2017 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

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

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

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

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

All TAC project proposals must include the following information:

Project Title: *BLM Wood Landing Riparian and Upland Habitat Restoration and Enhancement Project*

Date: *10/28/2018*

Explain how this Project addresses a specific Project 2188 License Article(s): *Should enhance and support all Wildlife Articles*

Provide justification for Priority 1, 2 or 3 (above) that you selected: *Meets Priority 2 Criteria. See attached Planning Document*

Project Sponsor (submitted by): *Cory Loecker and Jake Doggett (Montana Fish, Wildlife & Parks)*

Location of Proposed Project: *Woods Landing (Wood Bottom) Wildlife Management Area - Bureau of Land Management, Loma, Montana*

Total Project Cost: *$220,451*

TAC Funds (Cost-Share) Requested for Project: *$97,000*

I. Introduction; brief statement of project to be completed with pertinent background information. *This Habitat Enhancement Project is created in effort to enhance and restore 930 acres of riparian and upland habitat on the Wood's Bottom Sikes Act Management Area along the Missouri and Marias Rivers. The proposed project area, known as the Wood Bottom Recreational Area, is a 2,250-acre subunit of the Upper Missouri River Breaks National Monument located just outside of Loma. All lands in this project proposal are owned by the BLM. These riparian and upland habitat enhancements follow an agreement made April 10, 2015 (and previous agreements) between the BLM, FWP and Jesse Wood – See Attached Agreement. Owing to multiple party's involvement, this effort realizes the importance of partnerships and mutual benefits to all involved for a successful long-term project.*

The focus of the project is to enhance habitat for upland game birds, Merriam's turkeys, neotropical bird species, nesting waterfowl, nongame wildlife species and Species of Concern. Other wildlife species such as white-tailed and mule deer, antelope, ground nesting birds and furbearers will also benefit. The project will also enhance riparian health of the Missouri River. Fourteen (14) Species of Concern inhabit these landscapes including 5 mammal, 2 bird, 2 reptile and 5 fish species (Montana Heritage Program). The unit is culturally significant in that it falls along the Lewis and Clark National Historic Trail. It holds recreational value serving as a popular

hunting, fishing, hiking, birding and camping destination. From a conservation standpoint, the area is unique. On the north end of the property the Marias River confluences with the Missouri River. Just upstream, the Teton River confluences with the Marias River. Three rivers and their associated flood plains converge along the north boundary of the property and the uplands make up the geographical features characterizing it. Approximately 670 acres of the Wood Bottom Unit falls along the Missouri River Floodplain; the property adjoins nearly four miles of Missouri River. Land cover on the Wood Bottom Unit is fairly diverse. Existing habitat includes productive cropland (704 acres; 33%), native and introduced grassland (27%), cottonwood-shrub-dominated riparian areas (12%) and several remnant stream channels. The meandering river adds a constantly changing wetland component. The riverbanks or 'breaks' add diversity in topography.

Since nesting cover is limiting and since a large portion of the property is farmed, this project proposes to return 504 acres of cropland and 226 acres of non-native pasture back to native perennial vegetation. Cropland and the production of crops for harvest would continue to exist on the Wood Bottom Unit, however, about 70% of the cropland will be restored to native perennial vegetation. Additionally, about 200 acres of cropland would continue to be farmed for wildlife food sources. Total riparian and upland habitat acres enhanced equal 930. The end goal is to convert most of cropland back to perennial vegetation and enhance year-around habitat for upland game birds and all wildlife species. Riparian health will be greatly enhanced by perennial vegetation and woody species establishment.

II. Objectives; explicit statement(s) of what is intended to be accomplished. *Restore, enhance and protect riparian wildlife habitats on about 930 acres of 2,250 acres BLM lands along the Missouri and Marias Rivers. Long term streambank stabilization through perennial vegetation and woody species plantings along the river banks.*

III. Methods; description of how Project objectives will be accomplished. *See project description and implementation schedule (attached).*

IV. Schedule; when the Project work will begin and end. *Period of contract will be Spring 2019 – Fall 2025.*

V. Personnel; who will do the work? Identify Project leader or principal investigator. *Project leader(s) will be Cory Loecker and Jake Doggett (MTFWP). Jesse Wood (Landowner) will be cooperator doing the farming and habitat plantings.*

VI. Project budget must include amounts for the following: *See attached cost breakdown sheet.*

Proposed project startup date(s) (mm/yy): 03/19
Total project acres: 930
Total access acres: 2,250

Total project cost:	*$220,451.00*
♦ *FWP UGBEP:*	*$42,054.40*
♦ *BLM*	*$40,000.00*
♦ *Cooperator:*	*$41,396.60*
♦ *Northwest Energy may contribute:*	*$97,000.00*

Direct Labor: *Landowner (Cooperator) - $41,396.60*
FWP staff time, travel, fuel and mileage - $0 (included in project)
Travel and Living - *$0*
Materials – *Seed mix, chemical included in overall project costs*
Other Direct Expenses – *N/A*
Direct Overhead – *FWP staff time - $0 (included in project*)
All cost-share sources and amounts, including estimation of "in-kind" contributions: *see cost breakdown sheet*

