



Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Upper Missouri River Breaks National Monument Cottonwood Restoration Project

Date: 10/30/2021

Explain how this Project addresses a specific Project 2188 License Article(s): This project continues to address License Article 423, which requires development of a vegetation and wildlife monitoring and enhancement plan for the 2188 Project area. Project 2188 Wildlife Plan dictates that funds will be provided for protecting, restoring and enhancing riparian habitats which are all direct impacts of this project.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

Priority 1 for Project 2188 dictates that direct benefits to wildlife or wildlife habitat in the region between Hauser Reservoir and Fort Peck Reservoir are demonstrated by the project. This project is located directly in the riparian corridor of the main stem of the Missouri River above Fort Peck Reservoir and below Hauser Reservoir. By enhancing diminishing cottonwood galleries within this corridor, the project directly impacts and improves wildlife and their habitat. Conducting a feasibility study of current and potential sites and the continued maintenance of past planting sites will increase and bolster these positive impacts on wildlife populations and habitats in the region.

Project Sponsor (submitted by): Friends of the Missouri Breaks Monument, in partnership with the Bureau of Land Management (BLM).

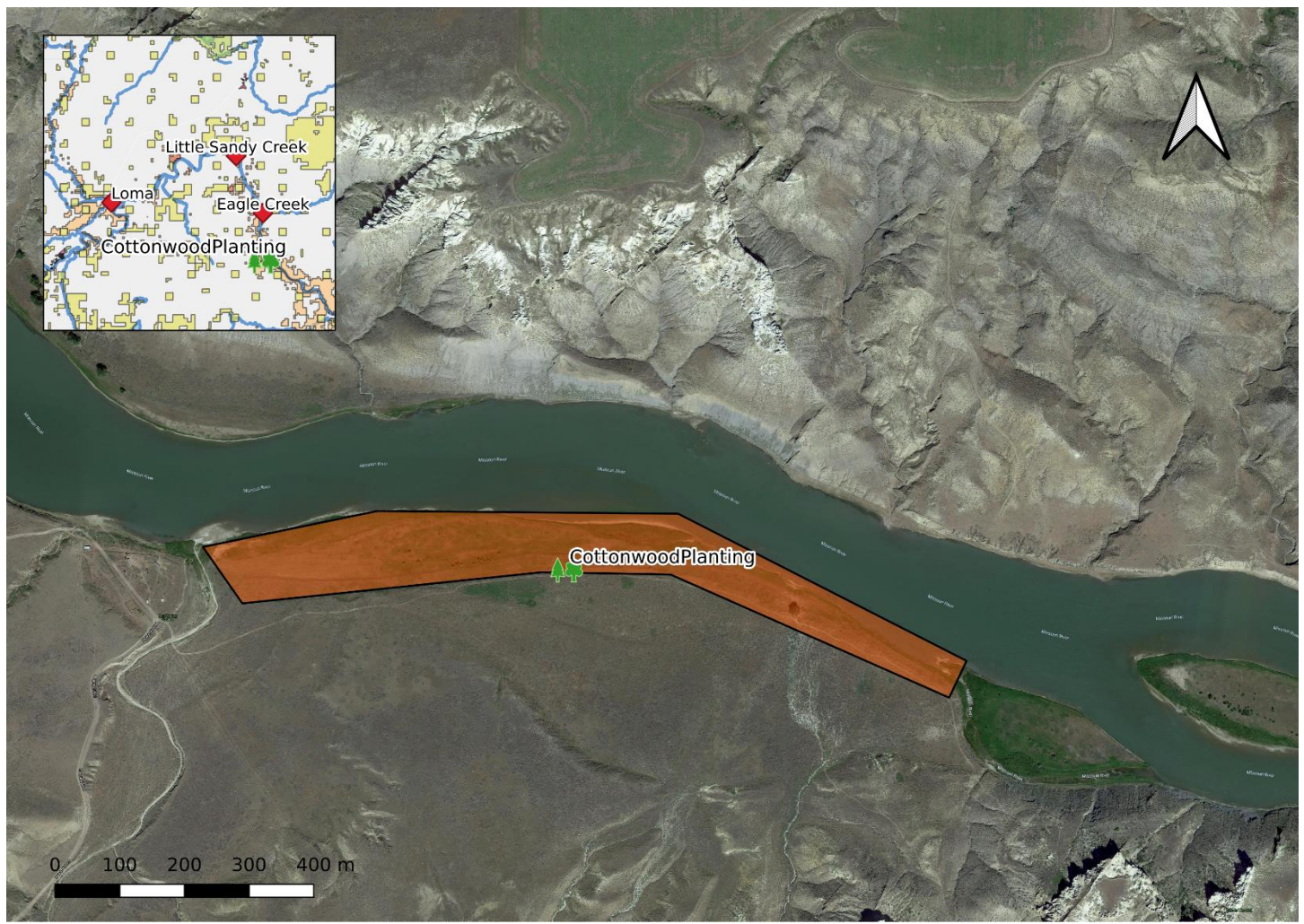
For the past six years this cooperative team, with financial support of NorthWestern Energy and other funders, has held annual planting events culminating in a total of 880 cottonwood trees planted along the banks of the Missouri River.

