Project Title**: Bird population and habitat monitoring – O'Dell Creek Project Area**

Date: November 8, 2017

Project 2188 License Article: This proposal meets **License Article 423** requirements by directly measuring bird populations and vegetation conditions associated with habitat enhancement projects in riparian areas within the Madison River corridor, and is a **Priority 1** project located within the main stem of the Madison River.

Project Sponsor (submitted by): University of Montana

Location of Proposed Project: Long-term monitoring points in project areas within riparian habitats in the O'Dell Creek wetland complex project area on the main stem of Madison River.

Total Project Cost: $49,295
TAC Funds (Cost-Share) Requested for Project: $26,417
(BLM Cost-Share Request: $22,878)

I. Introduction

Since 2004, the University of Montana (UM), with funding from Northwestern Energy (formerly PPL Montana) and the Bureau of Land Management (BLM), has monitored bird populations and riparian vegetation on over 500 miles of the Madison and Missouri Rivers. This program meets Northwestern Energy's Federal Energy Regulatory Commission (FERC) license requirements for hydroelectric operations on the river system by:

1. Monitoring main stem bird distributions and population trends as an indicator of wildlife habitat conditions,
2. Identifying critical wildlife habitats based on analysis of bird habitat use, and
3. Measuring bird and vegetative responses to management actions to evaluate project benefits for wildlife.

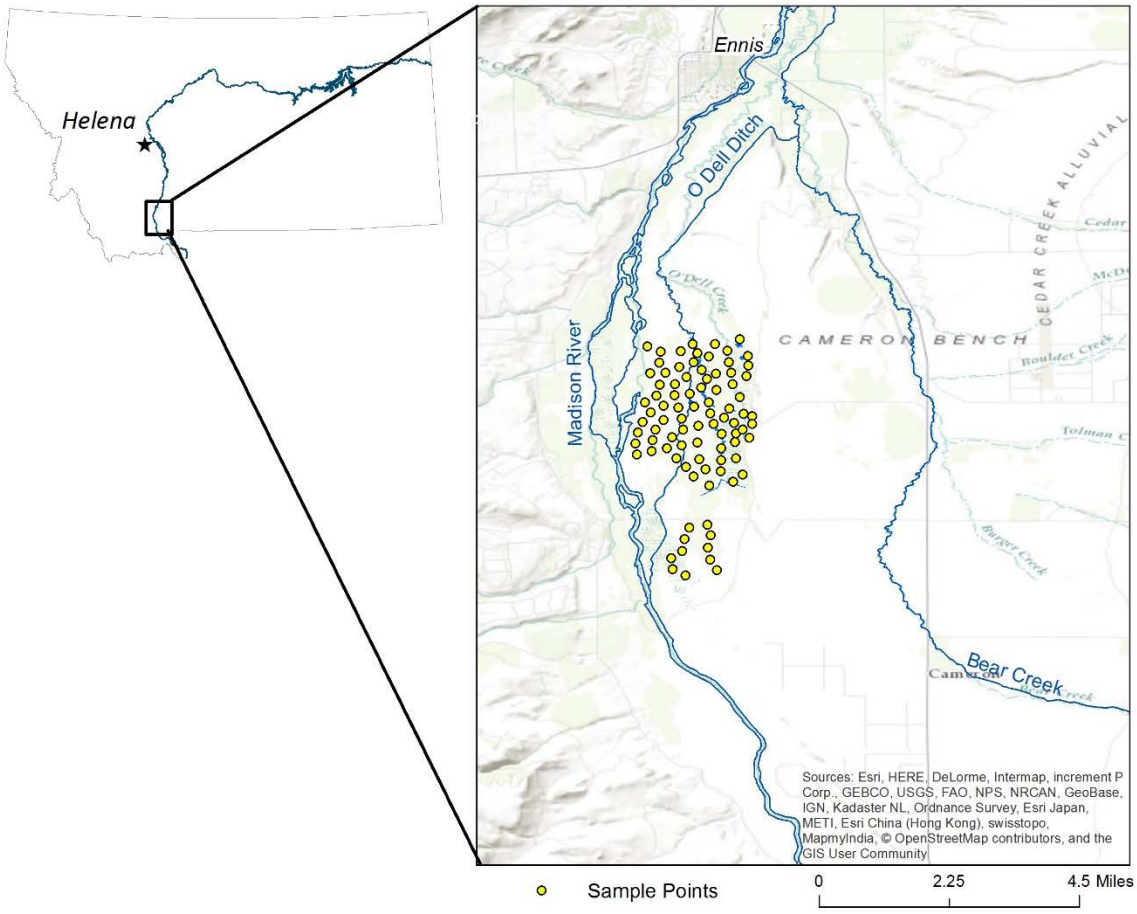
Birds are ideal indicators of natural resource conditions because they have diverse habitat requirements, are relatively abundant within a small area, are easily surveyed, and provide feedback from an entire community rather than a single species[1,2]. In addition, birds are a priority for monitoring in riparian areas, because riparian and wetland habitats support a large number of bird species during breeding, dispersal, and migration, including at least 134 (55%) of Montana's 245 bird species and 30 of the 66 Montana Species of Concern. As the largest river system in the state, the Madison and Missouri rivers are critical to the future of the Montana's bird populations.

In 2018, we propose to continue monitoring bird populations and vegetation within habitat enhancement and protection projects funded by the Wildlife TAC and supported by a broad partnership of federal and state agencies, non-governmental organizations, and private landowners on the Madison River including the O'Dell Creek complex and adjacent public and private lands under consideration for future restoration and protection (Fig. 1). Habitat projects in the area are ongoing with unique management actions and timelines associated with different project phases. By monitoring riparian bird species response by treatment and year, we can track both the quality of habitat created and the timing of ecological response to specific restoration projects and phases.

[1] Carigan, V., and M.A. Villard. 2002. Selecting indicator species to monitor ecological integrity: a review. Environmental Monitoring and Assessment 78:45–61.

[2] Hutto, R.L. 1998. Using landbirds as an indicator species group. Pp. 75-92 in Marzluff, J.M. and R. Sallabanks (eds.), Avian conservation: research and management. Island Press, Covelo, CA.

Figure 1. Project area map showing bird and habitat monitoring locations in existing habitat project areas on the Madison River.



Bird surveys conducted to date have revealed increases in riparian associated species within the project areas, including documentation of 13 Montana Species of Concern. In addition, thousands of Rocky Mountain Population Sandhill Cranes have been observed in the fall and over a dozen new waterfowl species in the spring on restored wetlands. Many critical riparian habitats take years to respond to restoration, such as cottonwood and willow habitats, and therefore further monitoring is crucial to understanding the long-term benefits of these projects, particularly for many obligate riparian bird species that require mature woody habitats.

This proposal merits a high priority for funding because it contributes scientifically robust measures of wildlife response to habitat enhancement and protection projects supported by the Wildlife TAC. Documenting wildlife outcomes of habitat projects is important to justify future project investments, and provides critical feedback on best practices for land managers working to restore wildlife habitats along Montana's large rivers.

II. Objectives

1. Measure wildlife outcomes of ongoing habitat enhancement and protection projects along the Madison River, and inform future conservation priorities in the area.
    a. Conduct multi-species monitoring of breeding birds, including targeted monitoring of priority bird species;
    b. Measure vegetation composition and structure to evaluate habitat conditions;
    c. Analyze changes bird populations and vegetation conditions within project areas by treatment and year;

III. Methods

The methods used for field sampling and analyses are described briefly below. For more detailed information, refer to the monitoring protocol report[3].

Sampling Design. We will evaluate wildlife outcomes of each project area by comparing baseline data collected prior to project start to changes over time using a Before-After-Control-Impact (BACI) study design[4]. BACI sampling designs are particularly useful tools for evaluating bird assemblage responses to riparian restoration because they address the problem of high natural variability and year-to-year changes in river systems by effectively separating the absolute year-to-year change from treatment effects. We will survey project areas along the Madison River, including the O'Dell Creek complex and adjacent proposed project areas south of Ennis, with 105 permanently marked sample points on a mix of BLM, State, and private lands.

Vegetation Measures. At each sampling location, we will measure vegetation composition and structure, including the total number of trees (by species and size class), shrub cover (by species), canopy cover, tree and shrub height, ground cover, invasive and noxious weed species cover, and grazing intensity.

Bird Surveys. We will conduct point count surveys of breeding land birds following standard point count procedures. Observers will record all birds seen or heard during a 10 minute period, and distances to birds will be measured using a rangefinder. Breeding surveys for waterfowl will include adult and brood counts following Gollop and Marshall[5]. We will conduct systematic playback surveys for secretive marsh birds at survey locations over 400 m apart with suitable habitat, following the Standardized North American Marsh Bird Monitoring Protocol. We will work with local partners to efficiently continue migration monitoring previously conducted by Rob Hazlewood in mid-October. We will also assist and conduct targeted surveys for priority bird species based on input from agencies and partners, including Montana Fish, Wildlife, and Parks, and Montana Natural Heritage.

Data Analyses. Species that are expected to be most responsive to restoration are specialists in the target habitat[6]. Therefore, we will analyze the responses of individual bird species that depend on riparian areas for nesting, and overall bird community response as waterbird species richness (total number of waterbird species), and riparian species richness (total number of riparian obligate or dependent species, where obligate is defined as >90% nesting in riparian habitats and dependent is defined as >70% of nesting in riparian habitats). To account for natural annual variation and potential correlation between repeated measures across years, model fit will be evaluated with year of survey and point included as random effects using a generalized linear mixed model (GLMM).

[3] Fletcher, R., A. Cilimburg, and R. Hutto. 2007. Evaluating habitat restoration at O'Dell Creek using bird communities: 2006 report. Final report submitted to PPL-Montana.

[4] Schwarz C.J. 1998. Studies of Uncontrolled Events. In: Statistical Methods for Adaptive Management Studies. Res. Br, B.C. Min. For., Res. Br., Victoria, BC, Land Manage. Handb. No 42.

[5] Gollop, J.B. and W.H. Marshall. 1954. A guide for ageing duck broods in the field. Mississippi Flyway Council Technical Section Report, Minneapolis, Minnesota.

[6] Pearson, D.L., 1994. Selecting indicator taxa for the quantitative assessment of biodiversity. Philos. Trans. R. Soc. Lond. B: Biol. Sci. 345, 75–79.

IV. Schedule
This project will begin 1 May 2018 and will run until 30 April 2019 (see table below).

2017	
May	Field planning, coordination with local partners and private landowners, hire and train field technicians
June-Aug	Collect field data on birds and vegetation
Sep-Oct	Data entry and data management
Nov-Dec	Summarize field effort and present to TAC
2018	
Jan-Feb	Complete data analyses
April	Submit final report for TAC

V. Personnel;
Erick Greene (Faculty, University of Montana Wildlife Program) and Anna Noson (Program Director, University of Montana Bird Ecology Lab) will serve as co-Principal Investigators of the project. Erick Greene will administer the project within UM. Anna Noson will supervise field data collection, conduct analyses, and complete reporting and dissemination. One temporary technician will be hired to complete field data collection and data entry. The Division of Biological Sciences will provide facilities at the University of Montana.

VI. Project budget must include amounts for the following:

	TAC funds requested	**BLM**	**Total**
Direct Labor	$19,942	$16,642	$36,584
Travel and living	$2,604	$2,604	$5,208
Materials and supplies	$425	$225	$650
Direct Overhead	$3,446(15%)	$3,407(17.5%)	$6,853
Total	$26,417	$22,878	$49,295

Cost-share funding sources and amounts for this project:
$22,878 -requested from USDA Bureau of Land Management (5-year agreement in place through 2021).

VII. Deliverables

This project will result in a Final Report summarizing:

1. Breeding bird population status for riparian areas within the main stem Madison and Missouri Rivers;
2. Distribution and critical habitat information for priority riparian bird species;
3. Breeding bird population trends based on 5 surveys from 2004-2017;
4. Riparian vegetation conditions for riparian areas within the main stem Madison and Missouri Rivers;
5. Baseline bird community and habitat conditions within UMRB restoration project areas.

VIII. Cultural Resources. N/A- no land-disturbing activity or building modification will occur as a result of this project.

IX. Water Rights. N/A- no development, restoration, or enhancement of wetlands will occur as a result of this project.

Project Title: Missouri River Cottonwood Restoration and Weed Inventory

Date: 11/16/17

This projects addresses License Article 423, which requires development of a vegetation and wildlife monitoring and enhancement plan for the 2188 Project area. The current Project 2188 Wildlife Plan specifies that that funds will be provided for protecting, restoring and enhancing riparian habitats, which is the intent of this project.

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

As the plantings will take place directly on the banks of the Missouri River between Hauser Reservoir and Fort Peck Reservoir, while directly impacting the wildlife habitat and subsequently wildlife populations in the area, this project fits squarely into Priority 1 for Project 2188. Additionally, the invasive species mapping and inventory will also benefit the same wildlife habitats and populations within that reach of the river corridor.

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

For the past five years this cooperative team has held annual planting events, with the outcome of 498 cottonwood trees planted along the banks of the Missouri River. The project has an overall survival rate of 83% within this selected stretch of the Wild and Scenic Missouri River.

Location of Proposed Project:

The 2018 planting sites will include restoration of cottonwood galleries on both private and public land within the Upper Missouri River Breaks National Monument. Specifically, on private land the planting will be between river miles 52.5-53.5L of the Missouri River's Wild and Scenic designation. This site is identified as the Eagle Creek (upper) site *(Figure 1)*, and would be planted on land under an easement with the BLM. The planting on public land will take place at the Pablo Site *(Figure 2)*, at river mile 72.3L of the Wild and Scenic designation.

These plantings will be a continuation of a five year plan to replace seven miles, and 109 acres, of cottonwood forest at ten sites between Fort Benton and Judith Landing Recreation Area *(Figure 3).* To this point six plantings have taken place with funding from NWE TAC at the Anderson Ranch and Dark Butte sites in 2015, in 2016 at the Eagle Creek (lower) and Slaughter River sites, as well as last year at Little Sandy and Terry Ranch Sites. In total 318 trees have been planted, and 61.5 acres of riparian habitat restored with assistance from NWE TAC's funding.

The invasive species inventory will take place within the entire river corridor in the Monument *(Figure 4.)*, which encompasses 149 miles of riparian zones. At a conservative estimate would cover 2,700 acres if the inventory only extended 150 feet from the river's edge.

Figure 1: Eagle Creek (upper) planting site. This site will restore roughly 7.5 acres and nearly a mile stretch of vital riparian habitat.

Figure 2: Pablo planting site

This site will restore 5.5 acres of remote aging cottonwood supported riparian zone.