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated? *Deliverables will be through various correspondences, photographs and wildlife surveys as necessary and appropriate throughout the year to accomplish the tasks and objectives described above. Success of the project will be conversion of about 730 acres farmed ground and nonnative pasture to native perennial upland game bird and wildlife habitat. A remaining 200 acres will be in a cropping rotation as food sources for wildlife species. Improved habitat availability directly resulting in increased upland bird, Merriam's turkey, waterfowl, neotropical bird species and nongame wildlife populations is a desired outcome. Many species also utilize this area for stopover during migrations. Sensitive and species of concern also utilize this area.*

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

Summarize here how you will complete requirements for Cultural Resource Management: *Determination will be made as to the necessity of cultural surveys as all restoration and enhancement activities will be conducted in currently farmed agricultural lands. Should surveys be necessary all required surveys will be accomplished through agency or private hired consultants to assure compliance with cultural resource requirements.*

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

Summarize here how you will comply with Montana water rights laws, policies and guidelines*: Not Applicable.*

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

- Andrew.Welch@Northwestern.com
- Grant.Grisak@Northwestern.com
- Brent.Mabbott@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

WOOD RIVER RANCH SIKES ACT MANAGEMENT AREA SIKES ACT HABITAT MANAGEMENT AGREEMENT

THIS AGREEMENT ENTERED INTO THIS 11l.J/,f)AY OF April , 2015, BY AND BETWEEN THE MONTANA FISH WILDLIFE, AND PARKS ACTING BY AND THROUGH ITS REGIONAL SUPERVISOR, HEREINAFTER REFERRED TO AS THE FISH, WILDLIFE AND PARKS, AND THE BUREAU OF LAND MANAGEMENT ACTING BY AND THROUGH ITS UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT MANAGER, HEREINAFTER REFERRED TO AS THE BUREAU AND **JESOOD** OF **WOODRIVERRANCHINCORPORATED ,** HEREINAFTER REFERRED TO AS COOPERATOR.

WHEREAS THE FISH, WILDLIFE, AND PARKS AND THE BUREAU HA VE ENTERED JNTO A COOPERATIVE AGREEMENT UNDER THE AUTHORITY OF THE SIKES ACT OF 1974(16 USC 670)(PUBLIC LAW 93-452) ON THOSE LANDS KNOWN AS THE WOOD RIVER RANCH AND FURTHER DESCRIBED AS FOLLOWS:

Principal Meridian, Montana

T.25N, R9E. PMM

Sec. 13, Sl/2NE1/4, Sl/2SE1/4NW1/4, El/2SW1/4, SEl/4
Sec. 24, Nl/2NE1/4, El/2NW1/4

T.25N, RlO E. PMM

Sec. 18 Lots 4, 6 9, 10, 11 and that part ofl ot 3 lying south oft he Marias River as it existed on June 11, 1959.
Sec. 19, Lots 3, 4, 5 6, 9, SEl/4NWl/4, NEl/4SWI/4, Wl/2SE1/4
Se,c. 20 Lots 7, 8 10, 11 12 Sl/2Sl/2 NWl/4SE1/4
Sec. 30 Lots 2, 3, Wl/2NEl/4, SEJ/4NW1/4 NE1/4SW1/4, NW1/4SE1/4

Containing approximately 1667 acres more or less (See Exhibit ''A").

WHEREA THE FISH, WILDLIFE, AND PARKS AND THE BUREAU DESIRE TO HA VE PORTIONS *OF* THE ABOVE DESCRIBED LANDS FARMED FOR THE PRODUCTION OF CERTAIN CROPS IN ORDER TO MEET WILDLIFE HABITAT OBJECTIVES.

WHEREAS THE COOP ERA TOR IS WILLING CAPA BLE AND DESIRES TO FARM ABOUT 400 ACRES OF SAID LAND AND AGREES TO THE COVENANTS CONTAJNED HEREIN. A 20-J00 ACRE REDUCT[ON COULD O:CCUR WHEN THE BUREAU PLANTS OR HAS PLANTED ADD1TIONAL LANDS INTO PERENNIAL COVER.

NOW, THEREFORE, THE PARTIES TO THfS AGREEMENT IN CONSIDERATION OF THE MUTUAL COVENANTS AND AGREEMENTS AND FOR THE ADVANTAGES AND MUTUAL BENEFITS ACCRUING UNDER TI-OS AGREEMENT TO EACH *OF* THEM, HEREBY COVENANT, CONTRACT AND AGREE:

TH[S AGREEMENT CONVEYS NO RIGHT, TITLE, OR INTEREST HELD BY THE UNITED STATES 1N ANY LAND OR RESOURCES OTHE THAN THE CROPS.

THE TERM OF THIS AGREEMENT SHALL BE FOR TEN (10) YEARS BEGINNrNG ON **April 6, 2015** AND TERMINATING ON **March 31, 2025** AT WHICH TIME THE BUREAU AND FISH,

WILDLIFE, AND PARKS HAVE THE OPTION TO RENEW THIS AGREEMENT, IF SO DESIRED BY ALL PARTIES.

THE BUREAU AGREES TO PROVIDE LANDS WITHIN THE ABOVE DESCRIBED PROPERTY FOR THE PURPOSE OF SMALL GRAIN FARMING. AS NEEDED, AMMENDMENTS TO THIS AGREEMENT MAY BE REQUIRED TO COMPLY WITH THE UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT RESOURCE MANAGEMENT PLAN (RMP).

