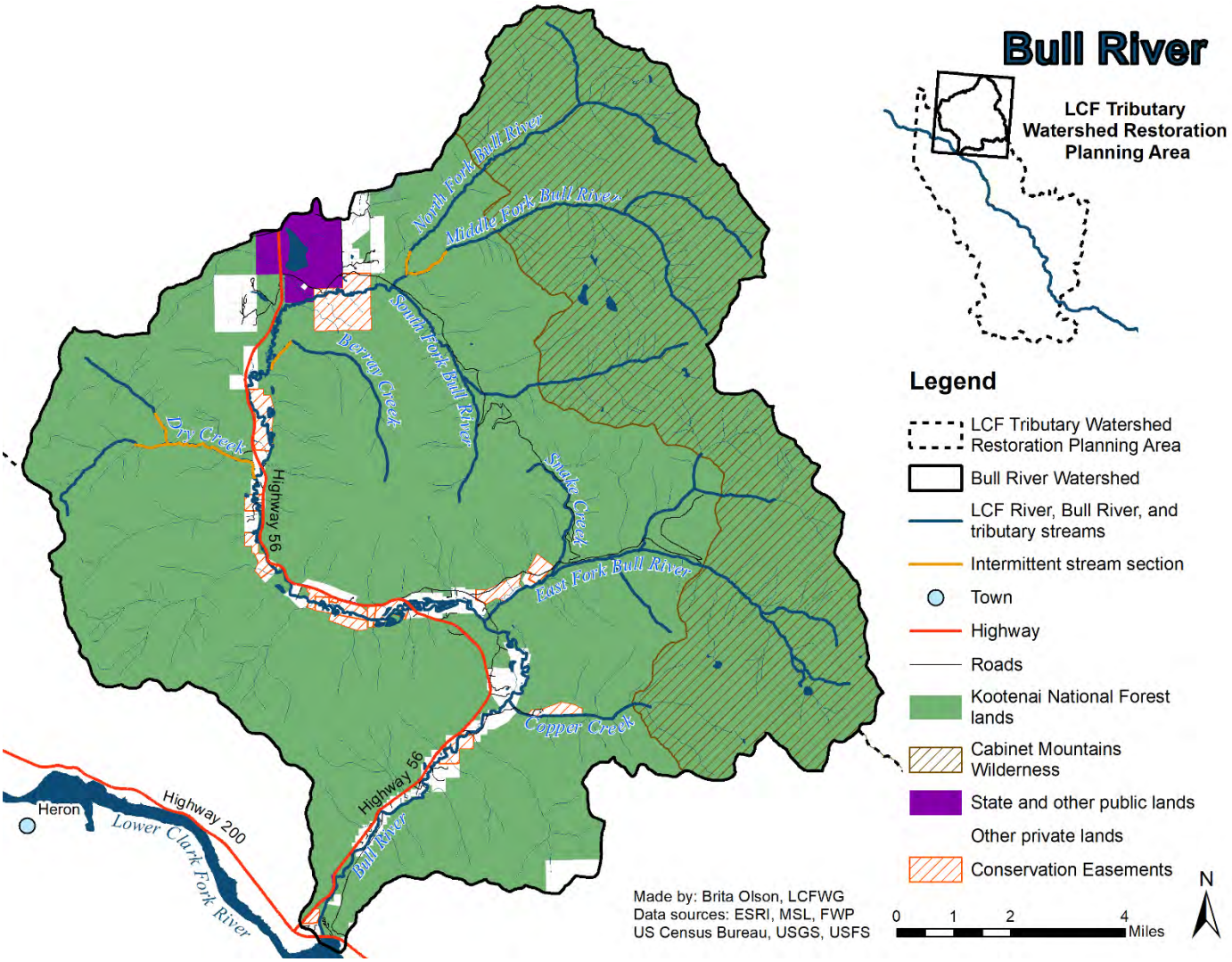


Figure 1: The Bull River drainage, located in Sanders County, MT. The boundary of this TIP is the Bull River Watershed, and the TIP applies to private property that has riparian areas within the drainage.