Figure 3: Cottonwood planting sites (5 year plan)

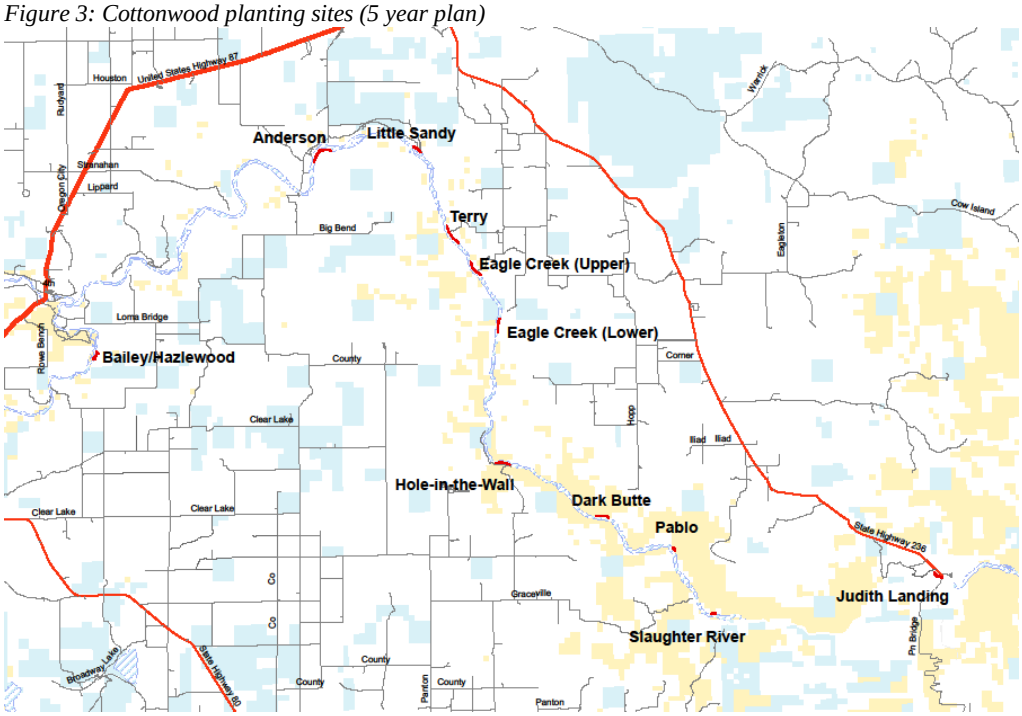
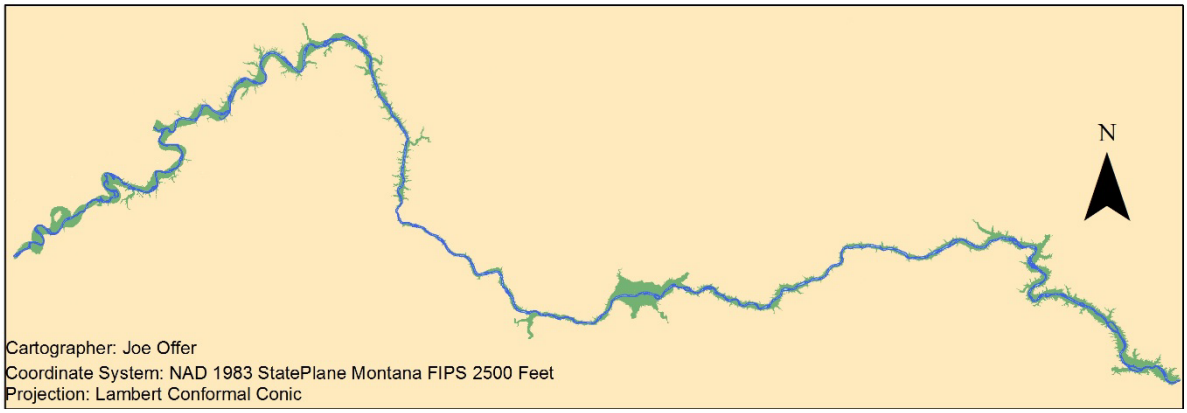


Figure 4: Extent of the invasive species inventory (shown as green on map)



Total Project Cost: **$**166,731

TAC Funds (Cost-Share) Requested for Project: $45,000

I. Introduction

Riparian zones comprise less than 1% of the total land area within the Upper Missouri 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 deltoids 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 life cycle. Cottonwood regeneration is highly reliant on 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 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.

Together with the ambitious cottonwood restoration and revegetation project, the Friends and the Bureau of Land Management (BLM) are beginning a cooperative project of documenting and mapping the presence of invasive species within the river's riparian ecosystems this coming summer. A crew of four will spend the entire summer inventorying and mapping noxious weed species under the direction and supervision of Friends and BLM staff. The goal for this summer will be to map the entire river corridor and all routes of travel in the uplands

II. Objectives

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 60 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 detrimentally impacted. Nearly all wildlife species in the region, from amphibians to mammals, depend upon the trees to provide shelter, food or both.

Additionally, for this summer's river corridor weed inventory the main objective will be to identify sites in which invasive weeds have gained a footing within the Monument's vital riparian zones. The influx of noxious weeds into western environments has an extremely negative impact upon the wildlife species that depend on the functioning ecosystems the weeds destroy. Inventorying and mapping the sites of invasive weeds will provide vital information to BLM and Friends staff in the coming years as they work to combat the growing problem.

On a more anthropological scale, these projects allow the Friends of the Missouri Breaks Monument, a conservation minded organization, to partner with the BLM, and continue to advocate for locally responsible stewardship of our public lands.

III. Methods

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 upon 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 10 to 15 feet below ground. To combat this we have developed a 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 eight feet, with a diameter of eight inches. To do so the BLM has constructed a special auger attachment for a skid-steer tractor. By drilling a hole for the trees we shorten the distance to the water table to an average of two to seven feet, a much easier distance for roots to cover than the full 10 to 15 feet. In each of these holes we place a ten to twelve foot cottonwood cutting from a nearby cottonwood stand. This year we will be collecting cottonwood cuttings from a private ranch on Arrow Creek, a tributary of the Missouri River. Together with each cottonwood cutting we place an eight and half foot PVC pipe with perforations on the bottom 18 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 to 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 eight foot deep holes as has previously been discussed, but we also have found that seasonal watering through the trees' first two summers has increased survivability over 100%. After two trial plantings in 2013 and 2014, each planting producing dismal survival rates, the Friends decided to hire seasonal workers to water the young trees in the hottest summer months. To complete the watering the BLM has provided the Friends with one horsepower trash pumps and small diameter fire hoses. 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.

For our weed inventory our methods will be much more in line with commonly practiced approaches. Each week a crew of four seasonal workers from the Friends will systematically work the shorelines of the river's bank looking for invasive species of concern, as identified by the BLM Natural Resource Specialist. Each bank will be scouted and documented by the trained seasonal workers and then cataloged within GPS units provided by the BLM to be mapped later in the year.

IV. Schedule

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. The planting events will take place within three weeks of the cuttings, around the end of March to early April. Following the planting the trees will receive their first watering in early May, followed by another watering towards the end of the same month. During the hottest summer months, June-September, seasonal workers 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 end of season inventories and additional project completion duties.

For the weeds inventory the schedule will begin with planning meetings in the late winter and throughout the spring. After a plan has been set for which sections are most important to cover, in case of limited time and resources, the crews will begin their inventory work in the middle of May. Upon hire, the crew will spend the first couple weeks working on developing strong weed identification abilities and honing in their field techniques. After completing their trainings the crew will spend the summer systematically searching the riparian zones for invasive intruders. It is anticipated that the field season for the invasive weed inventory will be complete by the end of August or early September.

V. Personnel

Work on the cottonwood aspect of this 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, as well as outside contractors, in identifying individual planting sites for each tree and subsequently drilling 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 2017, will be performed by seasonal workers hired by the Friends. The project lead will be Joe Offer, Stewardship Director for the Friends of the Missouri Breaks Monument, with assistance by Sean Reynolds, BLM Lead Project Ranger based in Fort Benton.

The weed inventory part of the project will be primarily staffed by four seasonal workers hired by the Friends. Additionally, the Friends will be recruiting volunteers to assist with the inventory, as to cover the most area as possible. This aspect of the project will also be led by Joe Offer from the Friends in partnership with Kenny Keever, Natural Resource Specialist, from the BLM office in Havre.

VI. Project budget:

Costs based on 18 week field schedule

Personnel Costs

Item	# of People	Hours	NWE Grant	Matching Funds	Total Cost
Executive Director @ $28/hr	1	720	$4,032.00	$16,128.00	$20,160.00
Stewardship Director @ $21/hr	1	720	$4,536.00	$10,584.00	$15,120.00
Outreach Manager @ $17/hr	1	720	$0.00	$12,240.00	$12,240.00
Invasive Leader @ $15/hr	1	720	$4,670.00	$6,130.00	$10,800.00
3 Seasonal Invasives Techs @ $13/hr	3	720	$11,232.00	$16,848.00	$28,080.00
2 Outreach @ $13/hr	2	720	$0.00	$18,720.00	$18,720.00
4 Conservation Techs @ $13/hr	4	720	$11,232.00	$26,208.00	$37,440.00
Total Personnel			**$35,702.00**	**$106,858.00**	**$142,560.00**

Travel & Food Costs

Item	NWE Grant	Matching Funds	Total Cost
Lease of 2 Crew Cab Pick-ups	$7,500.00	$7,500.00	$15,000.00
Car Rental @ $115/day for 25 days	$0.00	$2,875.00	$2,875.00
Food for Natural Resource Team hitches (2 people for 72 days @ $12/day)	$864.00	$864.00	$1,728.00
Food for Invasive Strike Team hitches (4 people for 16 days @ $12/day)	$384.00	$384.00	$768.00
Total Travel & Food	**$8,748.00**	**$11,623.00**	**$20,371.00**

Equipment & Supply Costs

Item	NWE Grant	Matching Funds	Total Cost
Personal Protection Equipment	$550.00	$550.00	$1,100.00
Total Equipment & Supply	**$550.00**	**$550.00**	**$1,100.00**
Subtotal Direct Costs	**$45,000.00**	**$119,031.00**	**$164,031.00**

Indirect Costs

Item	NWE Grant	Matching Funds	Total Cost
Indirect costs @ 6% include: postage, printing, office and utilities	$0.00	$2,700.00	$2,700.00
Total Indirect Costs	**$0.00**	**$2,700.00**	**$2,700.00**
Total Costs	**$45,000.00**	**$121,731.00**	**$166,731.00**
	26.99%	73.01%	100.00%

VII. Deliverables;

At the completion of the 2018 field season approximately 150 cottonwood trees will be growing under the watchful eye of elder cottonwoods along one and a third miles of the Wild and Scenic Missouri River. Along with a complete inventory of the river corridor's riparian zones. Together with these deliverables we will have involved over 60 volunteers on the different aspects of the project, with volunteer service totaling over $230,000 in time benefiting the Upper Missouri River Breaks National Monument and the watershed as a whole.

Furthermore, the success of the entire project will be monitored throughout the year through pictures, mapping and statistical analysis of the survival rates of the planted trees and the total area surveyed for invasive weed species. A detailed report will be completed following the end of the field season with an in-depth breakdown of the project's achievements and potential chances for future advancement. A successful project will be based upon acres inventoried for weeds, overall 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.

All Cultural Resource Management requirements have been meet 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 have been included in annual planning sessions and are currently scheduling to be in attendance for all aspects of the project that require disturbance of potentially impacted culturally significant soils.

IX. Water Rights. N/A

Project Title: Hebgen and Earthquake Lake Bald Eagle Monitoring

Date:

November 2, 2017

Explain how this Project addresses a specific Project 2188 License Article(s):

Conditions filed by the U.S. Forest Service, pursuant to Section 4(e) of the Federal Power Act, for the new license for Project No. 2118 (Appendix B of License) require that the Licensee develop a comprehensive bald eagle habitat protection and enhancement plan. Condition 12 (Threatened and Endangered Species Plan) requires that the Licensee plan for monitoring of bald eagles throughout the term of the license. The plan shall include annual surveys to include incubation and activity/occupation associated with existing nest territories, productivity, distribution of nesting pairs, and annual count of breeding, wintering, and migrating bald eagles. In addition, under Article 421 of the Updated Five Year (2018 thru 2022) Madison and Missouri River Wildlife and Terrestrial Habitat Plan per Project 2188 License Articles 411, 418, 421, 423, and 424, the license holder committed to continuing to support monitoring of nesting and migrant bald eagles in cooperation with state and federal agencies. If effects become present, the license holder committed to focusing attention on these threats through adaptive management. The license holder and the Forest Service agreed to use Ecology and Management of Bald Eagles on Hebgen and Earthquake Lakes (Stangl 2000) to serve as the bald eagle habitat protection and enhancement plan required under Condition 12. The license holder provided funding in previous years, including 2017, and, because Northwestern Energy is obligated under Condition 12 to ensure monitoring over the term of the license, the Forest Service is again requesting assistance to fund this project.

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

Because this project meets a License Article requirement and benefits wildlife on the main stem Madison River, it has been selected as a Priority 1 project.

Project Sponsor (submitted by):

Randy Scarlett, Wildlife Biologist, USDA Forest Service, Hebgen Lake Ranger District, West Yellowstone, MT

Location of Proposed Project:

Hebgen Lake, Earthquake Lake, and the main stem Madison River between the lakes

Total Project Cost: $6,925

TAC Funds (Cost-Share) Requested for Project: $3,675

I. Introduction.

The bald eagle population around Hebgen Lake and Quake Lake is unique to the Gallatin National Forest; it represents the only breeding population of eagles on the Forest. Local residents and recreationists alike value this population and are concerned over its health and persistence. The long term dataset recording occupancy and productivity of these eagles is invaluable to ongoing management and education efforts regarding bald eagles and their habitat. Baseline monitoring data is the foundation for determining trends and informing management activities in this area. Without baseline data, it would be impossible to evaluate the effects of human activities on wildlife and make informed decisions regarding conservation of the species.

II. Objectives.

Monitoring efforts would be focused on two specific objectives: 1) determine productivity and distribution of bald eagle breeding territories on Hebgen Lake, Earthquake Lake, and the Madison River between the lakes; 2) search for new bald eagle territories.

III. Methods.

Productivity

To monitor the behavior and productivity of bald eagles at known territories, eagles would be observed with a high power spotting scope from a remote vantage point. This would allow for clear and accurate data recording in which observer presence does not affect the behaviors recorded. If primary nests are found to be inactive, attempts would be made to observe all known historic nests within a territory.

Each nest would be monitored during the four stages of the nesting period: Courtship and Occupancy (2/1 - 3/31), Activity (4/1 – 4/30), Nestling (5/1 – 5/31), and Fledgling (6/1 – 7/15). The goal would be to visit each nest at least once during each nesting stage, except if a nest was determined to have failed. To quantify productivity, the number of hatchlings and fledglings would be recorded during each observation from the first sign of being hatched to fledging. Hatching and fledging dates would be estimated based upon these observations.

New Nest Searches

Efforts to locate new nest territories would be focused on areas of suspected eagle nesting activity, as determined by observation of adult eagles or reports from the public. Ground observations of bald eagles would be performed with a spotting scope and binoculars. When located, observers would visually follow their travels to potential nest areas. Optics would also be used to conduct searches of suitable habitat for nest structures; these searches may occur from the ground or by boat.

IV. Schedule.

Field work would be conducted during the bald eagle nesting season (approximately February 1-August 15).

V. Personnel.

The Forest Service wildlife biologist (Randy Scarlett) will be the Project Leader. The FS biologist will supervise a seasonal technician who will conduct the majority of eagle monitoring. The FS biologist would also coordinate volunteer labor to engage the community in monitoring of the bald eagle population. The FS biologist would also prepare annual reports summarizing work accomplishments for the year.

