#3

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Q1

Chapter Number & Name (Example: 123 - Smith Creek Chapter)

024 - Madison-Gallatin Trout Unlimited

Q2

State

Montana

Q3

First Name

Sarah

Q4

Last Name

Clark

Q5

Email Address

mgtroutunlimited@gmail.com; sarahjshelley@gmail.com

Q6

Phone Number

Chapter: 406-219-7691 Personal: 406-570-7417

Q7

Chapter Volunteer Role

President

Q8

Project Title

Brackett Creek Habitat Improvement and Erosion Control

Q9

Project Location (stream, watershed, GPS coordinates if possible)

Brackett Creek, Shields River watershed, 45.87257, -110.72417

Q10

Salmonid Species Impacted and Threatened/Endangered Status (if applicable)

Yellowstone Cutthroat Trout (Montana Species of Special Concern)

Q11

Please indicate which conservation strategy your project best fits:

Restore (Watershed and habitat restoration projects, policy to provide restoration incentives and funding etc...)

Q12

Amount Requested from Embrace A Stream

$10,000

Q13

Project Timeline

Anticipated Start Date **10/01/2023**
Anticipated Completion Date **05/31/2024**

Q14

Has chapter received EAS funds before?

No

Q15

In 300 words or less, please note the project name and location, name of the applicant to chapter or council, amount requested, matching funds available, background or purpose of the project, goals and objectives, proposed actions or methods, anticipated scope of impact, and partners. The executive summary should be brief and to the point. The EAS committee will refer to it frequently during the review process.

The Madison-Gallatin Trout Unlimited Chapter (MGTU) is partnering with TU National staff and the Joe Brooks Trout Unlimited Chapter (JBTU) to complete the Brackett Creek Habitat Improvement and Erosion Control project (45.87237, -110.72141). Brackett Creek is a tributary of the Shields River in Park County, Montana and provides vital cold and clean water to the frequently dewatered Shields. Keeping Brackett Creek healthy ensures the protection and survival of populations of native Yellowstone cutthroat trout, wild brown trout, and other species that utilize the creek and riparian corridor. Historic agricultural use has caused instability and excessive bank erosion in the creek, contributing to excess fine sediment, a lack of deep pool habitats, and high potential for future habitat degradation. This project requests $10,000 from EAS, with $166,511 in matching funds (including in-kind work and materials) to prevent further bank erosion, increase watershed resilience, improve floodplain connection, and protect and improve wild and native fish habitat.

Proposed methods include installing a composite wood toe treatment in conjunction with constructed bankfull benches to create a stable bank margin. A composite matrix of live and dead wood stems will be compacted at the toe of the bank and backfilled with native alluvium, eventually breaking down over time. This process of degradation will support long-term stability of Brackett Creek by encouraging the growth of mature, native vegetation. The bankfull bench will provide favorable hydrology for re-establishing a riparian buffer, expanding the flood prone area, reducing bank height, and minimizing bank loss due to gravitational collapse. Along with these methods, removal of the wooden bridge will relieve channel constriction and related excess bank stress. With success in decreasing bank erosion, we expect to see higher quality spawning gravels and habitat and, consequently, greater native Yellowstone cutthroat trout presence in both Brackett Creek and the Shields River.

Q16

In 1000 words or less, describe the issue or opportunity being addressed. If applicable describe project location, including name of water body and salmonid species. Please show how this issue or opportunity has other regional or national significance. If the project is part of a TU national initiative, please explain the extent of coordination with TU national staff. If this project has received EAS funding in previous years, please provide a brief update on progress to date.

Brackett Creek is a tributary of the Shields River that supports a population of native Yellowstone cutthroat trout and provides cold, clean water to the frequently dewatered Shields. Due to historic land use practices and an undersized wooden bridge that constricts the channel, the portion of Brackett Creek on the 505 Ventures Ranch has a high level of instability and many high, eroding banks which contribute excess fine sediment to the channel, limit deep pool habitats, and create potential for further channel degradation and habitat loss. These impairments are typical of current conditions throughout Brackett Creek, and various landowners along the creek have implemented restoration projects aimed at stabilizing banks and reducing sediment input (Bockmon and Endicott, 2016). The purpose of this project is to increase watershed resilience, improve floodplain connection, and protect and improve wild and native fish habitat by decreasing bank erosion using a combination of stable channel geometry, native vegetation, and other “soft” techniques. These methods will lead to, improved fish habitat for native Yellowstone cutthroat trout, a Montana species of special concern; increased flood resiliency through improved floodplain connections and deep-rooted vegetation; and reduced non-point source sediment input into Brackett Creek, which ranks in the top ten for sediment intensity from streambank erosion in the Shields watershed, (Shields River Watershed Restoration Plan).