THE COOPERATOR UNDERSTANDS THAT FARMING ACREAGES MAY BE REDUCED IN ORDER TO CONSTRUCT OR UPGRADE RECREATIONAL INFRASTRUCTURE. THIS WILL INCLUDE BUT IS NOT LIMITED TO, THE WOOD BOTTOM ROAD UPGRADE AND THE PROPOSED ROWE BENCH SCENIC OVERLOOK. THE COOPERATOR UNDERSTANDS THAT FARMING WILL EVENTUALLY BE PHASED OUT ON PARTS OF THE HISTORIC FARMING AREAS IN ACCORDANCE WITH THE WOOD RIVER RANCH HABITAT MANAGEMENT PLAN (HMP). HOWEVER, THE SCHEDULE IS NOT YET ESTABLISHED FOR IMPLEMENTING PLANNED ACTIONS, NOR HAS TOTAL FUNDING BEEN OBTAINED. THE COOPERATOR AGREES TO PROVIDE THE FARMING EQUIPMENT, LABOR, FUEL AND OIL, SEED, CHEMICALS AND ANY OTHER ITEMS NECESSARY TO CONDUCT A SUCCESSFUL FARMING VENTURE.

FISH, WILDLIFE, AND PARKS MAY PROVIDE FUNDING ASSISTANCE, DEPENDING ON NEED AND AVAILABILITY, THROUGH THE UPLAND GAME BIRD PROGRAM AND SIKES ACT, TO PURCHASE SEED, SHRUBS AND TREES FOR REESTABLISHING NATIVE VEGETATION ON SELECTED SITES FOR NESTING, ESCAPE, THERMAL COVER, OR FOOD FOR UPLAND BIRDS.

THE WOOD RIVER RANCH INC. DUTIES AND OBLIGATIONS:

IN ADDITION TO ALL OTHER COVENANTS CONTAINED IN THIS AGREEMENT, THE COOPERATOR AGREES TO PERFORM AND CARRY OUT THE FOLLOWING.

1. All operations on the described property shall be conducted in a workmanlike manner commensurate with the farming practices in the immediate vicinity of this property.

2. Total acreage of standing crop left un-harvested for wildlife forage and cover, will be determined in cooperation with the Bureau project manager. Standing crop will be ½ the width of a combine header (at least 12 feet) along one side of the grass shelterbelts on the described property; not to exceed 6 acres in total. Other services may be provided by the cooperator in exchange for reduction of standing crop, including but not limited to weed control, road maintenance, grass seeding and maintenance. This exchange of services will be at the direction or approved by the Project Manager.

3. All pesticides must be used in accordance with label instructions. The Monument Manager or project manager will be notified prior to the application of pesticides with the application location, dates, and type of pesticides. A State of Montana certified applicator's license is required. All weed control measures will be in compliance with state and local weed control agency requirements. See Appendix A for pesticide application stipulations. Refer to Appendix B for the list of herbicides approved for use on public lands.

4. Storage of pesticides, hazardous substances, or their containers is <u>not</u> allowed on the BLM property.

5. Control all weeds on the farmed portion by mechanical or chemical means.

6. The Cooperator is responsible for the clean up and disposal of any hazardous substance spills or releases caused by the Cooperator or their representatives. Releases must be reported to the BLM and EPA within 24 hours. Reportable quantities are specified on hazardous substance labels.

7. Prevent any and all unnecessary waste, loss, or damage to the property of the United States. Cooperator will exercise care to prevent fire and will assume responsibility for fire resulting from his operation.

8. Keep the farmed area neat and free of any trash, debris, or unsightly items.

9. Seed and maintain any grasses, grains, or forbs determined by the Fish, Wildlife, and Parks, and the Bureau to be beneficial for wildlife. The seed mixture and varieties will be determined and provided by the Fish, Wildlife, and Parks, and/or Bureau. Periodically at request of the Bureau, hay grass buffer strips to maintain their vigor and value to wildlife.

10. Cooperator will not plow or burn crops unless approved by and in cooperation with the Bureau.

11. Cooperator will not break, plow or cultivate any established pasture lands or native range without written consent from the Bureau. Cooperator will consult with the Bureau on any deep plowing/ farming techniques to avoid destruction of any undisturbed cultural resources.

12. Cooperator will not plow, block, obstruct, or hinder any of the roads or trails as to disturb public travel there on, nor interfere with existing communications lines or rights-of-way. Public access will be controlled by the Bureau or FWP to protect farm land and crops from damage by vehicles.

13. Cooperator will not interfere with legal hunting or fishing on the land or the ingress or egress of other individuals entitled to enter the area for lawful purposes.

14. Cooperator will not use any government program which may be binding in any way on the Bureau or Fish, Wildlife, and Parks.

15. Cooperator has the option to purchase crop insurance at own expense to protect against crop loss. Any settlement from such insurance will be paid solely to the cooperator.

16. The Bureau reserves the right to develop or relocate facilities such as fences, roads, and structures.

THE FISH, WILDLIFE, AND PARKS, AND THE BUREAU RESERVE THE RIGHT FOR ITS EMPLOYEES, AGENTS OR DESIGNEE, TO ENTER UPON THIS PREMISE AT ANY TIME TO INSPECT, VIEW, MAKE REPAIRS, IMPROVEMENTS OR TO DETERMINE THE PERFORMANCE OF THE COOPERATOR OF THE COVENANTS AND AGREEMENTS OF THIS DOCUMENT.