VI. Project budget

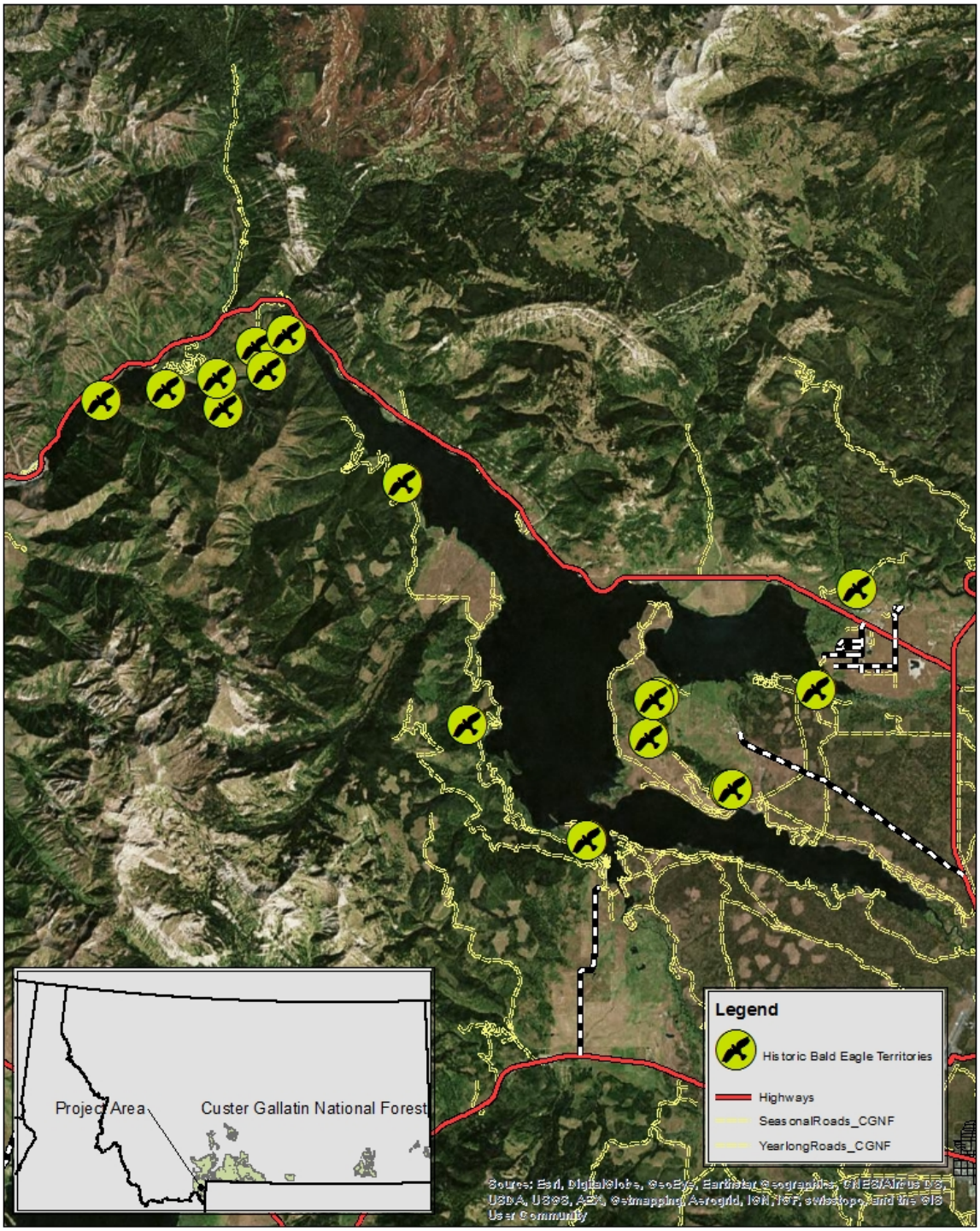
Category	Description	TAC	FS	In-Kind	Total
Direct Labor	FS Bio – 5 days	$0	$2,050	$0	$2,050
	Bio Tech – 20 days	$3,200	$0	$0	$3,200
Direct Overhead	2%	$75	$0	$0	$75
Travel and Living	FS vehicle	$400	$0	$0	$400
Materials	Misc. supplies	$0	$200	$0	$200
Other Direct Expenses	None	$0	$0	$0	$0
Volunteer Labor	Dep. on availability – est. 5 days	$0	$0	$1,000	$1,000
Total		**$3,675**	**$2,250**	**$1,000**	**$6,925**

VII. Deliverables. The results of each year's monitoring efforts would be summarized in an annual report to NorthWestern Energy. Success for this project will be demonstrated by determination of the nesting chronology of all known nests around Hebgen and Earthquake Lakes.

VIII. Cultural Resources. No ground disturbing activities are proposed; therefore, no coordination with cultural resource specialists is required.

IX. Water Rights. Not applicable to this project.

Hebgen and Quake Lake Bald Eagle Monitoring Project



Project Title: Hebgen Lake (Edwards Peninsula) Aspen & Cottonwood Restoration

Date: November 13, 2017

Explain how this Project addresses a specific Project 2188 License Article(s):

This project addresses License Article 423 which states that the licensee will develop a vegetation and wildlife monitoring and enhancement plan that includes specific goals, objectives, and standards to enhance native plants and wildlife populations on the lands and waters associated with the project. This project would result in enhancement of native aspen and cottonwood stands that are being encroached upon by conifer species in an area directly adjacent to the main stem Madison River (Hebgen Lake).

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

Because this project meets a License Article requirement and benefits wildlife on the main stem Madison River, it has been selected as a Priority 1 project.

Project Sponsor (submitted by):

Randy Scarlett, Wildlife Biologist, USDA Forest Service, Hebgen Lake Ranger District, West Yellowstone, MT

Location of Proposed Project:

Hebgen Lake Ranger District; Edwards Peninsula, located just south of Horse Butte at approx. T12S, R04E, Section 34

Total Project Cost: $11,050

TAC Funds (Cost-Share) Requested for Project: $5,100

I. Introduction.

Overall, aspen is a relatively rare element on the Custer Gallatin National Forest (GNF) compared to other vegetation communities. Aspen stands are considered one of the most biologically diverse ecosystems in the Intermountain West, second only to riparian areas, and are, thus, disproportionately important to many species of wildlife. They provide forage, cover, shade, and nesting habitat for birds, small mammals, big game, and forest carnivores. Conserving aspen benefits not only many plants and vertebrates, but also ecologically significant invertebrates, such as native bees. Cottonwood stands are exceedingly rare on the Hebgen Lake Ranger District as well; similar to aspen stands, they provide important cover, foraging, and nesting habitat for a number of species.

Aspen is a fast-growing, early seral, disturbance-dependent species that can be out-competed over time by slower-growing conifer species in the absence of disturbance. Cottonwood can also be outcompeted by conifer species. Reduction of conifer competition by hand or mechanical equipment is often used to sustain the presence of aspen, and to a lesser extent cottonwood on the landscape and increase the health and vigor of hardwood stands.

On the Hebgen Lake Ranger District, Edwards Peninsula is situated at the end of the Madison Arm of the lake, directly north of where the South Fork of the Madison meets the lake. The peninsula is a mix of open grassland, shrubland (willows), and conifer stands with an understory of primarily aspen with lesser amounts of cottonwood. In the absence of disturbance, lodgepole pine have become established and now are the dominant overstory on the majority of the peninsula. Conifers are also competing with willows on the peninsula. Approximately 20 acres of aspen and cottonwood have been mapped on the peninsula. Only a handful of decadent overstory aspen and cottonwood remain on these acres. The vast majority of aspen and cottonwood encountered are small diameter, and are entirely shaded out by medium and larger diameter lodgepole pine.

The Hebgen Lake Ranger District is proposing to treat approximately 10 acres of the highest priority stands that have been identified on the peninsula. Treatment of the additional 10 acres of aspen and cottonwood may occur in the future as we gain a better understanding of moose biology and use in the area. As Edwards Peninsula is one of the few places where moose can be found consistently in the Hebgen Basin, the Forest Service is taking a conservative approach to treatment in this area.

II. Objectives.

Reduce conifer encroachment on approximately 10 acres of mixed aspen and cottonwood stands on Edwards Peninsula in FY 2018.

III. Methods.

Aspen restoration activities on the Gallatin portion of the Custer Gallatin National Forest were analyzed programmatically using a categorical exclusion. This project would be consistent with all mitigation and monitoring requirements contained in the final Decision Memo for the programmatic aspen project. The Forest Service would use the seasonal fire crew based out of West Yellowstone to complete all proposed aspen restoration work. The fire crew would fell competing conifers from aspen and cottonwood stands in the identified (FY 2018) units on Edwards Peninsula. Conifers would be felled within approximately 50 feet of the clone edge. Depending on the degree to which existing aspen and cottonwood regeneration has been browsed by wildlife, conifers may be felled in such a way as to provide physical protection to sprouts. Depending on the fuel loading following felling, slash may be left where felled, lopped and scattered, or piled by hand or by machine. If piled, slash would be allowed to cure and would be burned one to two seasons following felling. Where feasible, larger tree boles may be removed using a small tracked machine (skid steer) and utilized for firewood. Compliance with the Gallatin National Forest programmatic aspen CE would be ensured by an interdisciplinary team assembled and staffed by the Forest Service.

IV. Schedule. Field work would occur during the summer of 2018.

V. Personnel.

The Forest Service wildlife biologist (Randy Scarlett) will be the Project Leader. An interdisciplinary team would be assembled by the Forest Service to ensure that all criteria required by the Programmatic Aspen CE are met. The FS biologist and silviculturist will guide on-the-ground implementation and monitor the effectiveness of the proposed hardwood restoration activities. The seasonal fire crew based out of West Yellowstone would implement the project. The FS biologist would also prepare annual reports summarizing work accomplishments for the year.

VI. Project budget

Category	Description	TAC	FS	In-Kind	Total
Direct Labor	Bio/Silv – 6 days	$0	$2,450	$0	$2,450
	Fires crew – 10 days x 5 crew = 50 days	$5,000	$1,500	$0	$6,500
Direct Overhead	2%	$100	$0	$0	$100
Travel and Living	FS vehicles	$0	$500	$0	$500
Materials	Misc. supplies	$0	$500	$0	$500
Other Direct Expenses	None	$0	$1,000	$0	$1,000
Total		**$5,100**	**$5,950**	**$0**	**$11,050**

VII. Deliverables. Approximately 10 acres of aspen and cottonwood will be enhanced by reducing competition with encroaching conifers. As required by the NEPA for this project, pre- and post-treatment monitoring will be conducted to determine the number of aspen stems per acre prior to treatment and after treatment. A report will be provided in the fall of 2018 to summarize treatments and monitoring that took place in that year.

VIII. Cultural Resources. Cultural resource surveys will be conducted by a FS archaeologist prior to the use of any mechanical equipment. This is a requirement of the NEPA for this project.

IX. Water Rights. Not applicable to this project.

Project Title: Hebgen Basin Grizzly Bear Mitigation and Infrastructure

Date: November 8, 2017

Explain how this Project addresses a specific Project 2188 License Article(s):

Conditions filed by the U.S. Forest Service, pursuant to Section 4(e) of the Federal Power Act, for the new license for Project No. 2118 require that the Licensee shall prepare a Threatened and Endangered Species Protection Plan (Article 421 and Condition 12) for all federally listed threatened and endangered species that occur within the project area. This plan, as described under Article 421, would include, but not be limited to, actions that provide for the protection of listed species in the project area. Article 426 and Condition 17 also require the preparation of a comprehensive Recreation Plan for implementing measures to mitigate project-induced recreation impacts over the life of the project.

While neither of these articles specifically contains language regarding grizzly bear conflict mitigation, the situation in the project area (specifically adjacent to Hebgen and Earthquake Lakes) has changed over time. The Hebgen development created a destination for recreationists interested in camping, fishing, wildlife viewing, boating, and other activities. The growth in recreational activities associated with the development has occurred in high-quality spring and summer grizzly bear habitat, creating the potential for negative bear-human interactions that could result in harm to humans and/or grizzly bears. Increasing information and education/training capacity related to grizzly bear would aid in mitigating potential project-induced recreation impacts on bears at these sites.

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

Because this project meets a License Article requirement and benefits the recently ESA de-listed Yellowstone grizzly bear on the main stem Madison River (Hebgen Lake and vicinity) it has been selected as a Priority 1 activity.

Project Sponsor (submitted by):

Randy Scarlett, Wildlife Biologist, USDA Forest Service, Hebgen Lake Ranger District, West Yellowstone, MT

Location of Proposed Project:

Recreational (camping) facilities adjacent to Hebgen Lake and Earthquake Lake, including Lonesome Hurst Campground (CG), Cherry Creek CG, Spring Creek CG, Rainbow Point CG, Cabin Creek CG, Beaver Creek CG, and designated dispersed campsites adjacent to Hebgen Lake. Funding used to redesign and construct a new bear attack simulator would contribute to the existing bear trailer that is used across southwest Montana and beyond; individuals throughout the state would benefit from training with the simulator.

Total Project Cost: $25,600

TAC Funds (Cost-Share) Requested for Project: $6,200

I. Introduction.

The Hebgen development created a destination for recreationists interested in camping, fishing, wildlife viewing, boating, and other activities. Facilities designed to accommodate these activities have been developed and improved over time as recreational use has increased. The recreational facilities that have been developed around Hebgen Lake are generally full on most nights during the peak recreation season (May-August). The majority of visitors are from areas outside the Grizzly Bear Recovery Zone. They are

not aware of or are unfamiliar with the appropriate activities and actions in occupied grizzly bear habitat, despite current information and education measures taken in the Hebgen Basin. At the same time, the grizzly bear population has expanded well beyond the Recovery Zone. Human-caused mortality is considered one of the major threats to this species. One of the primary objectives for grizzly bear management is to reduce or mitigate the risk of human-caused mortality. Recreational facilities adjacent to Hebgen Lake are located in high-quality spring and summer grizzly bear habitat, creating the potential for negative bear-human interactions that could result in harm to humans and/or grizzly bears.

In addition to aiding in funding bear education activities in the basin, TAC funds would also be used to redesign and fabricate a new bear attack simulator that will be used to train the general public in the proper response to bear encounters and in the use of bear deterrent spray. Past (and ongoing) investments by the USFS, Montana FW&P, and private non-government organizations have funded the creation and stocking of a mobile bear trailer that is used to educate the public by providing them hands-on interaction with bear mounts, pelts, bear resistant storage containers, and other materials. The existing bear attack trainer consists of a plywood cutout of a bear mounted to a rolling platform; the platform glides along a wood and metal track system. It is propelled by surgical tubing that is stretched by a hand winch. In FY 2017, approximately 8,700 people were trained in the use of bear spray using this system. In its two years of use, issues with the winch system and track the bear cutout glides over have resulted in numerous breakdowns. Technicians have resorted to pushing the charging bear cutout down the functional portion of the track when providing bear spray training. The speed at which the bear platform moves is less than half of the speed of a charging bear. Development of a new system for the bear attack simulator would provide for a more robust system that is less prone to wear and breakdowns that more closely simulates the speed at which a bear attack occurs. This new system would also provide for increased capacity for training the public in the use of bear spray.

II. Objectives.

To educate the general public at developed and dispersed recreational facilities in the Hebgen Basin in order to reduce bear-human conflicts, improve public understanding of bear country safety, and increase the social tolerance for bears. To create a reliable bear attack simulator for providing bear deterrent spray training to the public in the project area and beyond.

III. Methods.

Bear Education Technician

A bear education technician would patrol developed and dispersed recreation sites within the Basin and initiate public contacts with campers, fisherman, and other forest users drawn to the area by the recreational opportunities provided or enhanced by Hebgen Lake. Appropriate bear aware messaging and strategies for avoiding negative bear-human encounters will be provided to individuals and groups. Messaging would be consistent with the current key messages that have been developed for southwest Montana. The focus of bear aware education in the Basin would be on one-on-one contacts with Forest users.

The Hebgen Lake Ranger District has an existing bear education technician. The requested funds would be utilized in the late spring and early summer recreation season and solely for patrol within the Hebgen Basin.

Bear Education Infrastructure

The USFS currently partners with multiple agencies and non-governmental organizations to provide bear education in southwestern Montana. USFS would partner with the SW Montana Bear Education Coordinator (a Wildlife Management Institute employee) to facilitate development of the new bear attack simulator. The simulator would be permanently housed in the bear education trailer that is used throughout southwestern Montana during the spring, summer, and fall.