The current channel instability in Brackett Creek is the result of a variety of historic use factors. Prior to the 1990s, the stream was channelized into a straight, single-thread channel that was confined along the base of the county road on the northern edge of the valley bottom. The stream was restored to its historic channel in the 1990s, but haying operations continued on both sides of the stream. Haying up to the edge of the channel caused shallow-rooted grasses to replace deep-rooted, native vegetation in the riparian zone, leaving the banks vulnerable to erosion during high flow events. This project will remove the constriction caused by the bridge and allow the channel to function more naturally, create or enlarge vegetative buffers along the existing hayfield on the south side of the channel, and reduce instability and erosion by using stable channel geometry and native vegetation to increase bank stability.

Bank erosion has been identified as one of the primary limiting factors for native Yellowstone cutthroat trout in Brackett Creek, and eroding banks contributing fine sediment are widespread on private lands along the creek (Endicott et al., 2012). Excessive fine sediment fills the interstitial spaces between larger channel substrate such as gravels and cobbles, decreasing oxygen availability in coarse substrate and impacting trout populations by limiting spawning and invertebrate habitat. In a 2002 study, Confluence Consulting found a limited number of young-of-the-year native Yellowstone cutthroat trout in Brackett Creek. Their report posited that the low numbers were due to poor spawning habitats caused by a high level of fine sediment (Endicott et al., 2012). Decreasing bank erosion in the project reach will improve spawning gravels in the reach, and potentially in downstream reaches as well. This should catalyze an overall increase in the Brackett Creek and Shields River native Yellowstone cutthroat trout population in the long term. Additional long-term benefits from this project will include enhanced overhead cover and potentially decreased summer water temperatures due to overhanging branches and shade from mature riparian vegetation.

This project is designed to improve overall watershed health and resiliency beyond fish habitat. Fortunately, what is good for the fish is typically good for the watershed, and this is the case in Brackett Creek. The landowners and Trout Unlimited are committed to the health of Brackett Creek and the Shields River watershed, as demonstrated through a TU water lease held for over a decade near the project reach with these same landowners. This project aims to build on the instream flow improvements and remedy the causes of the channel instability and erosion, thereby restoring natural function and processes to the stream and improving overall stream health and resiliency.

The Shields River at the confluence with Brackett Creek is chronically dewatered, which results in high mid-summer water temperatures. Through restored habitat, streamflow, and water quality, Brackett Creek provides thermal refuge and spawning habitat for Shields River fish populations. By decreasing erosion and increasing riparian vegetation, this project will benefit other aquatic and terrestrial species. Aquatic invertebrates will benefit from improved habitat in interstitial spaces and increased leaf litter and other detritus in the stream, birds will benefit from increased habitat and food availability in the form of insects and fish, and mammals such as beaver, deer, moose, muskrat, and bears will benefit from improved habitat and forage. This project leverages improving fish habitat as a means to improve all aspects of the riparian system and increase overall watershed health.

MGTU is partnering with National TU to complete this restoration project. The project is managed by the National TU Upper Yellowstone and Shields Rivers Project Manager, and this project falls within TU’s identified Priority Waters. TU volunteers will also be essential in completing the project and will be used to cut and bundle willows and plant willow stakes and other bare root or containerized plants as part of the post-construction revegetation effort.