FAILURE OF THE COOPERATOR TO COMPLY WITH ANY OF THE COVENANTS AND AGREEMENTS OF THIS DOCUMENT WILL BE GROUNDS TO TERMINATE THE AGREEMENT AT THE DISCRETION OF THE BUREAU. UPON TERMINATION OF THIS AGREEMENT, THE COOPERATOR WILL BE RESPONSIBLE TO HARVEST THE CURRENT CROPS, SUMMER FALLOW THE FARMED ACRES, AND ESTABLISH A GRASS VEGETATIVE STAND ON ALL FARMED AREAS WITHIN THE BOUNDARIES OF THIS PROPERTY. THE SEED MIX OR VARIETY OF SEED WILL BE DETERMINED AND PROVIDED BY THE BUREAU.

PROJECT OR IMPROVEMENT INSPECTORS WILL BE APPOINTED BY THE AUTHORIZED OFFICERS OF THE BUREAU AND/OR THE FISH, WILDLIFE, AND PARKS.

THE TERMS OF THIS AGREEMENT MAY BE AMENDED BY MUTUAL AGREEMENT OF ALL PARTIES HERETO.

THIS AGREEMENT AND ALL OF THE TERMS AND COVENANTS HEREOF SHALL NOT ENSURE TO THE BENEFIT OF, AND BE BINDING ON THE HEIRS OR OTHER SUCCESSORS IN THE INTEREST OF THE RESPECTIVE PARTIES, HERETO DURING THE TERM OF THE WILDLIFE DEVELOPMENT AGREEMENT ON THE ABOVE MENTIONED LAND.

FISH, WILDLIFE, AND PARKS, AND THE BUREAU RETAIN THE OPTION TO RENEW THIS AGREEMENT AT THE END OF THE AGREEMENT PERIOD IF SO DESIRED BY ALL PARTIES INVOLVED.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT AS OF THE DATE WRITTEN BELOW.

MONTANA FISH, WILDLIFE, AND PARKS:

BY _____ GARY BERTOLOTTI
Supervisor, Region 4

DATE 11/29/2017

BUREAU OF LAND MANAGEMENT:

BY _____ ACTING UMRBNM MANAGER FOR: MIKE KANIA
Upper Missouri River Breaks National Monument Manager,
Lewistown Field office

DATE 5/18/2015

WOOD RIVER RANCH REPRESENTATIVE:

BY _____

DATE 4-10-15

APPENDIX A

WOOD RIVER RANCH HABITAT MANAGEMENT AREA
STIPULATIONS FOR APPLICATION OF PESTICIDES ON PUBLIC LAND

1. No liquid herbicides will be applied when winds exceed 5 mph, or as specified on the label.

2. Granular herbicides will not be applied when winds exceed 10 mph, or as specified on the label.

3. Tordon, because of its long residual, is limited to one application to a site per year and will be applied according to label instructions.

4. Application of long residual and highly mobile herbicides will not be allowed on areas where the water table is within 10 feet of the surface on coarse textured soils low in organic matter where leaching could occur.

5. Buffer strips or no spray areas may be required to meet label restrictions and for application around live streams, reservoirs or riparian areas. Only waterway approved herbicides can be used within waterways. Boom sprayers can be used to within 25 feet of water bodies. Spot treatments with vehicle-mounted handguns or backpack sprayers can be used to within 10 feet of water bodies. Wipe applicators may be used up to the water edge.

6. The applicator applying pesticides on public land must have a current **certified pesticide applicators license** with the state of Montana.