IV. Schedule.

Bear education activities would begin in the spring (approx. May 1) and extend into the late fall (mid to late November). NorthWestern Energy Wildlife TAC funds would primarily be used during the late spring and early summer recreation season. The majority of the late summer and fall recreation season would be funded by the existing Grizzly Bear Conservation and Bear Education Program on the Custer Gallatin National Forest. Additional funding for the early summer recreation season would allow for extended coverage in the Basin during the fall hunting season using existing bear education funding on the Forest.
Development of the new bear attack simulator would occur during the winter and spring 2018. The simulator would be ready for use in spring/summer 2018.

V. Personnel.

The Forest Service wildlife biologist (Randy Scarlett) will be the Project Leader. The FS biologist will supervise a technician who will conduct the majority of bear education activities. The FS biologist will also coordinate with the SW Montana Bear Education Coordinator on the design and fabrication of the new bear attack simulator.

VI. Project budget

Category	Description	TAC	FS	In-Kind/ Partner	Total
Direct Labor	FS Bio – 5 days		$2,000		$2,000
	Bear Education Tech – 20 days	$2,740	$13,800		$16,540
Direct Overhead	2%	$120			$120
Travel and Living	FS vehicle	$0	$3,500		$3,500
Materials	Bear Attack Simulator	$3,000	$500	$2,000	$5,500
Other Direct Expenses	None				
Total		**$5,860**	**$19,800**	**$2,000**	**$27,660**

VII. Deliverables.

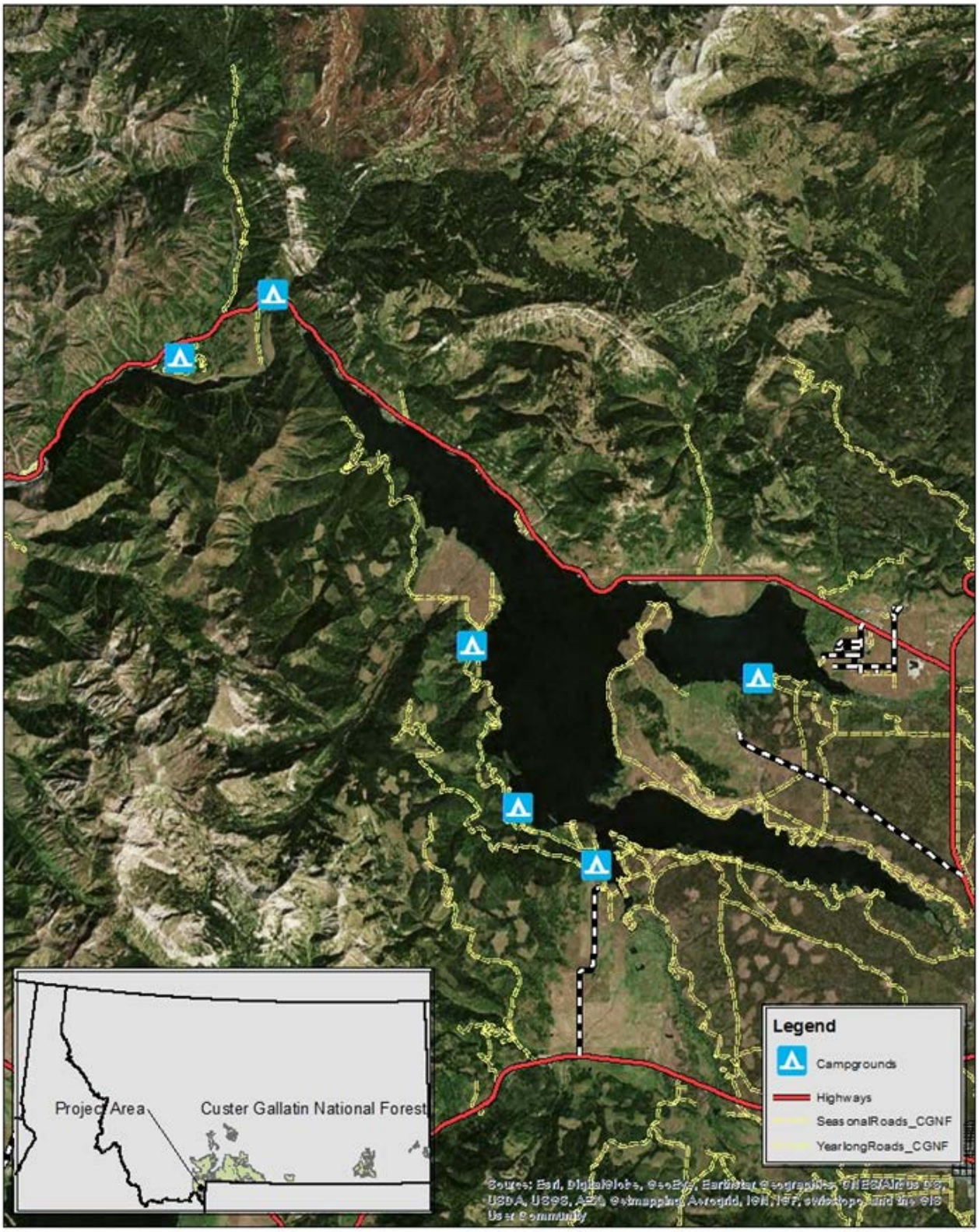
The results of each year's bear education efforts would be summarized in an annual report to NorthWestern Energy. The number of contacts and the nature of these contacts will be tracked through the season and entered into appropriate reporting databases as well. Success for this project will be demonstrated through increased contacts and education of recreationists in the Basin. Contacts where the bear attack simulator are used would be tracked as well. NorthWestern Energy would be credited with their support of the bear education program on the bear education trailer that is housed in Bozeman.

VIII. Cultural Resources.

No ground disturbing activities are proposed; therefore, no coordination with cultural resource specialists is required.

IX. Water Rights. Not applicable to this project.

Hebgen Basin Grizzly Bear Mitigation Project



Bear attack simulator with winch tower and propulsion system early in the 2017 season

Bear attack simulator without winch tower and propulsion system; 3 functioning tracks

Bear spray training, 2017 season

Project Title: Missouri River Conservation Easement - ABN Ranch

Date: November 15, 2017

Explain how this Project addresses a specific Project 2188 License Article(s) and provide justification for Priority 1, 2 or 3 (above) that you selected:

This is a Priority #1 project because it is located along the main stem Missouri River. The project addresses requirements in Project 2188 License Article 417(2) and 417(3) which specify use of adaptive management practices to mitigate fisheries impacts associated with operation of the Great Falls reservoirs. The project also addresses Article 417(4) which requires support for efforts to protect and provide for recovery of threatened and endangered fish species and other aquatic species of special concern in the river downstream from Morony Dam. In addition, the project addresses Article 423(4) because it will permanently protect important riparian habitat for priority avian species.

Project Sponsor (submitted by): Rock Ringling, Montana Land Reliance Managing Director

Location of Proposed Project:

Property lies along the Missouri River within the Upper Missouri River National Monument, near Virgelle and Coalbanks Landing

Total Project Cost: $1,327,050

TAC Funds (Cost-Share) Requested for Project:

$150,000 total. Can be split 50/50 between Missouri River Fisheries TAC and Missouri-Madison Wildlife TAC. Funds can also be spread over a 2-year period (2018 & 2019) if necessary.

I. Introduction.

The property lies within the Upper Missouri River Breaks National Monument Area.

The property fully comply with Fisheries Article 417, and Wildlife Articles 411, 418, 421 and 423. The Avian Science Center is working in cooperation with Northwestern Energy, Bureau of Land Management (BLM), and other partners, and has long term data and established monitoring sites on these properties. Monitoring will continue as described in Article 423.

The landowner is cooperating with BLM on cottonwood forest restoration efforts on the private lands.

The property has unique pre-historic, historical, and archeology sites on it.

The property lies within the 154 mile reach of the Upper Missouri River Breaks National Monument. BLM and other federal and state specialists ranked the existing riparian and associated wetland habitats that occur on these properties as the best sites found along the entire 154 mile reach of the Monument.

The plant and wildlife species diversity, unique habitats, back channels and wetlands, and broad native plant floodplains on the property stands out as one of few potential reference sites and rank high priority to protect, conserve, and enhance. The unique features found on the property is rarely found along this reach of the Missouri River.

The property is across the Missouri River from Coal Banks Landing, a major steamboat landing on the Missouri River during the Indian Wars of 1876-1877 and during construction of Fort Assiniboine. Coal Banks Landing is the primary put-in point for folks floating down the Missouri River. The property lies across the river from the town of Virgelle and the Virgelle Ferry Landing. The ranch borders the western end of the National Wild and Scenic River corridor of the Missouri River and of the Upper Missouri River Breaks National Monument. The ranch has been identified as a significant historical ranch within this corridor. The ranch includes 4 miles of Missouri River frontage with extensive cottonwood bottoms that are home to whitetail and mule deer, and over 40 species of birds.

II. Objectives.

The mission of The Montana Land Reliance is to partner with landowners to permanently protect agricultural lands, fish and wildlife habitat, and open space.

MLR works with Montana's private landowners both one-on-one and in neighborhood-based groups to provide long-term, legally sound conservation partnerships and strategies to protect the economic and natural elements of their land and their neighborhoods.

Conservation easements are the primary tools used by MLR to achieve these goals. An easement is the legal framework that binds the property owner's conservation goals and MLR's stewardship together in perpetuity.

Despite common elements precluding subdivision, commercial development, and other activities detrimental to soil, water, or wildlife habitat, each easement is tailored to the unique character of the land and the conservation goals of its owners.

The immediate accomplishments of MLR's conversation work are measured in miles of stream-bank and acres of land and habitat protected.

The lasting benefits of MLR's work are the perpetuation of a lifestyle and economy that rely on responsibly managed private land and increasingly valuable Montana open spaces that will continue to nourish the spirit of future generations.

III. Methods.

Funding will go toward placing an easement on the property.

IV. Schedule.

Have already began work on the project and it will be completed in 2018.

V. Personnel. Identify Project leader or principal investigator.

The Montana Land Reliance – Rock Ringling

VI. Project budget:

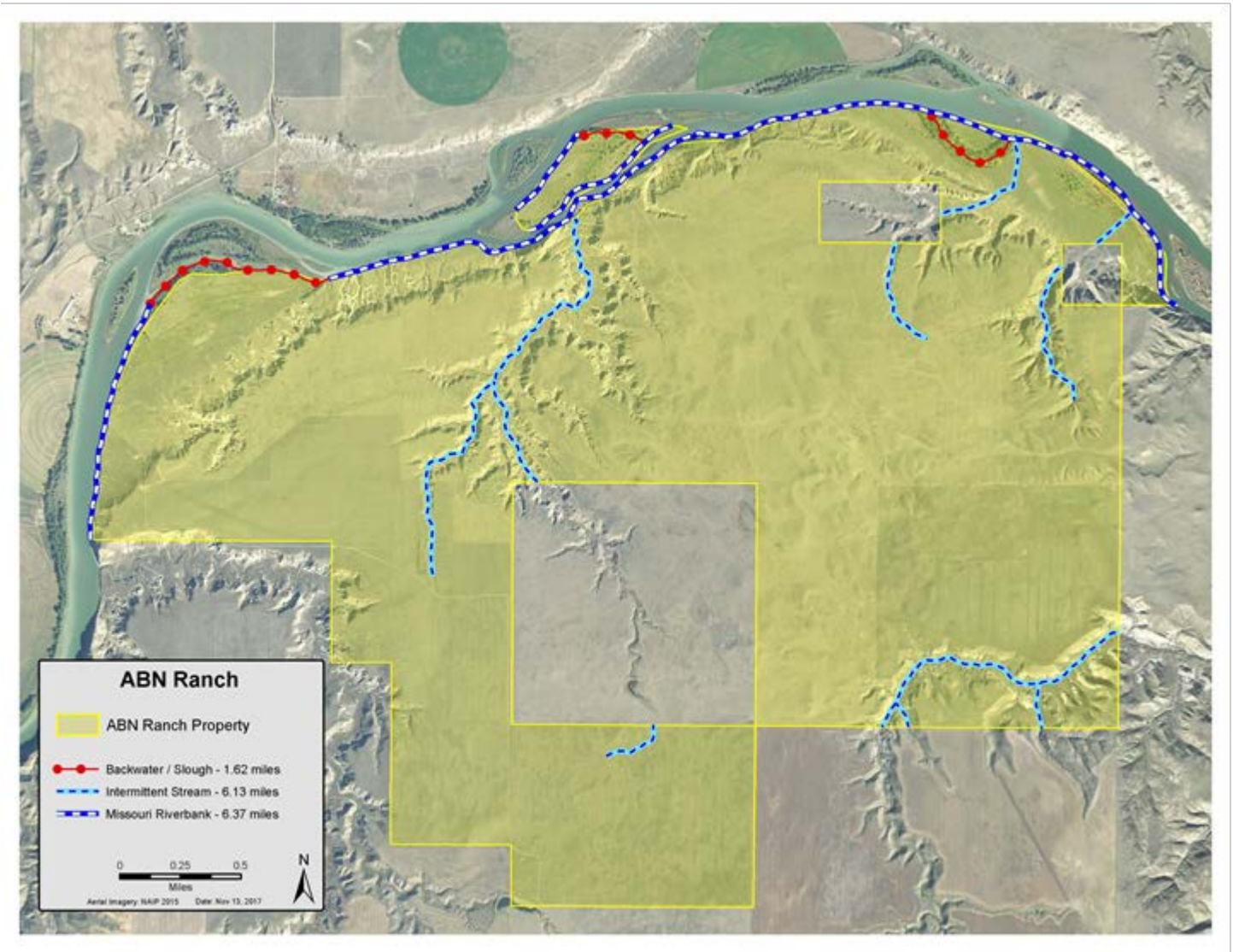
MLR Conservation Easement funding	$ 20,000
Resource Documentation Report	$ 3,300
Mineral Remoteness Report	$ 3,000
Other Direct Expenses (Title Report, Recording Fees)	$ 750
All cost-share sources and amounts, including estimation of "in-kind" contributions:	
MLR private match	$ 325,000
Landowner "in-kind" contribution	$ 325,000
NRCS (ALE portion)	$ 650,000
All (total) cost-share source amounts for this Project	$1,327,050

VII. Deliverables. How will "success" for this project be monitored or demonstrated?

Placing a conservation easement on the property would be in perpetuity. In an effort to discharge MLR's obligation to the public, staff shall monitor each conservation easement annually conducting appropriate discussions with the owner and/or manager about terms of the easement, condition of the land, and its management, and prepare suitable file documentation. Stewardship staff shall be given maximum discretion to tailor monitoring needs, including site visits and stewardship opportunities, to the particular characteristics of the property, the easement, and the property owner.

VIII. Cultural Resources. NRCS will complete the requirements for Cultural Resource Management

IX. Water Rights. Not applicable. Establishment of conservation easement does not involve any changes in water use.



Project Title: Missouri River Conservation Easement - Tall Grass Ranch

Date: November 15, 2017

Explain how this Project addresses a specific Project 2188 License Article(s) and provide justification for Priority 1, 2 or 3 (above) that you selected:

This is a Priority #1 project because it is located along the main stem Missouri River. The project addresses requirements in Project 2188 License Article 417(2) and 417(3) which specify use of adaptive management practices to mitigate fisheries impacts associated with operation of the Great Falls reservoirs. The project also addresses Article 417(4) which requires support for efforts to protect and provide for recovery of threatened and endangered fish species and other aquatic species of special concern in the river downstream from Morony Dam. In addition, the project addresses Article 423(4) because it will permanently protect important riparian habitat for priority avian species.