Q17

In 350 words or less, briefly describe the purpose of the project, resulting benefits for cold water conservation and the TU organization, including scope of impact. Also describe any economic benefits that will result from your work. Please be sure to note: The overall goal of the project (e.g. restore critical habitat for a certain species of endangered salmonid, build a local constituency to promote protection of a certain resource, improve the scientific understanding of an issue to improve river or fishery management etc..) List the specific conservation objectives for the project (e.g. restore X amount of habitat by Y method, educate X number of people through Y means, fill X information gap through Y research methods, influence local or state governing body to adopt X policy/law to protect Y habitat or fish etc…) List the specific TU strengthening objective for the project (e.g. recruit X new leaders or members by method Y, develop an actionable plan for a conservation campaign, increase TU coverage in local media by X% etc…)

By rehabilitating Brackett Creek to a more naturally functioning state, we will improve habitat and spawning gravels for native and wild trout, decrease non-point source sediment input into the creek and downstream to the Shields River, restore floodplain connectivity, and increase watershed resiliency in the Shields River watershed. This project will preserve and improve 0.7 miles of native Yellowstone cutthroat trout habitat and improve spawning habitat throughout and downstream of the restoration reach by decreasing fine sediment input to the creek.

Volunteer participation will be crucial to get this project over the finish line, and we will recruit approximately 30 volunteers to assist with willow cutting, bundling, and plantings. Special focus will be paid to engaging the local TU Costa 5 Rivers club at Montana State University and other student groups in support of this project. Through this participation, we will strengthen and broaden TU's impact in the community.

Q18

In 500 words or less, describe the actions or methods you will use to implement your proposal. Make sure to include plans for implementing both the conservation and strengthening TU objectives. If applicable explain the scientific or technical methods utilized in the project. Note if the project uses innovative or unique solutions to address fisheries problems or if the results can be transferred elsewhere. Please also include: A timeframe or schedule of when major activities will occur, including a list of any permits that will be obtained.The role of TU leaders, volunteers, or staff in the project and the names and qualifications of key participants. EAS projects require TU volunteers have significant involvement.An outreach plan to disseminate project results to TU, project partners, and especially the general public.A description of how you will measure or evaluate project outcomes. Explain the scientific or technical methods used to evaluate project results, including the indicators (an indicator is a specific, measurable target or goal) for project success. Grant recipients will be required to evaluate the outcomes of their projects by measuring these indicators before and after their project.

To reduce erosion and excess fine sediment flowing into Brackett Creek and the Shields River, this project will remove the wooden bridge constricting the channel and use a wood toe treatment along with constructed bankfull benches. The wood toe treatment and bankfull benches will work together to establish a more stable bank margin. The bankfull benches will help to provide favorable hydrology for establishing riparian vegetation, expand the flood prone area, reduce bank height, and reduce bank loss due to gravitational collapse. Installation of a matrix of live and dead woody stems, backfilled and compacted with native alluvium, will provide near term stability. Over time, as wood materials degrade, mature, native vegetation will secure long term stability. The project is currently in the planning and design stages, with construction scheduled to begin in late fall 2023, and revegetation work closing out the project in spring 2024. Required permits will be sought mid-summer and will include a Montana Natural Streambed and Land Preservation Act (310) permit, a Federal Clean Water Act (404) permit, and a County Floodplain Development Permit.

This project is a collaborative effort between two local TU chapters (MGTU and JBTU) and National TU. Ashley Brubaker, the Upper Yellowstone and Shields River Project Manager for TU National is the project manager. She is coordinating with other TU staff in the following ways:

- Connor Parrish, Gallatin Home Rivers Initiative Project Manager – general project coordination and assistance.
- Pat Byorth, Montana Water Director – general project coordination and assistance.
- Haille Johnson, Restoration Intern – project assistance including pre-implementation monitoring, volunteer coordination, field work.
- Libby Glasser, TU Costa 5 Rivers Coordinator – Coordinating volunteers from Montana State University TU Costa 5 Rivers Club.
- Zoe Bommarito, Montana West Communications Director – Project communications, outreach, and storytelling.

Outreach strategies include highlighting the project through the MGTU and National TU media outlets (social media, blog posts, newsletters), and through site tours with the local watershed groups and partner organizations. Further details are provided in the Communications Plan below.

A project monitoring plan is under development. Pre-project data will be collected in the forms of bank erosion hazard index surveys and establishment of photo monitoring points. The project will be monitored for several years after implementation and will be maintained as necessary. After the monitoring period, the landowner will work with TU for any more required maintenance.