Location of Proposed Project: In 2022, the cottonwood restoration will take place on public lands within the Upper Missouri River Breaks National Monument administered by the BLM.

After working with the BLM hydrologist for the Monument on plans for the 2022 planting, the area near Hole in the Wall campground at river mile 63 was identified as the most effective and logistically sound site. The Hole in the Wall planting site is near one of the several designated campground areas within the Wild and Scenic designation of the Missouri River and within Monument boundaries between river mile 62 and river mile 64. Access available via river and limited access is available via the primitive and private Hole in the Wall road. The site is within the Mud Creek Coulee expanse, which generates volunteer cottonwoods and willows yearly. This property is managed by the Bureau of Land Management and its topography will allow for a larger planting to be conducted with room for more than 130 trees.

We will also be continuing evaluation of the planting site at Pablo Rapids Primitive Campground (Figure 2), at river mile 72.3L of the Wild and Scenic designation. This site has proven to be logistically difficult to conduct a planting on due to access issues for the drilling equipment and low water levels in 2021 made shuttling materials to the site via jetboat impossible for a majority of the available season. It may be considered as a 2022 planting site depending on the results of the site survey this fall or early spring as the BLM is highly motivated to see the location planted.

As always, the Friends plan all projects with the mindset that modifications may have to be made due to weather conditions and access to sites. The Breaks can be a challenging landscape to work in and all project planning is done with alternate dates built into the calendar. If adjustments are necessary the consequent changes will be communicated to NorthWestern Energy and all other relevant partners and stakeholders to ensure project transparency.



Geocode (in decimal degrees ex 46.89743) Lat: 47.81941971834259 Long: -110.0549191821864

Total Project Cost: \$54,670

TAC Funds (Cost-Share) Requested for Project: \$20,000

- I. Introduction; brief statement of project to be completed with pertinent background information.
Riparian zones comprise less than 1% of the total land area within the Upper Missouri River Breaks National Monument, yet they support the majority of mammal species, and are home to more bird species than all other area habitats combined. Plains cottonwoods (*Populus deltoides* subsp. *monilifera*) are the most vital species of the monument's riparian zones. The cottonwoods provide vertical structure to the largely flat and homologous landscape, which thereby creates niches that are not found in any of the other surrounding habitats. Consequently, cottonwoods provide the area with greater species richness and are directly correlated with the overall biodiversity of the entire monument. Without the plains cottonwood, much of what makes the Breaks a naturally wonderful place would not be possible, and because of this the cottonwood is truly a keystone species within the monument's entire ecosystem.

The dependence of the monument's ecosystems on cottonwoods is similar to the overall dependence cottonwoods have on river conditions for completing their natural life cycle. Cottonwood regeneration is highly reliant upon spring flooding, as the trees' reproductive strategies depend upon bare alluvial soil for successful germination of their seeds. Unfortunately, with changed flood regimes cottonwoods along the Wild and Scenic-designated stretch of the Missouri River are no longer regenerating at a sustainable rate. If this current trend is left unchecked, the riparian habitats that cottonwoods support, and that nearly all wildlife in the area depends upon, will likely be lost or at best remain in only a small fraction of the area they now cover. Therefore, the Friends of the Missouri Breaks Monument and the Bureau of Land Management have undertaken an ambitious project to mimic natural regenerative forces and plant native cottonwood cuttings within imperiled riparian zones.

- II. Objectives; explicit statement(s) of what is intended to be accomplished.
The primary objective of this project is to establish a new generation of cottonwoods within key riparian zones of the Upper Missouri River Breaks National Monument. Presently over half of the monument's cottonwoods are over 70 years old and lack a viable replacement generation. If cottonwoods disappear from the area's riparian ecosystem, the wildlife populations within the monument will be severely detrimentally impacted. Nearly all wildlife species in the region, from amphibians to mammals, depend upon the trees to provide shelter, food or both.