Project Sponsor (submitted by): Rock Ringling, Montana Land Reliance Managing Director

Location of Proposed Project:

Property lies along the Missouri River within the Upper Missouri River National Monument near Loma, MT

Total Project Cost: $159,510

TAC Funds (Cost-Share) Requested for Project:

$33,398 total. Can be split 50/50 between Missouri River Fisheries TAC and Missouri-Madison Wildlife TAC. Funds can also be spread over a 2-year period (2018 & 2019) if necessary.

I. Introduction.

The property lies within the Upper Missouri River Breaks National Monument Area.

The property fully comply with Fisheries Article 417, and Wildlife Articles 411, 418, 421 and 423. The Avian Science Center is working in cooperation with Northwestern Energy, Bureau of Land Management (BLM), and other partners, and has long term data and established monitoring sites on these properties. Monitoring will continue as described in Article 423.

The landowner is cooperating with BLM on cottonwood forest restoration efforts on the private lands.

The property has unique pre-historic, historical, and archeology sites on it.

The property lie within the 154 mile reach of the Upper Missouri River Breaks National Monument. BLM and other federal and state specialists ranked the existing riparian and associated wetland habitats that occur on these properties as the best sites found along the entire 154 mile reach of the Monument.

The plant and wildlife species diversity, unique habitats, back channels and wetlands, and broad native plant floodplains on the property stands out as one of few potential reference sites and rank high priority to protect, conserve, and enhance. The unique features found on the property is rarely found along this reach of the Missouri River.

The Tall Grass Ranch owners were presented with the 2016 Ducks Unlimited Conservation Landowner of the Year Award, have completed 4 miles of fencing to protect riparian and wetland habitats, developed off-site water to control livestock, are working to restore and protect wetlands, riparian, and unique back channel habits while maintaining agricultural balance. This conservation easement will protect 524 deeded acres which include 1.2 miles of the Missouri River, 1.64 miles of perennial stream, 2.47 miles of backchannels and wetlands, and native rangeland.

II. Objectives.

The mission of The Montana Land Reliance is to partner with landowners to permanently protect agricultural lands, fish and wildlife habitat, and open space.

MLR works with Montana's private landowners both one-on-one and in neighborhood-based groups to provide long-term, legally sound conservation partnerships and strategies to protect the economic and natural elements of their land and their neighborhoods.

Conservation easements are the primary tools used by MLR to achieve these goals. An easement is the legal framework that binds the property owner's conservation goals and MLR's stewardship together in perpetuity.

Despite common elements precluding subdivision, commercial development, and other activities detrimental to soil, water, or wildlife habitat, each easement is tailored to the unique character of the land and the conservation goals of its owners.

The immediate accomplishments of MLR's conversation work are measured in miles of stream-bank and acres of land and habitat protected.

The lasting benefits of MLR's work are the perpetuation of a lifestyle and economy that rely on responsibly managed private land and increasingly valuable Montana open spaces that will continue to nourish the spirit of future generations.

III. Methods. Funding will go toward placing an easement on the property.

IV. Schedule. Have already began work on the project and it will be completed in 2018.

V. Personnel. The Montana Land Reliance – Rock Ringling

VI. Project budget:

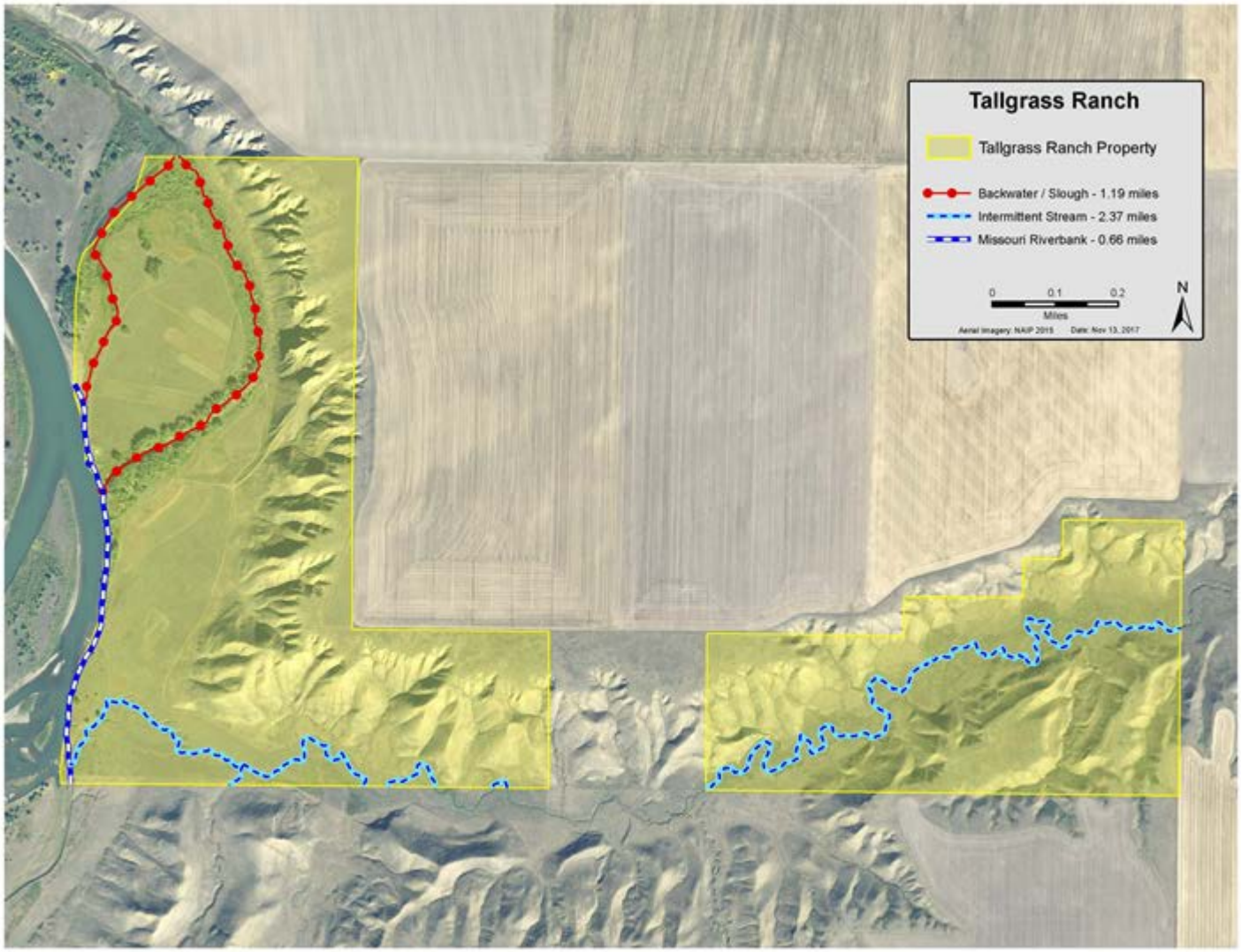
MLR Conservation Easement funding	$ 18,000
Resource Documentation Report	$ 2,810
Mineral Remoteness Report	$ 2,500
Other Direct Expenses (Title Report, Recording Fees)	$ 450
All cost-share sources and amounts, including estimation of "in-kind" contributions:	
MLR Private match	$ 33,938
Landowner "in-kind" contribution	$ 33,937
NRCS (ALE portion)	$ 67,875
All (total) cost-share source amounts for this Project	$ 159,510

VII. Deliverables. How will "success" for this project be monitored or demonstrated?

Placing a conservation easement on the property would be in perpetuity. In an effort to discharge MLR's obligation to the public, staff shall monitor each conservation easement annually conducting appropriate discussions with the owner and/or manager about terms of the easement, condition of the land, and its management, and prepare suitable file documentation. Stewardship staff shall be given maximum discretion to tailor monitoring needs, including site visits and stewardship opportunities, to the particular characteristics of the property, the easement, and the property owner.

VIII. Cultural Resources. NRCS will complete the requirements for Cultural Resource Management

IX. Water Rights. Not applicable. Establishment of conservation easement does not involve any changes in water use.


Tallgrass Ranch
Tallgrass Ranch Property
Backwater / Slough - 1.19 miles
Intermittent Stream - 2.37 miles
Missouri Riverbank - 0.66 miles
0
0.1
0.2
Miles
N

Project Title: O'Dell Creek Phase 15 Stream and Wetland Restoration Project
Construction Implementation

Date: November 8, 2017

Applicability to Project 2188 License Article(s)

Phase 15 will offset impacts to river resources associated with Project 2188 (Madison-Missouri River). The project meets the purpose and intent of License Article 423, which requires development of a vegetation and wildlife monitoring and enhancement plan intended to enhance native plants and wildlife populations on Project 2188 wildlife habitats adjacent to the Madison River. Specifically, NorthWestern Energy (and formerly PPLM) is successfully enhancing Project 2188 wildlife habitats through funding aimed to protect, restore, and enhance riparian, wetland, and upland habitats on private lands. The O'Dell Creek project, and the benefits that have resulted from 12 phases of restoration work in the O'Dell Creek headwaters, are specifically referenced in Article 423 (see Updated Five Year 2013-2017 Project 2188 Wildlife Plan). NorthWestern Energy continues to monitor prior phases of work to assess the effectiveness of previously implemented projects, including the benefits to stream temperature, streamflow quantity, avian species richness and numbers, sensitive plants, and acres of restored/enhanced wetlands.

Priority Classification

The East Branch O'Dell Creek Phase 15 Stream and Wetland Restoration Project classifies as a Priority 2 2188 license project. The project is located on O'Dell Creek, a major cold-water spring creek tributary to the Madison River, within 0.4 miles of the Madison River, and will address limiting factors related to degraded wildlife, wetland and aquatic resources.

Project Sponsor(s): Longhorn Ranch, L.P.
U.S. Fish and Wildlife Service
River Design Group, Inc.

Location of Proposed Project

The project is located in Madison County approximately five miles south of the town of Ennis, Montana. The project is located on the Longhorn Ranch, a working cattle ranch. The legal description of the project area is NW1/4 Section 28, Township 6 South, Range 1 West; SW1/4 Section 21, Township 6 South, Range 1 West; and the SE1/4 of Section 20, Township 6 South, Range 1 West. Please refer to Figure 1.

Total Project Cost: $217,935

TAC Funds (Cost-Share) Requested for Project: $195,435

I. INTRODUCTION

O'Dell Creek and associated spring creek tributaries are important ecological resources to the Madison River. Over the past 13 years, 12 major phases of restoration work have culminated in the restoration of approximately 11.5 miles of spring creek, and hundreds of acres of improved wetland functions. This project proposal, referred to as the "East Branch O'Dell Creek Phase 15 Stream and Wetland Restoration Project", will further restoration and conservation efforts on the Longhorn Ranch, a working cattle ranch owned by the Wellington family. The legal description of the project area is noted above, and a project vicinity map is included as Figure 1.

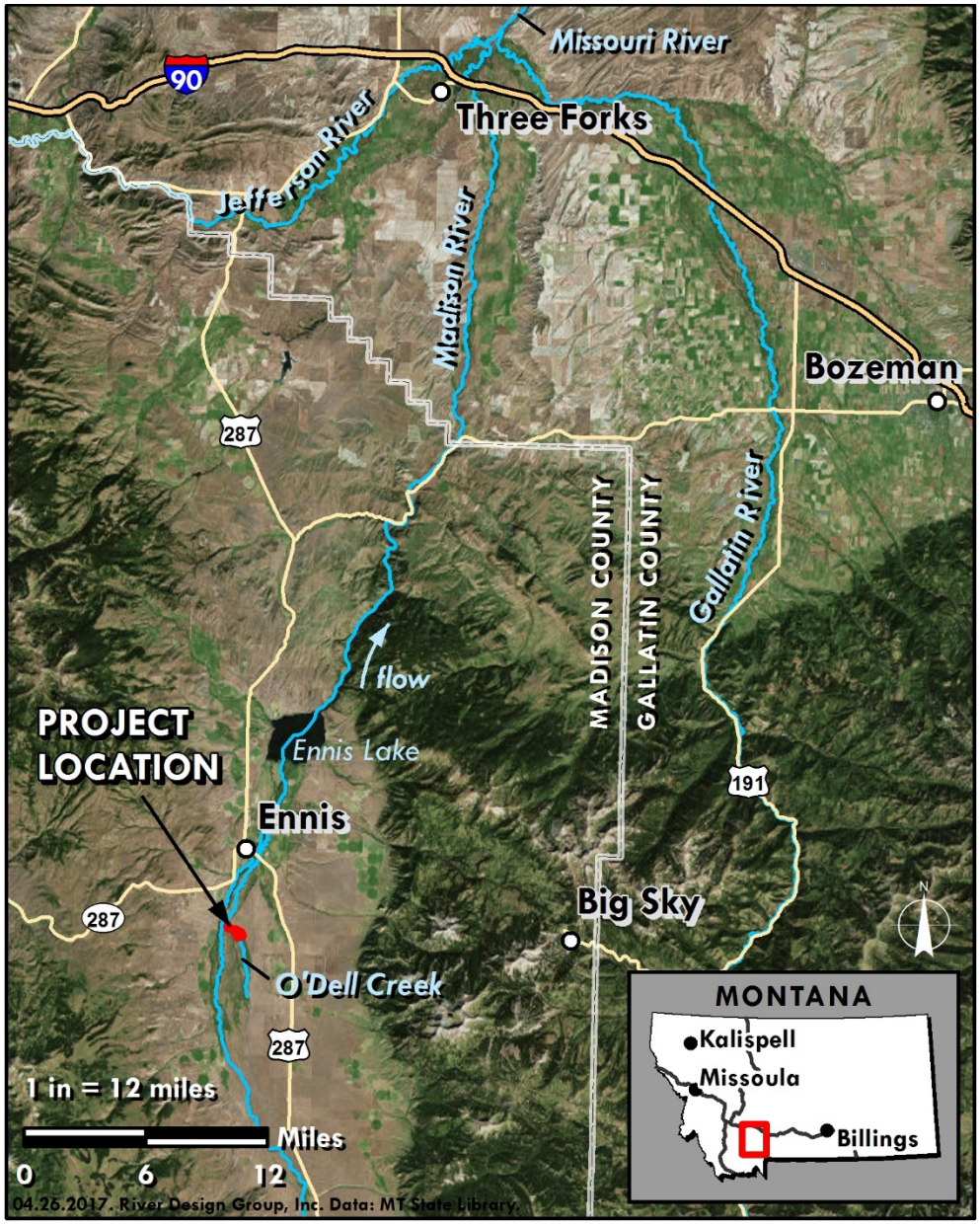


Figure 1. O'Dell Creek project vicinity map. The project is located on the East Branch O'Dell Creek on the Longhorn Ranch.

In 2015, NorthWestern Energy, and River Design Group, Inc. (RDG) updated the five-year plan for remaining restoration work in the O'Dell Creek headwaters (down to Fever Point). The five-year plan anticipated five to six additional phases of restoration work to be completed over multiple years. The 2015 five-year plan for the main stem O'Dell Creek included three additional phases of work on the main stem O'Dell Creek upstream of Fever Point on the Longhorn Ranch. Phases 14A and 14B were completed in 2016 and 2017 with funding provided by NorthWestern Energy, US Fish and Wildlife Service, and the Longhorn Ranch. This 2018 cost-share proposal is for implementation of Phase 15, which will include approximately 0.8 miles, or 4,100 feet, of restoration on the East Branch O'Dell Creek. 2017 TAC funding was used to produce the final design (Figure 2).