Q19

List at least 3 local media outlets you will contact (print, tv, radio online, social)

The emphasis on communication surrounding this project will be to highlight both successful stream restoration and productive collaboration between landowners, agricultural stakeholders, and Trout Unlimited. Media outlets that will be contacted include the Bozeman Daily Chronicle, The Livingston Enterprise, and Yellowstone Public Radio.

Q20

In 500 words or less, provide a brief outline for how the applicant will broadcast information about the project and EAS awards to their local community. A robust communications plan will include press releases, social media posts, website updates, project location signage (temporary and permanent) and more. We ask that successful applicants submit no fewer than two updates through the course of the EAS funded project to TU suitable for sharing in our social media and emails.

In addition to the media outlets listed above, this project will be shared with the local community through multiple outlets and events. MGTU will share the project and EAS award in the newsletter, which reaches 1,560 people, and the project manager plans to share both at a chapter meeting in early 2024. The project will be shared widely on social media, including Instagram posts on @mgtroutunlimited (1,784 followers) and @yellowstone_tu (297 followers), and posts on the Madison-Gallatin Facebook page (1,200 followers). The project manager is currently working with the Trout Unlimited Mountain West Communications Director to create and share stories around local restoration projects, including Brackett Creek. This project is a great example of collaboration between local TU chapters and national staff and would be an excellent post for the TU blog.
The Brackett Creek habitat enhancement and erosion control project has been prioritized as part of an effort to gather and rank potential stream restoration projects in Park County and is one of the first of these projects scheduled for implementation. Accordingly, this project will showcase our work and highlight the benefits to landowners of working with TU to repair streams. The project will be highlighted on the project prioritization website, which is currently under construction.

Q21

In 500 words or less, provide a brief description of community awareness and education events the chapter will host at the project site or related to the project. Examples of community awareness and engagement events include: A public site visit before and/or after construction A Zoom program with partners inviting the public to learn more about the work and the resource being restored PowerPoint presentations made to local civic organizations such as garden clubs, land trusts, Kiwanis, Rotary, Lions and others etc

Site tours will be an important way this project is shared with the public and are part of a greater effort currently underway in the Yellowstone and Shields watersheds to build momentum around stream restoration. Project tours will be scheduled as part of the project prioritization effort in collaboration with the Shields and Upper Yellowstone watershed groups and the Park County Conservation District. The project will also be presented to MGTU and JBTU, and in watershed group meetings. TU also collaborates locally with many other NGOs, including Montana Freshwater Partners, The Gallatin Valley Land Trust, and the Greater Yellowstone Coalition, and will offer site tours or presentations to these groups.
In addition to project tours, the Brackett Creek project will provide opportunity for educational events in the form of volunteer engagement. Volunteers will be needed during project implementation to cut willows and create willow bundles to use in the composite wood toe, and again the following spring for revegetation plantings. Hands-on volunteer opportunities have proved successful in engaging TU members and community members who are interested in TU, but who do not regularly attend meetings. Providing a hands-on activity that supports coldwater habitat conservation but that does not focus on fly fishing or tying opens the door to people who are reluctant to attend chapter meetings. This also provides opportunities to engage the local TU Costa 5 Rivers club at Montana State University, and other local college groups such as Backcountry Squatters, a group “dedicated to growing women + non-binary folks participation, leadership, and representation in the outdoor industry and community.”

Q22

Upload Your EAS Budget (Budget template available at www.tu.org/eas - be sure to save your final budget as a PDF before uploading.)

Embrace-A-Stream-2023-MGTU.pdf (151.6KB)

Q23

Letters of Support (Upload all letters of support as one merged PDF file. At the LEAST you MUST have a letter of support from 1) the chapter president, 2) the council chair, 3) the sponsoring professional, 4) the landowner of the property where the work is taking place. Chapters are encouraged to have letters of support from partner organizations, state and local agency partners and TU staff involved in the project.)

Embrace-A-Stream-Proposal-MGTU_LOS.pdf (289.2KB)

Q24

Supporting Documents (Upload all supporting documents as one combined PDF file. These may include site images and descriptions, final or conceptual project plans etc...)

EAS_MGTU_photographs%20and%20conceptual%20designs.pdf (12.4MB)