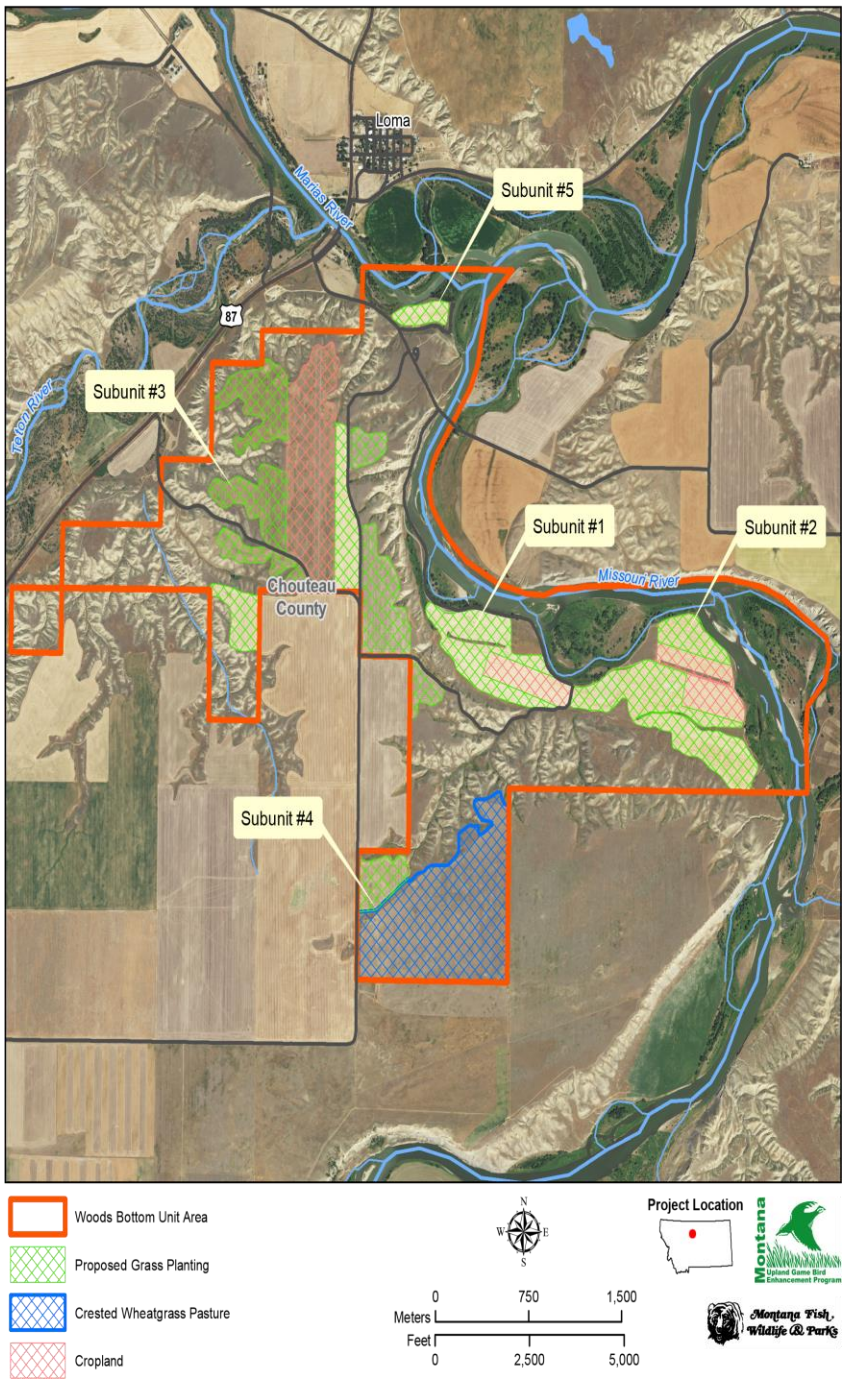
7. Mixing sites shall be a minimum of 50 feet from any water source.

8. Cleaning sites are not authorized on public land.

9. Aerial application of herbicides or pesticides will not be allowed.

Management Plan

October 22, 2018



BLM Staff: J. Peters County(s): Chouteau **Wood Bottom Unit, Loma** FWP Office: Great Falls