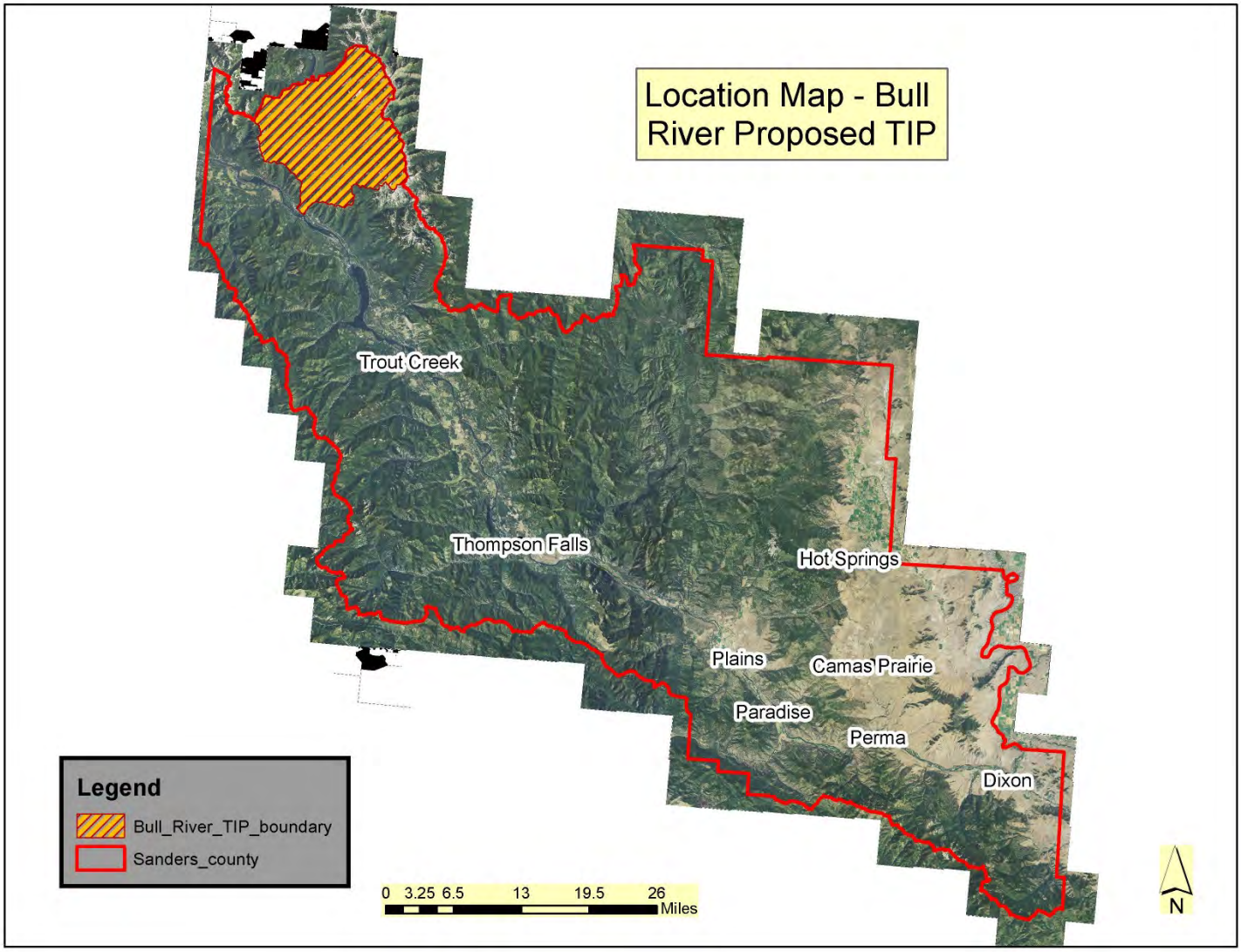


Figure 2: The Bull River drainage as located in Sanders County.

Goals and Objectives

The goals and objectives of this project will be completed jointly via the NRCS, GMCD and LCFWG. This project will be highlighted as part of a concerted outreach effort to engage the community and other landowners in the GMCD service area in supporting and getting involved in efforts to improve ecological integrity and resilience of riparian areas. The LCFWG and the GMCD are collaborating on an extensive outreach effort to educate and engage more landowners through direct mailings, improved online resources for landowners and the general public, and articles in the local media. The project will provide a positive example of the kind of work landowners can do with the help of the LCFWG, GMCD and the NRCS, and will help generate future projects with new partners.

This project will restore woody vegetation to streamside areas where it historically existed but often is currently dominated by reed canarygrass and/or other invasive species (such as spotted knapweed). We will work closely with landowners to develop the revegetation plan, purchase container plants - primarily conifers and black cottonwood. The restoration methods will involve plantings of small groups of individual trees. Plantings will be protected from browsing

beaver, deer and other wildlife with fencing and competition from reed canarygrass and other weeds reduced by mechanical removal (with hand tools) and placement of weed matting as needed. The LCFWG has established many plantings throughout the Bull River Valley in the last two decades and maintains revegetation sites to ensure the new plants are protected until they are mature enough to withstand browse and encroaching reed canarygrass without protection. Shading is a successful technique in reducing the competitiveness of reed canarygrass and has been shown to result in significant decreases in both above-ground and below-ground biomass of reed canarygrass. This technique has been successful in restoring native riparian vegetation along the Bull River over the years and is making incremental improvements to the overall health of this important ecosystem. Establishing deeply rooted native vegetation will reduce erosion, increase shade, and improve habitat for both aquatic and terrestrial species.