The purpose of this project is to improve aquatic habitat conditions of East Branch O'Dell Creek and associated riparian wetland functions. This will be accomplished by restoring the proper channel and floodplain dimensions and creating off-channel, disconnected shallow emergent, and shallow to deep open water wetlands. New floodplain surfaces supporting emergent and scrub-shrub wetland communities will be created in over-widened channel areas. Specifically, the goals of this project include: 1) improving aquatic, riparian, and terrestrial habitat diversity for fish and wildlife; 2) establishing riffle and pool sequences and reducing channel width-to-depth ratios; 3) creating a complex matrix of variable depth wetlands in over-widened channel sections; 4) isolating wetlands from the channel to lower stream temperature; 5) converting areas within the existing upland herbaceous plant

communities to wetlands by creating new, lower surfaces adjacent to the East Branch O'Dell Creek and mainstem O'Dell Creek; and 6) restoring willow/shrub communities in patches along streambanks and within portions of the floodplain.

II. Objectives

The following objectives have been developed for the Phase 14B project area in conjunction with the project partners and landowners:

1. Produce clean water consistent with supporting aquatic life and beneficial uses in the O'Dell Creek watershed and downstream receiving waterbody, the Madison River;
2. Create complex aquatic habitat components such as depth, velocity, substrate, cover, and pools that support populations of wild trout and other aquatic organisms;
3. Construct a stream channel that is connected to the floodplain and interacts with the floodplain in terms of hyporheic flow and nutrient exchange; and
4. Create a more complex matrix of wetlands in over-widened channel sections by creating backwater areas, open water wetlands, and new floodplain surfaces that support emergent and scrub-shrub wetland communities.

III. Methods

RDG will coordinate regulatory permit review with the US Army Corps of Engineers and Madison Conservation District. RDG has prepared the final design, and Joint Permit Application, under a separate contract with NorthWestern Energy (2017 funding). Supplemental information needed includes a wetland delineation report with mapping exhibits illustrating existing and proposed (both temporary and permanent) wetland impacts.

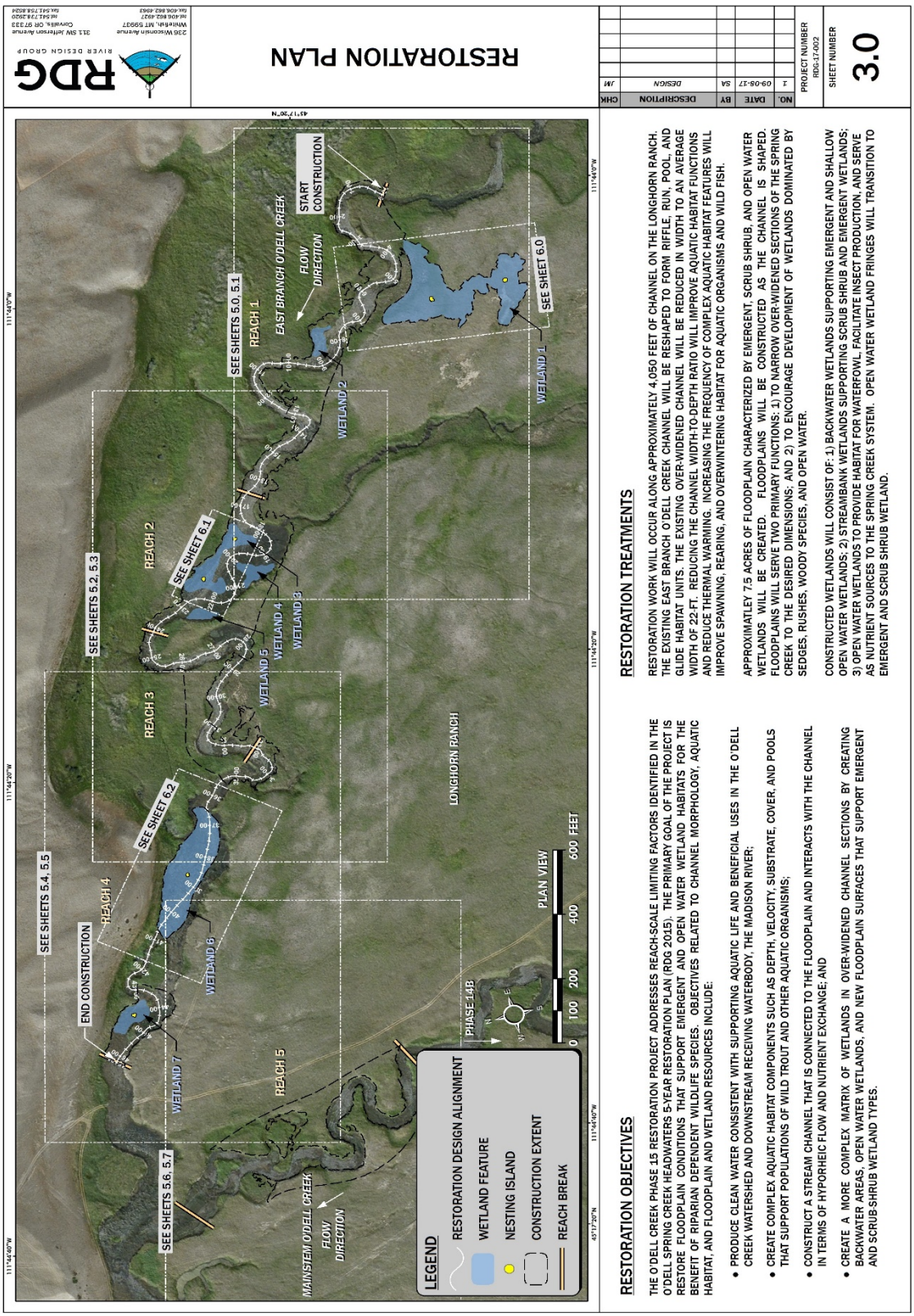


Figure 2. Restoration plan for East Branch O'Dell Creek (RDG and NWE, 2017).

Construction will be implemented using a qualified stream restoration contractor. Given the sensitive resource conditions, construction specifications will require the use of low-pressure ground equipment including tracked trucks (minimum 10 cubic yard), tracked excavators, an All Surface Vehicle, D6 dozer or equivalent, and harrow for de-compacting soils and construction access roads. The excavators will be GPS compatible to ensure the project is implemented in accordance with the design specifications and drawings. RDG will oversee construction and ensure compliance with permits and all drawings and specifications. Construction will be performed by TNT Excavating, Inc. Broadcast seeding, noxious weed treatment, and seed bed preparation will be performed by Basic Biological Solutions.

IV. Schedule

The following project schedule has been developed. Following contract award, RDG and project partners will complete regulatory permitting. Water rights investigations will be integrated throughout the design process to ensure issues related to both resources are avoided and mitigated to the greatest extent practical. A cultural resources investigation was conducted by NorthWestern Energy in 2017. Table 1 includes a proposed project schedule.

Table 1. Project schedule for the East Branch O'Dell Creek Phase 15 Restoration Project (2018).

Task	January	February	March	April	May	June
Task 1. Project Management						
Task 2. Pre-Construction Services						
Task 3. Construction Implementation[1]						
Task 4. Direct Costs						

V. Personnel

Similar to past phases of restoration on O'Dell Creek, the project will be designed and implemented under the auspices of a diverse group of stakeholders including NorthWestern Energy, the US Fish and Wildlife Service, and Longhorn Ranch, L.P. As a team, we have established a track record of successful collaboration on 12 projects on O'Dell Creek. Our continued collaboration and history working on this project underscores the importance we place on offering a team that will continue to be compatible with the community and stakeholders.

RDG is an approved consultant on NorthWestern Energy's Qualified Vendor's List for stream and wetland restoration services. RDG has prepared and implemented all previous phases of restoration on O'Dell Creek with the exception of Phases 1 and 2. Mr. John Muhlfeld will serve as the project manager and technical lead on behalf of the design team. Mr. Nate Wyatt, P.E., with RDG, will serve as the project engineer. To comply with NorthWestern Energy's Cultural Resource Management Plan, a cultural resources investigation was conducted in October 2017 by a private contractor.

VI. Budget

Table 2 includes a not-to-exceed cost estimate to perform the Scope of Work (SOW). The total cost to perform the SOW is $217,935. As noted, project partners have $22,500 committed in cost-share. The cost-share match accounts for 10% of the total project cost. This proposal is requesting TAC funds in the amount of $195,435.

VII. Deliverables

Project deliverables will include the following:

- Wetland delineation report including GIS mapping exhibits and field forms;
- Joint Permit Application;
- Approximately 4,100 feet of spring creek; and
- 41.6 acres of improved and/or enhanced wetland functions and values.

Table 2. O'Dell Creek Phase 15 Cost Estimate.		
Task		**Cost**
1. Project Management	**$**	**2,000.00**
Coordination with NWE, Owners, FWS, Stakeholders	$	2,000.00
2. Pre-Construction Services and Construction Management	**$**	**32,375.00**
GPS Site Calibration	$	2,250
Prepare Construction Grade GPS Surfaces	$	3,250
ACOE and Conservation District Joint Permit Permit Site Review	$	2,750
Construction Management and As-Built Compliance Surveys	$	24,125
3. Construction	**$**	**178,500**
Excavator Class 320 with GPS	$	42,500
Excavator Class 320	$	42,500
CD 110R-2 Komatsu 10CY Dump Truck	$	25,200
CD 110R-2 Komatsu 10CY Dump Truck	$	25,200
All Surface Vehicle	$	11,500
Mobilization and Demobilization	$	10,000
Per Diem and Lodging for Contractor (4 Person Crew)	$	10,100
Willow Collection and Delivery (4,000 cuttings)	$	4,000
Seed Bed Preparation, Seed Application, Weed Control (BBS)	$	7,500
4. Direct Costs	**$**	**5,060**
Mileage	$	2,330
Per Diem	$	840
Lodging	$	1,890
Estimated Project Cost	**$**	**217,935**
*Cost-Share (US Fish and Wildlife Service Cash Contribution)	$	15,000
*Cost-Share (Longhorn Ranch, L.P. Cash Contribution)	$	7,500
Total TAC Funds Requested	**$**	**195,435**
* Cultural Resources Investigation for Phase 15 completed by NorthWestern Energy in 2017.		

VIII. Cultural Resources

NorthWestern Energy contracted with a consulting firm in October 2017 to coordinate the necessary cultural resources investigations. A pedestrian cultural resources inventory was performed and no significant resources were encountered or observed.

IX. Water Rights

Appropriate analysis will be performed to demonstrate that the project complies with the intent of Montana DNRC's "*Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities*", issued by the Water Resources Division on March 9, 2016.

DNRC guidelines state that "any wetland project (restoration) whose final design approximates the natural characteristics of adjacent natural wetlands or approximates something smaller in magnitude does not require a water right". The guidelines also state that restored wetlands should have characteristics similar to other natural wetlands in the area and should function entirely in the absence of artificial controls and diversions of water that intentionally appropriate water for wetland use.

This Phase 15 project intends to restore wetland habitat by lowering floodplain surfaces to more natural conditions which will foster the restoration of approximately 5.5 acres of emergent wetlands which will have identical hydrologic and vegetative characteristics to existing wetlands in the immediate area. Approximately 3.6 acres of 'riverine' wetland habitat will be converted to 2.7 acres of shallow open water wetlands by narrowing of the current over-widened stream channel. These small, shallow open water wetlands will be located within the floodplain and will be very similar in size and habitat characteristics to pre-settlement open water wetlands in the area. The small open water wetlands will not involve the construction of any berms, dams, or dikes; will not involve any diversion of water; will partially offset the loss of riverine wetland habitat; and will not increase water consumption.

Project Title: Middle O'Dell Creek Conceptual Restoration Plan

Date: November 17, 2017

Applicability to Project 2188 License Article(s)

This proposal will fund a resource assessment and conceptual restoration design for a 10.5 mile reach of Middle O'Dell Creek from Fever Point downstream to Highway 287, south and east of the town of Ennis, Montana (Figure 1). NorthWestern Energy (and formerly PPLM) is successfully enhancing Project 2188 wildlife habitats through funding aimed to protect, restore, and enhance riparian, wetland, and upland habitats on private lands. The O'Dell Creek project, and the benefits that have resulted from 12 phases of restoration work in the O'Dell Creek headwaters, are specifically referenced in Article 423 (see Updated Five Year 2013-2017 Project 2188 Wildlife Plan). NorthWestern Energy continues to monitor prior phases of work to assess the effectiveness of previously implemented projects, including the benefits to stream temperature, streamflow quantity, avian species richness and numbers, sensitive plants, and acres of restored/enhanced wetlands. To date, over **890 acres** of wetlands have been restored and enhanced through implementation of restoration actions on the Granger and Longhorn Ranches, LLC (RDG 2017). This project meets the purpose and intent of License Article 423, which requires development of a vegetation and wildlife monitoring and enhancement plan intended to enhance native plants and wildlife populations on Project 2188 wildlife habitats adjacent to the Madison River.

Priority Classification

The Middle O'Dell Creek project area classifies as a Priority 2 2188 license project. The project is located on O'Dell Creek, a major cold-water spring creek tributary to the Madison River, (within 0.5 miles of the Madison River), and will address limiting factors related to degraded wildlife, wetland and aquatic resources.

Project Sponsor(s): Longhorn Ranch, L.P.
Granger Ranches, L.P.
River Design Group, Inc.

Location of Proposed Project

The project is in Madison County approximately three miles south and east of the town of Ennis, Montana. The project includes several ownerships, including Granger Ranches, L.P., Longhorn Ranch, L.P. and State of Montana. The legal description of the project area is Township 6 South, Range 1 West, including Sections 3, 4, 9, 16, 17 and 20. Please refer to Figure 1.

Total Project Cost: $34,900

TAC Funds (Cost-Share) Requested for Project: $29,900

I. INTRODUCTION

O'Dell Creek and associated spring creek tributaries are important ecological resources to the Madison River. Over the past 13 years, 12 major phases of restoration work have culminated in the restoration of approximately 11.5 miles of spring creek, and 890 acres of improved wetland functions. This project proposal will continue planning efforts on a 10.5-mile reach of Middle O'Dell Creek on the Granger and Longhorn Ranches, and State of Montana trust lands.

Granger Ranches, L.P. and Longhorn Ranch, L.P. approached RDG about the possibility of evaluating restoration opportunities on Middle O'Dell Creek downstream of Fever Point. The project area includes approximately 10.5 miles of spring creek, including several small tributary channels and disconnected wetland habitats (Figure 2). Like upstream reaches, this segment of O'Dell Creek has been impacted by livestock grazing, channelization, ditching, and agricultural practices that have led to stream incision, entrenchment, high rates of bank erosion, and compromised aquatic and wetland habitats. Similar to previous planning efforts that helped guide 10-years of restoration actions in upper O'Dell Creek (Phases 1-15), this assessment and preliminary design effort will identify restoration opportunities through a master plan approach.

The purpose of future restoration projects will be to improve aquatic habitat conditions of Middle O'Dell Creek and associated riparian and wetland functions. We envision this will be accomplished by restoring the appropriate channel and floodplain dimensions and by creating off-channel, disconnected shallow emergent, and shallow to deep open water wetlands. New floodplain surfaces supporting emergent and scrub-shrub wetland communities will be created in over-widened channel areas.

Specifically, restoration goals will include: 1) improving aquatic, riparian, and terrestrial habitat diversity for fish and wildlife; 2) establishing riffle and pool sequences and reducing channel width-to-depth ratios; 3) creating a complex matrix of variable depth wetlands in over-widened channel sections; 4) isolating wetlands from the channel to lower stream temperature; 5) converting areas within the existing upland herbaceous plant communities to emergent and scrub-shrub wetlands by creating new, lower floodplain surfaces adjacent to the spring creek channels; and 6) restoring willow and riparian shrub communities in patches along streambanks and within portions of the floodplain.