FWP Staff: C. Loecker, J. Doggett

BLM Staff: J. Peters

Wood Bottom Unit, Loma

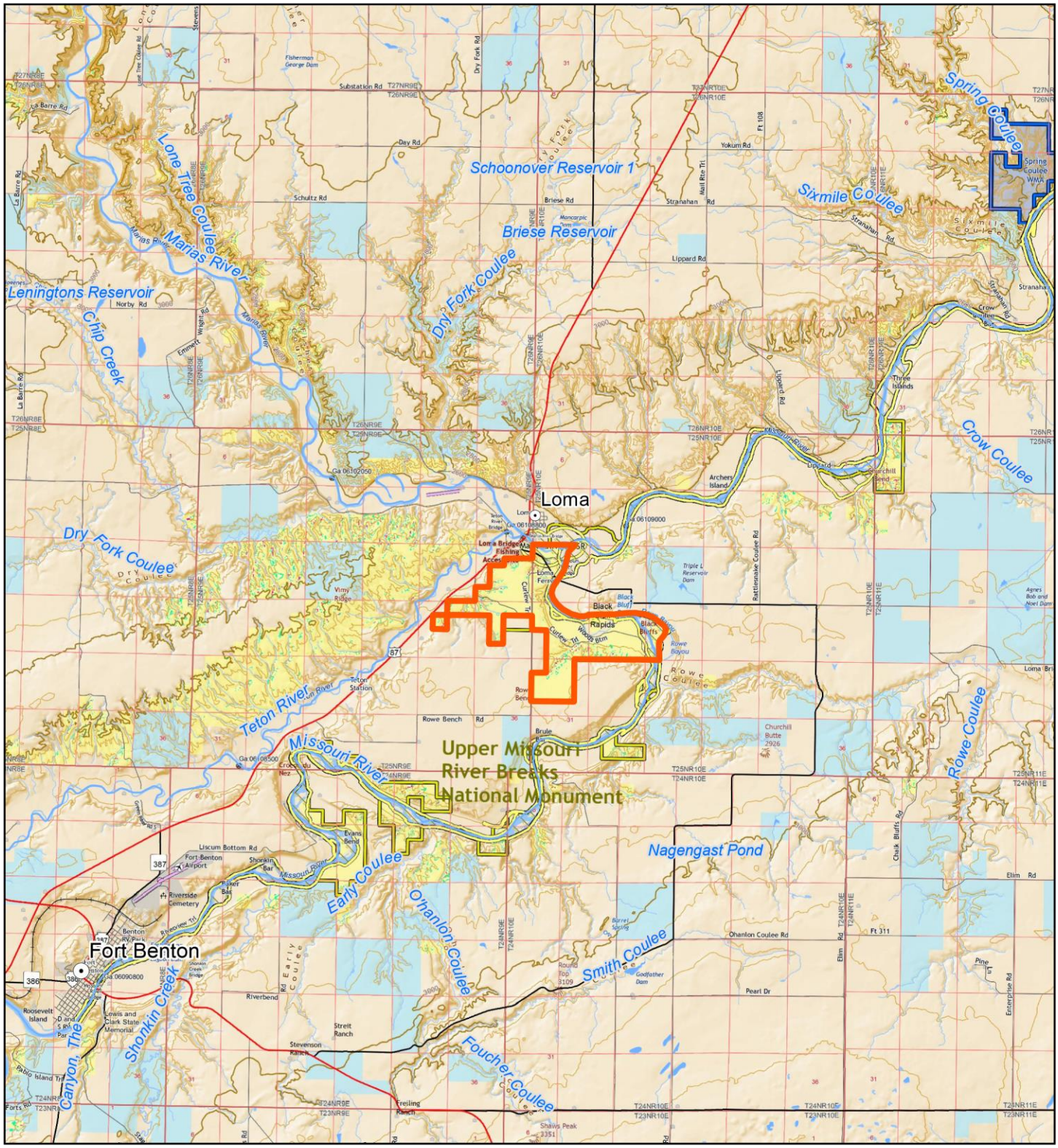
County(s): Chouteau

FWP Office: Great Falls

FWP Staff: C. Loecker, J. Doggett

Project Location

October 16, 2018



Montana Fish, Wildlife & Parks

UPLAND GAME BIRD HABITAT ENHANCEMENT PROGRAM
PROJECT PROPOSAL AND EVALUATION

Proposal Name: BLM Wood Bottom Habitat Enhancement Management Plan

Cooperator's Name: Bureau of Land Management (Havre Field Office),
Cooperating Ag-producer Jesse Wood (Carter/Loma)
Montana Fish, Wildlife and Parks (Region 4)

Date of Evaluation: Summer 2018

Submit 2 aerial projects maps that depict (1) the detailed proposed project and access areas with TRS and (2) a BLM map that shows the project indicated and the nearest major town.

1. **Describe the current habitat components (e.g., winter cover, food, CRP or other nesting cover) in the project area and, if appropriate, adjacent lands that provide upland game bird habitat. Are wetlands or other special habitat features located on or near this property?**

   The proposed project area, known as the BLM Wood Bottom Recreational Area, is a 2,250-acre subunit of the Upper Missouri River Breaks National Monument located just outside of the town of Loma. The entire proposed project area is owned by the BLM. The proposed project is to increase, enhance, protect and conserve an additional 504 acres of riparian and uplands by converting existing cropland back to perennial vegetation and enhance year-around habitat. These habitats are critical for upland game birds, neotropical birds, nesting waterfowl and migratory species in the area. Fourteen (14) Species of Concern inhabit these landscapes including 5 mammal, 2 bird, 2 reptile and 5 fish species (Montana Heritage Program). Another 226 acres of crested wheatgrass will also be converted to native perennial vegetation. The unit is culturally significant in that it falls along the Lewis and Clark National Historic Trail. It holds recreational value serving as a popular hunting, fishing, birding, hiking and camping destination. From a conservation standpoint, the area is unique. On the north end of the property the Marias River confluences with the Missouri River. Just upstream, the Teton River confluences with the Marias River. Three rivers and their associated flood plains converge along the north boundary of the property and the uplands make up the geographical features characterizing it. Approximately 670 acres of the Wood Bottom Unit falls along the Missouri River Floodplain; the property adjoins nearly four miles of the Missouri River.

   Land cover on the Wood Bottom Unit is fairly diverse. Existing habitat includes productive cropland (704 acres; 33%), native and introduced grassland (27%), cottonwood-shrub-dominated riparian areas (12%) and several remnant stream channels. The meandering river adds a constantly changing wetland component. The riverbanks or 'breaks' add diversity in topography. There are 930 total acres of cropland on the property; 226 have previously been retired from farming. All retired cropland acres were returned to perennial vegetation but is now dominated by crested wheatgrass.

   From an upland game bird perspective, winter food and cover is sufficient; present in the form of shrubby patches of woody shrub species and cottonwoods adjacent to cropland. Most of the existing perennial vegetation occurs in the breaks and is not considered high quality nesting cover. In many

areas where perennial cover exists, crested wheatgrass is prevalent. Land use surrounding the Wood Bottom Unit is similar in composition with some areas containing more cropland.

2. Describe the proposed project and attach proposed species list, if relevant. What habitat feature is most limited and how will this project address this limitation?

Since nesting cover is limiting and a large portion of the property is farmed, we propose to return 504 acres of cropland and 226 acres of pasture back to native perennial vegetation. Cropland and the production of crops for harvest would continue to exist on the Wood Bottom Unit, however, 70% of the cropland will be restored to native perennial vegetation. The project would be implemented over several years, ending in 2025; at which time, revisions to the existing habitat management plan can be made (see *Wood River Ranch Sikes Act Habitat Management Agreement*).

The proposed project entails dividing the Wood Bottom Unit into five subunits, each subunit described as a portion of the cropland historically farmed. When treatments are complete, three of the five subunits will contain areas of cropland as well as areas of restored perennial vegetation. All remaining cropland acres will be farmed in accordance with a crop-share agreement; the cooperating producer agrees to return designated cropland acres to perennial vegetation in exchange for being able to farm the remaining acres. Work in the subunits will continue until each area is seeded to perennial vegetation.