On a more anthropological scale, these projects allow the Friends of the Missouri Breaks Monument, a conservation-minded organization, to work with the BLM and continue to advocate for locally responsible stewardship of our public lands. It is also an effective and educational way to get local community members engaged with their surrounding landscape by generating at least 2 days of volunteer work to cut, plant, and maintain the cottonwoods within the Monument boundaries.

- III. Methods; description of how Project objectives will be accomplished.
After multiple years of planting cottonwoods along the Upper Missouri River, the Friends and BLM have learned many lessons, both good and bad, that have shaped our current planting and maintenance procedures. The most important aspect of the project is location. If trees are planted too low on the bank, they are almost always scoured away by winter ice flows, but if they are planted too high on the bench, the trees' roots rarely reach the water table and they perish in the semi-arid climate. Because of these restraints, we have learned to plant the trees at approximately the same distance from the water's edge as the previous cottonwood groves begin. However, even at this location the average depth of the water table is anywhere from eight to 12 feet below ground. To combat this, we have developed a planting technique that has allowed the trees to reach the water table approximately two years after their planting. Our established technique requires holes dug to a depth of five feet, with a diameter of eight inches. By drilling a hole for the trees we shorten the distance to the water table to an average of three to seven feet, a much easier distance for roots to cover than the full eight to 12 feet.

For the past four years we have collected cottonwood cuttings from a private ranch on Arrow Creek, a tributary of the Missouri River and a section of the National Monument. Together with each cottonwood cutting we place an eight-foot PVC pipe with perforations on the bottom 12 inches in each hole. Once both the cottonwood cutting and PVC pipe are in the hole, it is then backfilled with a mud slurry and concentrated root growth hormone. At this point the final step of the planting is erecting a protective fencing with t-posts and field wire fencing around each of the young trees to protect from cattle grazing and hungry beavers.

In comparison with many other standard planting techniques, this is a highly complicated process. However, this method has been developed to remove many of the problems that have plagued past attempts to establish cottonwoods in semi-arid environments similar to that of the Breaks. The primary problem is lack of water. To combat this problem we plant in the deep holes, as has previously been discussed, but we also have found that seasonal watering through the trees' first two summers has increased survivability by more than 100%. After two trial plantings in 2013 and 2014, with each planting producing dismal survival rates, the Friends hired seasonal workers to water the young trees in the hottest summer months. Seasonal workers draw water from the Missouri River directly into the PVC pipes and down to the young roots. The PVC pipes allow for water to be delivered directly to the lowest point of the cottonwood cutting, which encourages root growth to be stimulated and strongest at the point closest to the natural water table. Following two years of watering the trees are able to meet their own water requirements and have shown to be exponentially more successful than other planting projects throughout the West without summer watering.

IV. Schedule; when the Project work will begin and end.

Much of this project's early steps are weather-dependent, as the roads and environment of the Breaks can be treacherous during spring rain events. Cutting and planting must occur while the cottonwoods are still in their winter dormancy, which generally lasts until the middle of April. Tentatively, individual planting site identification, drilling and cutting of cottonwood shoots will take place in early to mid-March with some of the scouting scheduled to take place this fall. The planting events will take place within three weeks of the cuttings, around the middle of March to early April. Following the planting, the trees will receive their first watering in early May, followed by another watering toward the end of the same month.

During the hottest summer months, June-September, seasonal workers and volunteers from the Friends will be watering the trees on a weekly basis while also completing other land stewardship-related projects along the river's riparian corridor. At the end of the summer season the Friends' staff and volunteers will perform an end-of-year river trip to complete mapping end-of-season inventories and additional project completion duties. The Friends' Big Sky Watershed Corps Member will also conduct future site feasibility studies in collaboration with BLM staff throughout the field season from May until September in an effort to identify the planting schedule for the next three to five years while also taking inventory of additional sites that may be added to sites included in a new EA to continue successful cottonwood restoration along the Missouri River corridor. The remaining five sites identified in the initial EA for the project including Holmes Council, Murray Dugout, Pablo Rapids, Coal Mine, and Boiler Bottom.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

Work on the cottonwood project will be completed by different people and groups at certain periods of the project's timeline. The first aspect of the project will be carried out by Friends and BLM staff to identify individual planting sites for each tree and subsequently drill the planting holes. After the holes are dug, the next step will be collecting cottonwood cuttings and delivering the cuttings and planting supplies to each planting site. This work will be done by Friends staff and volunteers. Volunteers from the Friends will do most of the labor in planting the young cuttings, under the guidance of staff from both the Friends and BLM. Post-planting watering and maintenance of trees, including those planted in 2020 will be performed by seasonal workers hired by the Friends. The project lead will be Mikayla Moss, Executive Director for the Friends of the Missouri Breaks Monument, with assistance from Sean Williams, BLM Lead Project Ranger based in Fort Benton, and Bonny Richards, BLM Hydrologist based in Lewistown.