Treatments will include a variety of practices to establish or promote woody vegetation in the riparian area. The primary practice will be Riparian Forest Buffer (391) to establish appropriate woody vegetation in areas where it has been reduced or eliminated. Fence (382) will be used to protect woody vegetation from damage due to deer, elk, moose, and beaver. Tree Pruning (660) will be used only on western white pine in or adjacent to riparian areas to improve resilience to blister rust. Forest Stand Improvement (666) and Woody Residue Treatment (384) will be used to improve existing stands of woody vegetation within or adjacent to riparian areas. Herbaceous Weed Treatment (315) will be used to treat weed infestations. Plantings will typically consist of physically removing reed canarygrass with handtools, planting a tree (container or bare root stock), laying down 5 feet by 5 feet landscape fabric, and using t-posts and woven wire to exclude ungulates and beavers.

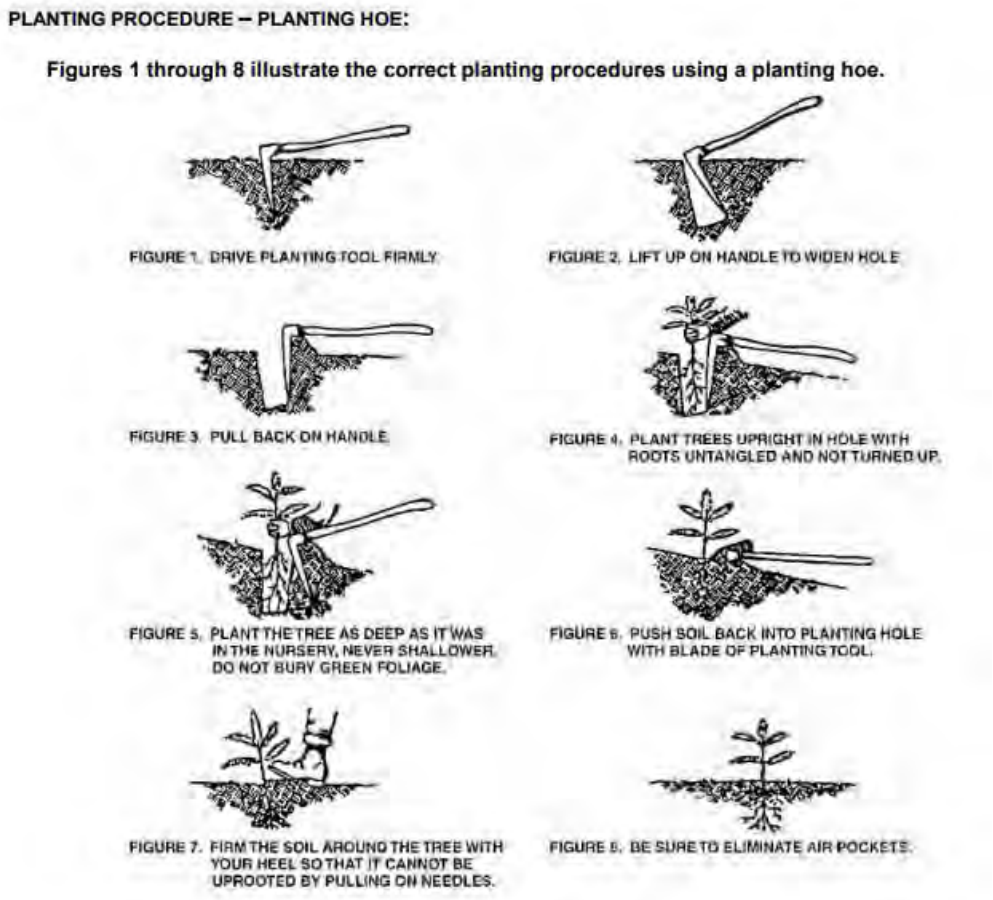


Figure 3: Typical procedure for planting trees.

In the following picture, you can see the individually planted trees as an example of work this TIP will accomplish. In the picture, these trees were planted and are being maintained by Lower Clark Fork Watershed Group.