Per the proposed plan, portions of Subunits #1, #4, #5 will be seeded to perennial vegetation in 2019. Portions of Subunit #2 will be seeded in 2020, and portions of Subunit #3 will be seeded to perennial vegetation in 2021 (*see Timeline)*. Since most of Subunit #4 is dominated by crested wheatgrass; select acres in this subunit will be grazed for 3 years by an alternate cooperator and then chemically treated with glyphosate prior to reseeding native species in 2023. Farming these acres is not recommended because of soil quality. In the event an alternate cooperator cannot graze portions of Subunit #4, a new schedule of treatments may be followed. The acres may instead be treated with glyphosate at least once per year before June 1st, to prevent existing crested wheatgrass from producing seed. Either combination of treatments would occur for at least three years prior to reseeding in effort to exterminate crested wheatgrass in the seedbank; and also allow new native species to establish successfully. After new perennial vegetation has been established in this area, a rest rotation or spot grazing treatment will be implemented to maintain stand vigor.

During years where land is seeded to perennial vegetation and up to two years thereafter, mowing or spot shot herbicide treatments will occur as needed to combat any noxious weeds. On year four after seeding, the BLM resumes annual weed control; and work is otherwise complete. The cropland that remains in each subunit remains farmable by the cooperating producer.

3. How does this project fulfill regional priority needs? Will this project contribute to other habitat projects in the area?

The proposed project addresses several regional goals.

Goals for Priority Public Lands include:

a) Protecting and enhance public lands and adjoining private lands from development and loss of riparian and upland habitat.

b) Maintaining and improving upland bird habitat, public access and hunting opportunities for all upland game bird species.
c) Increasing upland game bird hunting opportunities through habitat enhancement projects, and
d) Working with the DNRC, BLM, and other public agencies and private organizations such as Pheasants Forever to promote appropriate UGBEP projects on public lands.

Goals for Riparian-agricultural Areas include:

a) Increase, enhance, restore and protect critical riparian habitats;
b) Maintaining productive nesting cover primarily for upland game birds, Merriam's turkeys, nongame species, Species of Concern and nesting waterfowl
c) Increasing public hunting opportunities.

Portions of the Wood Bottom Unit fall within two terrestrial and one aquatic SWAP Focal Areas:

a) #38 Missouri below Great Falls – Tier 2 - Terrestrial
b) #54 Teton River: Choteau to Loma – Tier 2 – Terrestrial
c) #46 Middle Missouri – Tier 1 - Aquatic

4. What upland game bird species are present in the local area? Which upland game bird species will benefit from this project?

Nearly all upland game bird species known to occur outside the mountains in Region 4 can be found on the Wood Bottom Unit throughout the year. These species include: the ring-necked pheasant, Merriam's Turkey, Hungarian partridge, mourning dove, sharp-tailed grouse and greater sage-grouse (limited).

Pheasants will benefit most from the proposed project. Reducing the ratio of cropland to nesting cover will essentially increase usable-space. Neotropical birds, nesting waterfowl and migratory species will also benefit from the increased habitat availability. High quality nesting and security cover which are currently limiting, will become readily available. Numerous nongame species of wildlife, not including, white-tailed deer, mule deer, antelope and nesting waterfowl species will also benefit from the project.

5. Does the landowner have a history of providing hunter access and/or habitat enhancement? What is the estimated annual hunter-day?

The Wood Bottom Unit is currently open to public recreation, including hunting. Unlike other BLM lands, the Wood Bottom Unit is managed solely for recreation and wildlife habitat (per deed). The property has several access trails, a river-access-site, parking area and a latrine.

6. How will this project be established and maintained? What is the likelihood of long term success (e.g., cooperator commitment, moisture requirements, soils, etc.)?

An existing Habitat Management Agreement defines the commitment required of each participating entity. Cooperating Ag-producer, Jesse Wood, agrees to prepare the seedbed and plant perennial vegetation in each subunit as outlined in the timeline. He also agrees to help control and manage noxious weeds in each subunit for three years following seeding (including the year of seeding). Montana Fish, Wildlife and Parks has agreed to fund the project through the Upland Game Bird

Enhancement Program; and also follow through with planning, project oversight, and monitoring. The BLM has agreed to resume responsibility for weed control once perennial vegetation has been fully established and work is otherwise complete. The project area is broken down into subunits in effort to minimize financial risk and maximize work efficiency. Since most of the project acres are currently in grain production, very little soil preparation is required; albeit pre-seeding herbicide application. A secondary cooperator agrees to graze the pasture in Subunit #4 if cost-share can be provided on a portion of boundary fence in need of repair; this cooperator has historically grazed the pasture and supplies watering areas and routine fence maintenance.

7. **Cost estimates and timeline.**

Proposed project startup date(s) (mm/yy): 03/19
Total project acres: 930
Total access acres: 2,250
Total project cost: $220,451.00

- UGBEP Cost: $82,054.40
- Cooperator Cost: $41,396.60
- Northwest Energy may contribute: $97,000.00

Regional Staff's Additional Information:

ATTACHMENTS:
-Wood River Ranch Sikes Act Habitat Management Agreement
-Photographs of the Wood Bottom Unit
-Location Map
-Habitat Map
-Wood Bottom Habitat Management Plan Supplemental Documents:
-Timeline, Project Activities, Seed Mixture, and Expense Sheet

I ☒ support ☐ do not support enrolling this proposed project in the UGBEP.