VI. Project budget must include amounts for the following:

- Direct Labor
- Travel and Living
- Materials
- Other Direct Expenses
- Direct Overhead*
- All cost-share sources and amounts, including estimation of “in-kind” contributions

Personnel Costs	NWE Grant	Match Funds	Total Cost
Executive Director	\$2,940.00	\$6,480.00	\$9,420.00
Big Sky Watershed Corps member	\$6,080.00	\$6,080.00	\$12,160.00
Conservation Technicians	\$6,000.00	\$6,000.00	\$12,000.00
Total Personnel	\$15,020.00	\$18,560.00	\$33,580.00
<i>9 weeks of work for the ED, 18 weeks of work for BSWC member, 2 MCC conservation interns</i>			
Travel Costs	NWE Grant	Match Funds	Total Cost
Lease of work truck	\$2,500.00	\$4,000.00	\$6,500.00
Car rental/shuttle cost	\$1,560.00	\$1,600.00	\$3,160.00
Gas for truck and car rentals	\$920.00	\$2,660.00	\$3,580.00
Total Travel	\$4,980.00	\$8,260.00	\$13,240.00
<i>Work truck for travel to and from watering of trees, rentals for volunteer planting events</i>			
Equipment & Supply Costs	NWE Grant	Match Funds	Total Cost
Site specific equipment	\$0.00	\$3,350.00	\$3,350.00
Total Equipment & Supply	\$0.00	\$3,350.00	\$3,350.00
<i>After six years of use much of the gear needs to be replaced (pump, hoses, PPE). This also includes the costs of equipment for the planting event itself (wire cages, t-posts)</i>			
Subtotal Direct Costs	\$20,000.00	\$30,170.00	\$49,390.00
Indirect Costs	NWE Grant	Match Funds	Total Cost
Friends Overhead Summer Expenses	\$0.00	\$4,500.00	\$4,500.00
Total Indirect Costs	\$0.00	\$4,500.00	\$4,500.00
Total Costs	\$20,000.00	\$34,670.00	\$54,670.00
	36.58%	63.42%	100.00%
*Match funds from BLM assistance agreement and various foundation grants			

Friends Volunteer Hours	Time per Individual	Rate	Total In-Kind
-5 Volunteers for cutting	2 hours	\$25.43	\$254.30
-35 Volunteers for plantings	5 hours	\$25.43	\$4,450.25
-15 Volunteers for late season watering	30 hours	\$25.43	\$11,443.50
-15 Volunteers for past site cleaning	30 hours	\$25.43	\$11,443.50
Total In-Kind Contributions			\$27,591.55

***NorthWestern Energy TAC funds will not be used for agency overhead on projects that do not fund personnel. Applications for materials and equipment should not contain overhead.**

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will “success” for this project be monitored or demonstrated?
 At the terminus of the project completion date, close to 140 new cottonwood saplings will be planted and protected within the Upper Missouri River Breaks National Monument. The project will have generated over 65 volunteers each contributing to some stage of the cottonwood planting from tree cutting to planting to watering

and maintenance of past sites. These numbers will benefit a number of resources within the Monument and culminate in a total of over \$27,000 dollars of in-kind contribution to the Breaks landscape and Monument.

The success of the entire project will also be monitored throughout the year through pictures, mapping and statistical analysis of the survival rates of the planted trees. A report will be completed following the end of the field season with a breakdown of the project's achievements and potential chances for future advancement including the distinct findings from the planting site feasibility study conducted by the Friends' Big Sky Watershed Corps member. A successful project will be based upon trees planted, acres of riparian habitat restored, survival rates of the planted trees and the overall number of people involved directly on the ground or indirectly reached through outreach.

- VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

All Cultural Resource Management requirements have been met and are discussed in the environmental assessment MT-DOI-BLM-MT-M070-2015-0002-EA. This can be found at the BLM NEPA register website at <https://eplanning.blm.gov/>. Along with the prior environmental assessment, all BLM district archeologists will be included in annual planning sessions and will be asked to be in attendance for all aspects of the project that require disturbance of potentially impacted culturally significant soils.

- IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9 March 2016.

N/A

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@NorthWestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to:

Andy Welch

Manager, Hydro License Compliance

Andrew.Welch@NorthWestern.com

☎ 406-444-8115

☎ 406-565-7549

208 N. Montana Ave

Suite 205

Helena, MT 59601