Rough, preliminary, aerial estimates of river that potentially has reed canarygrass shows 10-15 miles of river that could be treated. This project aims to treat up to 7.5 miles of river which is the maximum that partner groups believe they can maintain at the current time. Various sources estimate the total river length at 25 miles. Therefore, roughly 40-60% of the river has the potential to have treatments, and we hope to treat 50-75% of the problem areas. This would result in the potential for 70-90% of the Bull River to meet NRCS planning criteria for identified resource concerns.

This TIP will address the following resource concerns:

- Plant: Structure and Composition – Primary Resource Concern
- Plant: Pest Pressure – Supporting Resource Concern
- Soil: Bank erosion, streams – Supporting Resource Concern
- Animal: Aquatic habitat for fish & aquatic organisms – Supporting Resource Concern

All of these resource concerns tie directly to the Sanders County Long Range Plan. Page 7 of the long range plan discusses water quality and the sedimentation problem in the Bull River. Pages 13, 14, 24, and 25 all discuss improving wildlife habitat, particularly for endangered and threatened species, such as bull trout and cutthroat trout. In addition, page 23 discusses the decline of healthy riparian forests.

As a direct result of the Roots for Rivers TIP, the Bull River Watershed will experience a decrease in the abundance of invasive reed canarygrass, an increase in the quality of riparian habitat for both aquatic and terrestrial wildlife, an

increase in carbon sequestration, and a decrease in sedimentation within the Bull River Watershed. In the long-term, the money utilized in this TIP will most likely result in an increase in bull trout and cutthroat trout thanks to the benefits of creating a healthy riparian forest instead of leaving the area as a monoculture of reed canarygrass. The project will also beneficially impact bird species, big-game, and other terrestrial wildlife. The changes this TIP has the potential to bring to the landscape will benefit recreational users and travelers in the Bull River watershed, providing a special place for future generations to experience.

Proposed Alternatives and Actions

1. Alternative 1: No action will occur. NRCS will not provide financial or technical assistance to restore woody vegetation to riparian areas in the Bull River drainage.

2. Alternative 2: The preferred alternative. Under this alternative NRCS will utilize the following practices to provide both technical and financial resources to restore woody vegetation in riparian areas: Riparian Forest Buffer (391), Fence (382), Tree Pruning (660), Forest Stand Improvement (666), Woody Residue Treatment (384), and Herbaceous Weed Treatment (315). This alternative will provide the greatest opportunity to improve the condition of riparian areas within the Bull River Drainage.

3. Alternative 3: Under this alternative, NRCS would utilize the following practices to provide both technical and financial resources to decrease the abundance of reed canarygrass and establish woody vegetation in riparian areas: Herbaceous Weed Treatment (315) combined with Prescribed Burning (338) and followed with Tree/Shrub Establishment (612). This alternative would require intensive management and would likely result in an increase in stream sedimentation. In addition, it would be very costly.

Alternatives will be analyzed in compliance with the National Environmental Policy Act (NEPA). All practices chosen for implementation will meet NEPA requirements. Special consideration will be given for practices affecting T/E species, such as Canada Lynx and Bull Trout, to meet all federal regulations and NRCS policy requirements. Any cultural resources present will be identified and avoided during the planning and implementation of practices involving any federal action.

Partnerships

This project is an outgrowth of ongoing collaborative efforts to restore woody vegetation along the Bull River, led by the LCFWG and the NRCS. This effort has the potential to be expanded through additional TIPs to include other riparian areas in the Green Mountain Conservation District, with support from many partners including Green Mountain Conservation District, Kootenai National Forest, Montana Fish, Wildlife & Parks, Avista Utilities, volunteers, and landowners. This work continues to be a priority for stakeholders throughout the watershed who recognize the long-term, multi-species and watershed level benefits of this effort.

The mission of the LCFWG is to facilitate collaboration among watershed stakeholders and to coordinate efforts to maintain, enhance and restore the ecological integrity of tributaries to the lower Clark Fork River. A key focus of the organization's work has and continues to be working with landowners to revegetate the Bull River with woody trees and shrubs. Likewise, GMCD's mission is to protect and enhance the natural resources of the district and to educate the public about natural resource concerns. This TIP is well-aligned with these partners' missions and will be well supported through this partnership.

The following partners will provide both direct and indirect assistance:

- Natural Resources Conservation Service – Plains Field Office
- Lower Clark Fork Watershed Group
- Green Mountain Conservation District

The Plains Field Office, Lower Clark Fork Watershed Group, and Green Mountain Conservation District have a long history of partnership coordinating on conservation efforts. LCFWG has served as a liaison between NRCS, Forest Service, MT Fish, Wildlife & Parks, MT DEQ, Avista Utilities, and Kaniksu Land Trust. GMCD would like to increase conservation technical assistance to community members by working with the LCFWG, which this NRCS TIP will help facilitate.