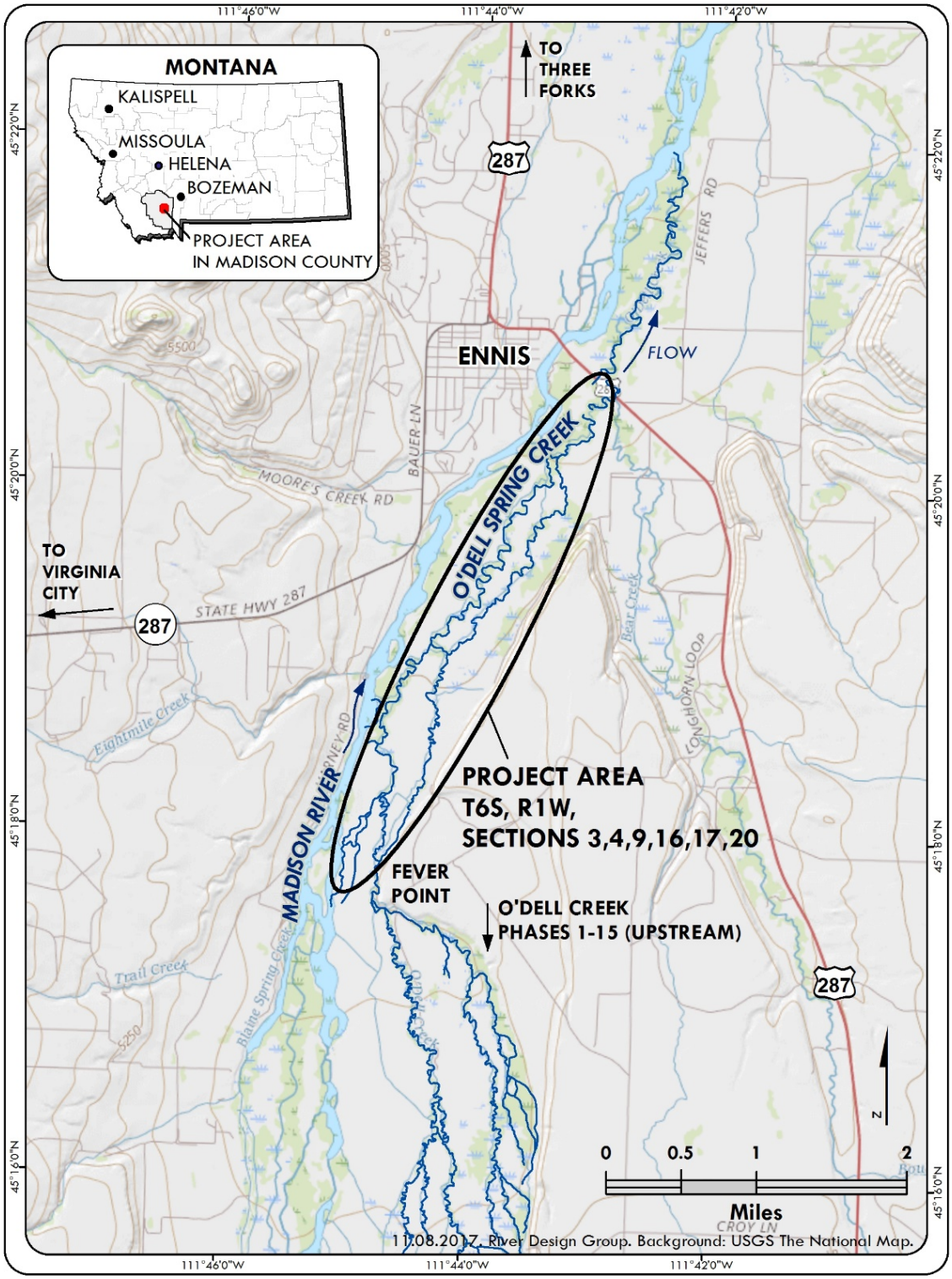


Figure 1. Middle O'Dell Creek Conceptual Restoration Plan vicinity map.

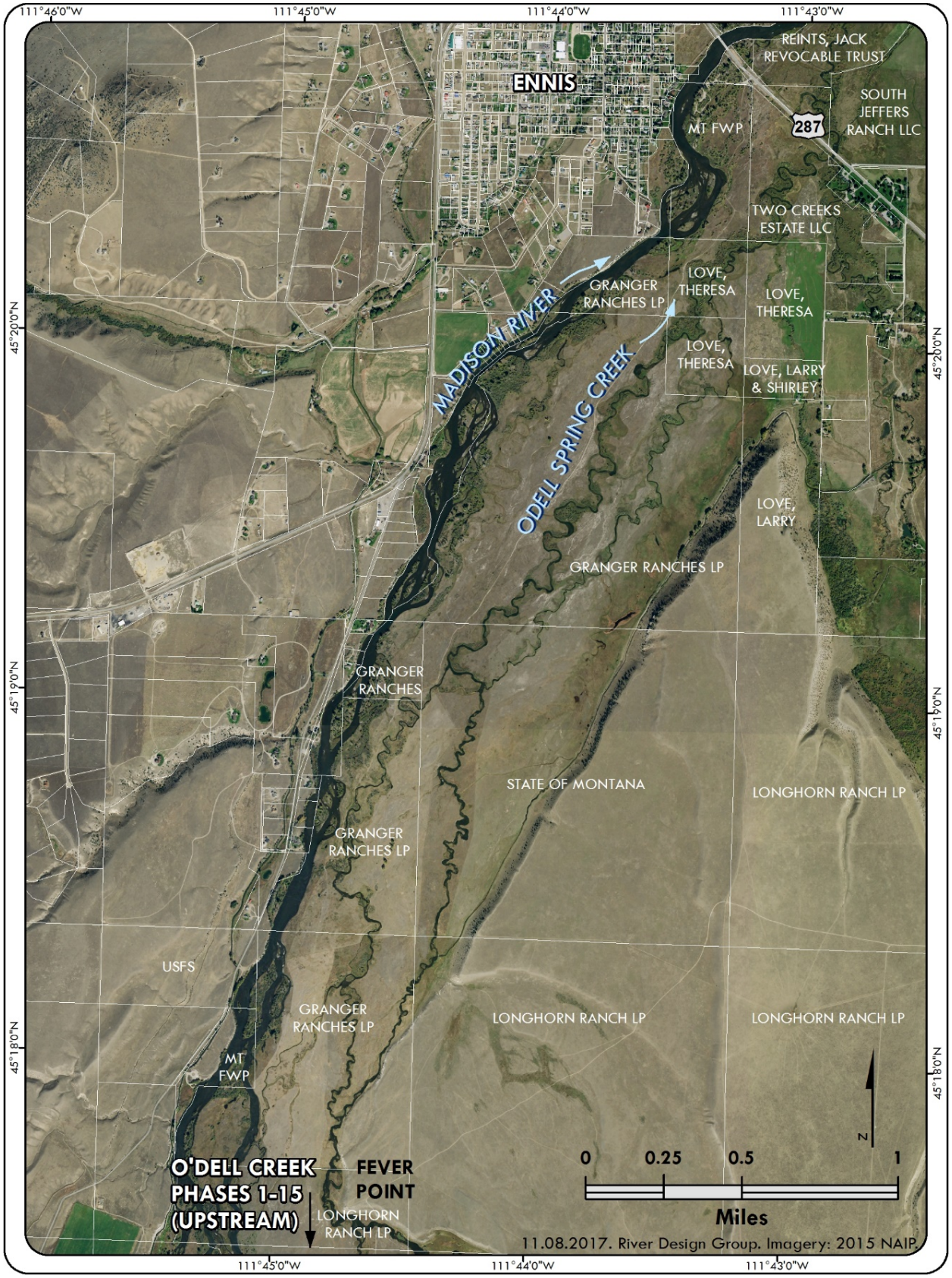


Figure 2. Middle O'Dell Creek project area extents, hydrography and land ownership.

II. Objectives

The following objectives have been developed for the Middle O'Dell Creek Conceptual Restoration Plan in conjunction with the project partners and landowners:

5. Complete a rapid geomorphic, vegetation, and wetland assessment of Middle O'Dell Creek utilizing remote sensing and standard field techniques;
6. Complete a geomorphic reference reach survey on a relatively undisturbed section of Middle O'Dell Creek to characterize potential stream channel, streambank, and floodplain morphology, including vegetation communities;
7. Evaluate the existing irrigation ditch system and associated infrastructure and provide recommendations for improving diversion efficiency, including options for fish screening and water savings;
8. Develop a conceptual restoration design plan set that identifies project phases and restoration opportunities, along with final design, permitting and construction cost estimates for high priority reaches; and
9. Coordinate work with NorthWestern Energy, private landowners, and the State of Montana.

III. Methods

A reconnaissance-level geomorphic, vegetation, and wetland assessment will be completed to support development of the conceptual restoration plan. Surveys and methods will follow standard protocols and include both existing and reference conditions in the project area. Reference data will be collected to support development of geomorphic, aquatic habitat, wetland habitat and vegetation design criteria, as appropriate, and will be used in conjunction with other methods to inform the conceptual design. Geomorphic data collection will include channel cross-sections, longitudinal channel profiles, streambed substrate characterization and channel classification. Vegetation data collection will include sampling of vegetation within quadrats established on transects, with observations of all occurring plants and absolute percent canopy cover of dominant species by strata. Sampling of wetlands will occur through establishment of plots at select representative wetland areas, and description of the soil in the upper part of the soil profile, absolute percent cover of vegetation by strata, and hydrology. Historical aerial photos will be analyzed to evaluate geomorphic trends over time. Reference floodplain surfaces that support active side channels, alcoves, and off-channel riverine wetlands will be assessed in the field to help guide development of floodplain, wetland, and vegetation design criteria.

Data Collection Tasks

- Geomorphic investigations including channel morphology, substrate and site hydrology;
- Hydrologic analysis with particular attention to baseflow, fish passage flows and bankfull for channel forming flow determination;
- Remotely sensed vegetation assessment to categorize broad vegetation communities;
- Detailed vegetation and wetland assessment in select locations that represent the range of wetland types and vegetation communities present in the project area;
- Historical aerial photograph analysis and trend analysis; and
- Irrigation diversion(s) infrastructure assessment.

Following field data collection, and with assistance from landowners and NWE, a conceptual restoration plan will be developed for high priority restoration sites. The conceptual plan will include plan views and GIS illustrations, and will be included in an 11"x17" plan set prepared in GIS. A construction phasing plan will be developed and estimates for final design, permitting, and construction will be provided.

IV. Schedule

Table 1 includes a proposed project schedule. Work will begin immediately following contract award, and the field assessment and remote sensing tasks will be completed in the summer of 2018. A draft conceptual plan will be distributed to project stakeholders for comments in October 2018. Based on comments received, a final conceptual design plan set will be prepared.

Table 1. 2018 project schedule for the Middle O'Dell Creek Conceptual Restoration Plan project.

Task	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Task 1. Project Management				
Task 2. Field Assessment				
Task 3. Conceptual Design				
Task 4. Direct Costs				

V. Personnel

Similar to past phases of restoration on O'Dell Creek, the project will be designed and implemented under the auspices of a diverse group of stakeholders including NorthWestern Energy, Granger Ranches, L.P., and Longhorn Ranch, L.P. As a team, we have established a track record of successful collaboration on 12 projects on O'Dell Creek. Our continued collaboration and history working on this project underscores the importance we place on offering a team that will continue to be compatible with the community and stakeholders.

RDG is an approved consultant on NorthWestern Energy's Qualified Vendor's List for stream and wetland restoration services. RDG has prepared and implemented all previous phases of restoration on O'Dell Creek with the exception of Phases 1 and 2. Mr. John Muhlfeld will serve as the project manager and technical lead on behalf of the design team. Selita Ammondt, RDG's Geographic Information Systems analyst and Wetland Ecologist, will participate in the assessment and prepare the GIS plan set.

VI. Budget

Table 2 includes a not-to-exceed cost estimate to perform the Scope of Work (SOW). The total cost to perform the SOW is $34,900. As noted, project partners have $5,000 committed in cost-share. The cost-share match accounts for approximately 15% of the total project cost. This proposal is requesting TAC funds in the amount of $29,900, as shown in Table 2.

Table 2. Middle O'Dell Creek Conceptual Restoration Plan Cost Estimate.

Task		Cost
1. Project Management	**$**	**1,500.00**
Coordination with NWE and Landowners	$	1,500.00
2. Field Assessment and Data Collection	**$**	**11,000.00**
Vegetation and Wetland Assessment	$	5,250
Geomorphic Assessment	$	4,750
Irrigation Diversion(s) Assessment and Inventory	$	1,000
3. Conceptual Restoration Plan	**$**	**19,750**
Data Processing	$	3,500
Preliminary (DRAFT) Restoration Plan	$	8,750
Final Conceptual Restoration Plan	$	3,500
Cost Estimating and Project Phasing Plan	$	4,000
4. Direct Costs	**$**	**2,650**
Mileage	$	1,650
Per Diem	$	280
Lodging	$	720
Estimated Project Cost	**$**	**34,900**
*Cost-Share (Granger Ranches / Madison River Foundation)	$	5,000
Total TAC Funds Requested	**$**	**29,900**

VII. Deliverables

Project deliverables will include the following:

- 11”x17” GIS plan set with drawing, illustrations and exhibits.
- Cost estimates and phasing plan for high priority projects.

This project will culminate in a ‘master plan’ for over 10 miles of spring creek and wetland restoration on Middle O’Dell Creek. The importance of investing in this planning effort is three-fold:

1. Developing a restoration vision for wetland and wildlife resources in the project area will help generate support from landowners, agencies, and local organizations who have contributed to past phases of restoration work on O’Dell Creek.

2. A “road map” for future restoration work leads to cost-effective implementation, as restoration constraints can be identified early in the planning process. Developing a realistic implementation phasing plan is critical when implementing restoration actions over such a large area, as learned from prior phases of work on upper O’Dell Creek.

3. Alternative funding sources exist, including Section 319 funding from Montana Department of Environmental Quality following completion of the watershed restoration plan for the Madison River. The preliminary design, phasing plan, and cost estimates will prove useful in applying for grants and other state, federal, and local funding opportunities.

VIII. Cultural Resources

This project will not result in ground disturbance or active construction therefore a cultural resources survey is not needed.

IX. Water Rights

At a future data as final designs are prepared, appropriate analysis will be performed to demonstrate that the project complies with the intent of Montana DNRC’s “*Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities*”, issued by the Water Resources Division on March 9, 2016.

DNRC guidelines state that “any wetland project (restoration) whose final design approximates the natural characteristics of adjacent natural wetlands or approximates something smaller in magnitude does not require a water right”. The guidelines also state that restored wetlands should have characteristics similar to other natural wetlands in the area and should function entirely in the absence of artificial controls and diversions of water that intentionally appropriate water for wetland use.

Future projects in Middle O’Dell Creek intend to restore wetland habitat by lowering floodplain surfaces to more natural conditions which will foster the restoration of hydrology and vegetative characteristics to existing wetlands in the immediate area. Open water wetlands will not involve the construction of any berms, dams, or dikes; will not involve any diversion of water; will partially offset the loss of riverine wetland habitat; and will not increase water consumption.

Project Title: Earthquake Lake and Hebgen Lake Weed Treatments 2017

Project addresses a specific Project 2188 License Article(s), Priority 1.

The Northwestern Energy Montana *Updated Five Year (2018 thru 2022) Madison and Missouri River Wildlife and Terrestrial Habitat Plan per Project 2188 License Articles 411, 418, 421, 423, and 424* states under Article 421 that NorthWestern Energy will continue to work with cooperating agencies to insure interagency conservation for grizzly bears through protection and enhancement of important habitats. Article 423 of the License directs NorthWestern Energy to develop a plan to enhance native plants and wildlife populations on the lands and waters associated with the 2188 license. This project would enhance important grizzly bear (recently de-listed) habitat, in compliance with Article 421, and native plants and wildlife populations around Earthquake Lake and Hebgen Lake, in compliance with Article 423, by reducing the spread of noxious weeds.

This project meets the criteria for a Priority 1 project because it will take place along the main stem of the Madison River above and below Hebgen Dam. Proposed treatment areas lie adjacent to Hebgen Lake, Quake Lake, the Madison River, and areas in the immediate vicinity that provide valuable Winter and Spring/Summer/Fall habitat for wildlife species, including elk, mule deer, moose, bison, and the recently de-listed Yellowstone grizzly bear.

Project Sponsor (submitted by): Randy Scarlett, Wildlife Biologist, USDA Forest Service, Hebgen Lake Ranger District, West Yellowstone, MT

Location of Proposed Project: The project will treat noxious weeds within approximately 160 acres of known and estimated weed infestations around Earthquake Lake, Hebgen Lake, the Madison River, and the surrounding valley.

Total Project Cost: $21,200

TAC Funds (Cost-Share) Requested for Project: $12,000

I. Introduction. Despite ongoing efforts by the Gallatin National Forest weed program to keep noxious weeds at bay, extreme recreational pressure on Hebgen Lake and along the Madison River continues to cause dispersal of noxious weeds throughout these areas. Species such as spotted knapweed, yellow toadflax, orange hawkweed, hound's tongue, and St. Johnswort threaten native plant communities in these areas. Earthquake Lake and Hebgen Lake provides critically important waterfowl nesting habitat, foraging areas and cover for grizzly bears, moose and elk winter range, and nesting territories for bald eagles and peregrine falcon, among numerous other species that use the area. The Madison River between Hebgen Dam and Earthquake Lake is an important migration corridor for elk and also provides important moose winter habitat. The importance of these areas for wildlife cannot be overstated, but habitat quality in these areas is threatened by the presence and spread of noxious weeds that outcompete and displace native vegetation. If not controlled, noxious weeds will continue to spread into areas that are not currently infested and will begin to seriously limit forage availability, low-level cover for birds and other wildlife, and degrade the quality of breeding habitats. Although noxious weeds may never be completely eradicated from the Forest or a particular site, it is possible to reduce impacts on wildlife habitat and control spread through ongoing treatments that are implemented at regular intervals over time. Weed treatment is not a one-time event; rather, it must be ongoing in order to be effective.

II. Objectives. Treat 160 acres of existing noxious weeds (using a combination of herbicides and biological control, where feasible) in the project area during the spring and summer of 2018.

III. Methods. The Forest Service will utilize the Montana Conservation Corp (through an existing agreement) to spray known patches of noxious weeds as well as newly discovered weed sites (primarily knapweed and yellow toadflax). Forest Service weeds managers will be on hand to guide treatment activities. Two weeks after treatment the site will be monitored to evaluate the effectiveness of the treatment. The sites have high density of knapweed, hoary alyssum, yellow toadflax, and Canada thistle. We will also treat orange hawkweed patches adjacent to Hebgen Lake.

IV. Schedule. The project would be implemented during the spring and summer of 2018. Treatment would be scheduled to optimize the effectiveness of spraying on the noxious weed species present at these sites; phenology of the weeds in question and site specific conditions will determine when the sites are "ripe" for treatment.

V. Personnel. The Custer Gallatin National Forest Weeds Specialist would be the Project Leader. She would prepare and organize agreements, schedule work, monitor the effectiveness of the work, and aid the Zone Wildlife Biologist in preparing an annual report summarizing work accomplishments for the year.

VI. Project budget:

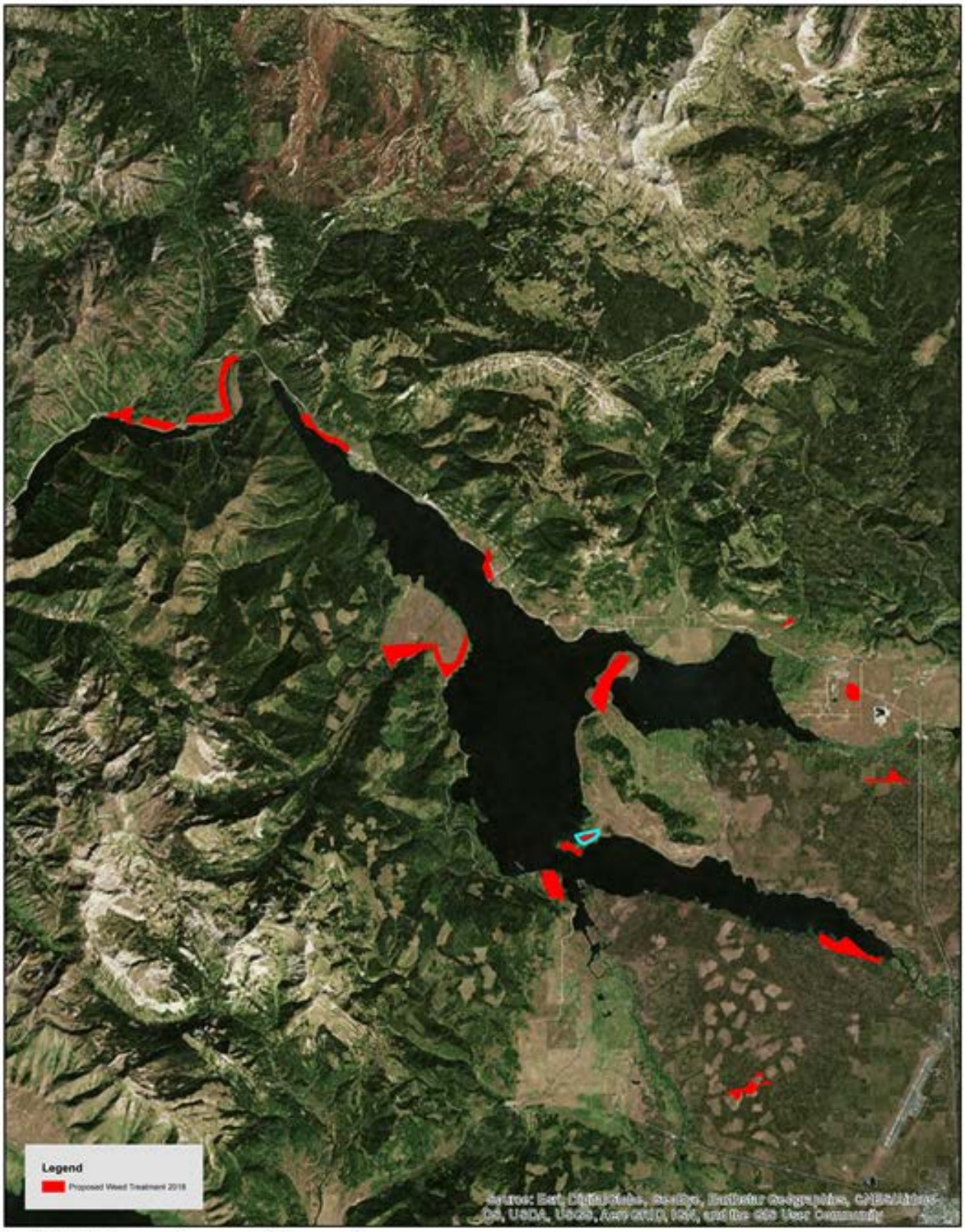
	Northwestern Energy	**Gallatin NF**	**Total**
Direct Labor	$12,000 (Montana Conservation Crew	$8,500 (FS personnel to supervise, inventory, participate in, and monitor treatment)	$20,500
Travel and Living	$0	$0	$0
Material	$0	$0	$0
Other Direct Expenses (Vehicle)	$0	$520	$520
Direct Overhead	$0	$180	$180
Total	**$12,000**	**$9,200**	**$21,200**

VII. Deliverables. Approximately 160 acres would be treated to reduce the presence of noxious weeds. Monitoring of these sites would determine the level of success. Due to ongoing recreation at these sites and wildlife use of the area, it is not anticipated that weeds would be eliminated entirely. It is instead expected that the density of weeds would be substantially reduced. Ongoing treatments are necessary to ensure continued success over time. A report summarizing treatments would be provided to NorthWestern Energy in winter 2018.

VIII. Cultural Resources. No ground disturbing activities are proposed; therefore, no coordination with cultural resource specialists is required. Also, the Gallatin National Forest Noxious Weed Treatment Project EIS was completed in 2005 and the effects to other resources (including cultural resources) were addressed in that document. The EIS and Record of Decision documented that the use of chemical treatments would have no effect on cultural resources.

IX. Water Rights. Not applicable to this project as no activities affecting streams or other water sources would occur.

2018 NWE Weed Treatment Proposal



Project Title: **Trumpeter Swan breeding flock restoration in the Middle Madison Valley**

Date: 11/12/2017

Explain how this Project addresses a specific Project 2188 License Article(s):
Article 423 Wildlife/habitat PM&E on Madison-Missouri Rivers, specifically "… wildlife enhancement plan that includes specific goals, objectives, and standards to enhance native plants and wildlife populations on the lands and waters associated with the project; including identification of specific protection, mitigation, and enhancement strategies for avian species."

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

Our project addresses License Article 423 by restoring native trumpeter swans to their historic range. With the primary objective of this restoration work to provide nesting habitat for trumpeter swans in the O'Dell Creek Headwaters area, in hopes that they will pioneer wetlands throughout the Madison Valley where suitable nest areas are available. More specifically, in 2011 MFWP Region 3, in collaboration with the Montana Wetlands Legacy Partnership (MWLP), through its wetland restoration efforts in the Madison Valley, proposed to increase the geographic extent of the Montana trumpeter swan restoration program by beginning to release captive-reared swans in the middle Madison, starting in 2012. This broad partnership of Madison Valley landowners and federal, state and private partners has been nationally recognized for providing quality wetland habitat that offers the potential to increase swan production in the region and to enhance connectivity between flocks breeding in the Centennial Valley, Blackfoot, and Flathead Valleys in Montana.

Project Sponsor (submitted by):

Claire Gower, Wildlife Biologist
Montana Fish, Wildlife & Parks
1400 South Nineteenth
Bozeman, MT 59718
406-994-5953
cgower@mt.gov

Location of Proposed Project: Madison Valley with primary focus on O'Dell Creek Headwaters

Total Project Cost: $7,000

TAC Funds (Cost-Share) Requested for Project: $4,000

I. Introduction.
Since its inception, Northwestern Energy has been a funding partner for restoration of the O'Dell Creek Headwaters wetlands and the accompanying restoration of breeding trumpeter swans in the middle Madison. Restoration of wetland habitats in this area has now provided essential breeding areas for reestablishment of breeding trumpeter swans to this portion of their historic breeding range. Releases of hand-reared, wild stock trumpeter swans will be in the seventh year in 2018. Based on experience in the Blackfoot Valley and other parts of the Rocky Mountain Trumpeters' breeding range, approximately six to seven years of releases will be needed to establish the first nesting pairs in the area.

II. Objectives.
Continued wetland restoration projects in the Madison serves as the basis for establishing a breeding flock of trumpeter swans in the area. The objective of this restoration effort, approved by the Montana Fish, Wildlife and Parks Commission, is to restore a breeding flock of at least five established nesting pairs in the middle Madison from Quake Lake to Ennis Lake.

III. Methods.
MFWP is providing support for the Madison trumpeter swan effort through existing positions within MFWP. MFWP's Region 3 Wildlife Biologist (who also serves as the MT Pacific Flyway Study Committee Representative and the Greater Yellowstone Trumpeter Swan Working Group (GYTSWG) chair) as well as MFWP's Flyway Biologist position in Billings (Jim Hansen) are providing support for this program by assisting in constructing soft release pens, obtaining neck collars and other banding materials, reporting banding data/recoveries to the USGS Banding Lab in Patuxent, Maryland, working with landowners and the public to capture and salvage injured, sick, or dead birds, giving presentations to the public, and in other ways. MFWP is also taking a lead role in raising matching funds and securing additional partnerships from other sources including; Montana Audubon, the Sacagawea Chapter of the Montana Audubon, Montana Outdoor Legacy Foundation, and from private individuals.

Northwestern Energy (NWE) has provided between $3,500 -$5,000 per year depending on projects needs and funding from other sources. These funds are generally used to obtain birds for release from Wyoming Wetlands Society, as well as providing additional operations support for releases. In 2016 we conducted a spring flight for the first time to evaluate possible nesting and to increase monitoring efforts to gauge the success of the program. We feel that we are now at a critical time in this work where nesting is possible and we would like to be able to report possible nesting attempts, and if possible the number of young produced. Consultation with Bill Long, director, Wyoming Wetlands Society (WWS), indicates that this flight should be conducted annually from now on. The WWS graciously funded this flight in 2016 but from 2017 funds are needed to cover the flight and thus funds are being requested in this proposal to NWE and are reflected in the budget.

MFWP will continue to work with funding partners to solicit donations for obtaining swans for the 2018 release and beyond as needed.

IV. Schedule.
Project planning, coordination, authorization from Pacific Flyway Council and others will be ongoing throughout the period October 2017 through December 31, 2018.

V. Personnel.

Proposal Sponsor: Claire Gower, Wildlife Biologist
MT Fish, Wildlife & Parks
1400 South Nineteenth
Bozeman, MT 59718
(406) 994-5953
cgower@mt.gov

VI. Project budget:

Direct Labor	0
Travel and Living	1000
Materials	1000
Other Direct Expenses	5000
Direct Overhead	0

All cost-share sources and amounts, including estimation of "in-kind" contributions

$2,000 In-Kind FWP Native Species Program – Region 3*
$1,000 In-Kind Bill Long, Wyoming Wetlands Society**
$1,000-1,500 has in the past been provided by MT and Sacajawea Audubon -we are currently working to secure additional match commitments for this year.

*~ 8 days / 64 hours full time biologist salary dedicated to swan restoration – meetings for restoration approval, constructing and taking down soft release pen, collecting and releasing swans, follow up monitoring and database management, project reporting and project product/presentation development and delivery. Also, Pacific Flyway and Greater Yellowstone Trumpeter Swan working Group attendance and coordination.

** Travel time to and from field site, transport of birds up, disease testing, project coordination and facilitation, project reporting, meetings and Pacific Flyway involvement.

VII. Deliverables.
Continued release of trumpeter swans in 2018, associated construction of release pen(s), tracking of birds and recording locations/maintaining data records, securing markers and reported bandings to Bird Banding Lab by the end of the year. MFWP will also provide an annual report update before the 2017 Wildlife TAC Meeting. A PowerPoint presentation will also be given at the annual TAC team meeting. A glossy tri-fold document summarizing the work and promoting the MFWP and Northwestern Energy's collaboration was produced in 2016; this needs to be updated in 2018 to reflect updated activity. Approximately 200 were printed and distributed at fundraising events and at the most recent swan release. They are also available at the MFWP regional headquarters in Bozeman. More will be printed and provided at similar events in 2018 onwards. This document will promote observations of marked birds to be reported to MFWP which will facilitate knowledge of the success of the project.

Presentations have been given to the Ruby Watershed Group and Sacajawea Chapter Montana Audubon. We will also use the spring flights (described above) to gauge project success.

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

Due diligence, including MEPA and NEPA compliance, requires consulting cultural resource professionals for all projects involving public funds. Cultural resource professionals within the sponsoring agencies or with the MT SHPO office will conduct cultural resource inventories on this project. Sponsoring entities will ensure that these surveys are conducted and results reported in advance of initiating this project. Northwestern Energy's cultural resource consultants will also be involved as required by the company.

IX. Water Rights. Summarize here how you will comply with Montana and NWE water rights laws, policies and guidelines:

Not applicable