This partnership will provide 'boots-on-the-ground' assistance towards implementation of the TIP. NRCS personnel with appropriate Job Approval Authority will oversee these plans to ensure that they meet NRCS Standards and Specifications. NRCS job sheets will be completed for each practice.

GMCD will help with administrative services, grant administration, and storage. LCFWG will provide on-the-ground work, through employees and volunteers, in both the installation and maintenance of the practices. They will also help find and educate landowners on this TIP and how it can help conservation on their land.

Primary Resource Concern	Plant - Structure and composition
Additional RCs treated by the TIP	Soil - Bank erosion, streams
	Animal - Aquatic habitat for fish and aquatic organisms
	Plant – Pest Pressure
TOTAL Acres in the TIP Area (All Land Uses and Ownership)	90,942 ac
Total Acres Private Lands	5,807 ac

Implementation and Outreach Efforts

TIP Treatment Acres by Land Use	Units	FY22	FY23	FY24	FY25	FY26	Total
Acres of Forest Planned	Acres	50	50	50	50	50	250

TIP OUTCOMES

Describe TIP Outcome(s)	Units	FY22	FY23	FY24	FY25	FY26	Total Treated
Restore woody vegetation component of riparian forest	Number of plantings	250	250	250	250	250	1,250
Increase roots in the riverbanks thus decreasing sedimentation	Miles of eroding banks treated	1.5	1.5	1.5	1.5	1.5	7.5

PARTNERSHIPS

Partners	Services, assets or assistance provided
Green Mountain Conservation District	Outreach to landowners and oversight of Lower Clarkfork Watershed Group's partnership.
Lower Clarkfork Watershed Group	Outreach to landowners. Management of restoration activities including planting, maintenance and landowner communications.

Estimated Partnership Leverage	FY22	FY23	FY24	FY25	FY26	
Green Mountain Conservation District TA	$1,800	$1,800	$1,800	$1,800	$1,800	$
Lower Clarkfork Watershed Group TA	$30,480	$30,480	$30,480	$30,480	$30,480	$

BUDGET INFORMATION

Conservation Program(s)	EQIP

NRCS	FY22	FY23	FY24	FY25	FY26	
Estimated FA	$25,000	$25,000	$25,000	$25,000	$25,000	
Estimated Number of Contracts	10	10	10	10	10	

It is estimated that implementation of this TIP will require $125,000 in total from NRCS over the course of five years. Total financial obligations will be dependent upon the practices contracted and the extent of the contract practices; the chosen suite of practices will be dictated on a site-specific basis. Some contracts will require only riparian forest buffer

and fence practices while other may need forest stand improvement, woody residue treatment, and tree pruning practices to fully treat riparian woody vegetation for maximum benefit. It is expected that different riparian areas will require unique combinations of conservation practices in order to accomplish restoration objectives.

Screening and Ranking

Screening tools and ranking questions will be used to prioritize areas within the work unit based upon interest levels of potential applicants as well as the priorities of our partners.

Potential Ranking Questions:

1. Is the riparian area lacking woody vegetation and/or dominated by nonnative species, such as reed canarygrass, other pasture grasses, or noxious weeds?
2. Is the adjacent stream TMDL listed?
3. Is the adjacent stream perennial?

Screening:

- Reference Montana NRCS Bulletin MT300-21-08, attached to this document

Progress Evaluation and Monitoring

Evaluation and monitoring will take place on an annual basis. NRCS and LCFWG will analyze interest levels, implementation rates, and staff availability to plan and direct workloads. Each contracted practice will be overseen by field office staff with certifications being made upon completion, contingent on practices meeting NRCS standards and specifications. Progress will be recorded in Conservation Desktop or other appropriate databases.

After practices have been implemented and contracts complete, LCFWG and landowners will monitor and maintain plantings. LCFWG and GMCD have the capacity to seek funding through the Avista settlement agreement and state agencies, and NGOs for project monitoring and maintenance.

Progress towards achieving this goal will be measured by calculating the total linear feet of treatment. Each enrolled property will be monitored for success using photo-points with photos taken before planting and subsequent monitoring 1 year after planting, 3-years after planting and 5-years after planting.

References:

Land and Water Consulting. 2001a. Bull River Watershed Assessment: Lower Clark Fork River Drainage, Noxon, Montana. Report of Bull River Watershed Council, Heron, Montana. Land and Water Consulting, Inc., Kalispell, Montana.

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