SIGNATURE:

FWP Field Staff _Jake Doggett_____ Date __10/25/2018__

FWP Field Staff _Cory Loecker_____ Date __10/25/2018__

Submit original application, evaluation, and relevant maps to your Wildlife Manager

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Regional Endorsement:

Regional Wildlife Manager _Graham Taylor _____ Date _10/29/2018_

Regional Supervisor _Gary Bertellotti _____ Date _10/29/2018_

Return application, evaluation, and maps to Helena

Helena HQ Ranking Scores: **(0 – Negligible, 1 - 3 = Poor; 4 - 6 = Fair; 7 – 8 = Good; 9 – 10 = Excellent)**

Wood Bo

Project potential to increase UGB production: _____

Project strategic based on Regional plan: _____

Project complements existing projects/habitats: _____

Cost-share Component	Calendar Years 2018 --> 2025								Total Cost
	2018	2019	2020	2021	2022	2023	2024	2025	
Pre-seed Herbicide Application ($24/acre)	UGBEP (65%) $ 1,653.60 $ 2,074.80 $ 4,134.00 $ 3,525.60 $ 3,525.60 $ - $ - $ 14,913.60 Labor In-kind $ 890.40 $ 1,117.20 $ 2,226.00 $ 1,898.40 $ 1,898.40 Total $ $ $ $ 8,030.40 2,544.00 $ 3,192.00 $ 6,360.00 $ 5,424.00 $ 5,424.00 - - $ 22,944.00								
Native Grass Seeding ($20/acre)	UGBEP (65%) $ 1,378.00 $ 1,729.00 $ 3,445.00 $ - $ 2,938.00 $ - $ - $ 9,490.00 Labor In-kind $ 742.00 $ 931.00 $ 1,855.00 $ - $ 1,582.00 Total $ $ $ $ 5,110.00 2,120.00 $ 2,660.00 $ 5,300.00 $ - $ 4,520.00 - - $ 14,600.00								
Spot Shot Weed Control or Mowing ($24/acre)	UGBEP (65%) $ 1,653.60 $ 3,728.40 $ 7,862.40 $ 6,208.80 $ 7,659.60 $ 3,525.60 $ 3,525.60 $ 34,164.00 Labor In-kind $ 890.40 $ 2,007.60 $ 4,233.60 $ 3,343.20 $ 4,124.40 Total $ $ 1,898.40 $ 1,898.40 $ 18,396.00 2,544.00 $ 5,736.00 $ 12,096.00 $ 9,552.00 $ 11,784.00 $ 5,424.00 $ 5,424.00 $ 52,560.00								
Crested Wheatgrass Pasture Herbicide Treatments ($24/acre)	UGBEP (65%) $ - $ 3,525.60 $ 3,525.60 $ 3,525.60 $ - $ - $ - $ 10,576.80 Labor In-kind $ - $ 1,898.40 $ 1,898.40 $ 1,898.40 $ Total $ - $ $ $ 5,695.20 $ 5,424.00 $ 5,424.00 $ 5,424.00 $ - - - $ 16,272.00								
Annual Project Mileage Expenses	UGBEP $ 80.00 $ 80.00 $ 80.00 $ 80.00 $ 80.00 $ 80.00 $ 80.00 $ 560.00 Labor In-kind $ 45.00 $ 45.00 $ 45.00 $ 45.00 $ 45.00 Total $ $ 45.00 $ 45.00 $ 315.00 125.00 $ 125.00 $ 125.00 $ 125.00 $ 125.00 $ 125.00 $ 125.00 $ 875.00								
Native Grass Mixture Seed Costs ($140/acre)	UGBEP (100%) $ 14,840.00 $ 18,620.00 $ 37,100.00 $ - $ 31,640.00 Labor In-kind $ - $ - $ 102,200.00 $ - $ - $ - $ - Total $ 14,840.00 $ 18,620.00 $ $ $ $ - 37,100.00 $ - $ 31,640.00 - - $ 102,200.00								
Potential Expenses 3-5 wire barbed; (4,000 ft; $2.75/ft)	UGBEP (65%) $ 7,150.00 Labor In-kind $ 3,850.00 Total $ 11,000.00								$ 7,150.00 $ 3,850.00 $ 11,000.00
Northwest Energy Grant ($20,000/year)	$ - $ - $ - $ - $ - $ - $ - $ - NW Energy $ 33,000.00 $ 32,000.00 $ $ 97,000.00 32,000.00 Total $ -								
BLM Contribution	BLM $ 10,000.00 $ 10,000.00 $ 10,000.00 $ 10,000.00 $ 30,000.00 Total								
Project Materials Cost	Annual	$ 2 6,755.20	$ 29,757.80	$ 5 6,147.00	$ 13,340.00	$ 45,843.20	$ 3 ,605.60	$ 3,605.60	**$ 179,054.40**
Cooperator In-kind Contribution	Annual	$ 6 ,417.80	$ 5,999.20	$ 1 0,258.00	$ 7,185.00	$ 7 ,649.80	$ 1,943.40	$ 1 ,943.40	**$ 41,396.60**
Net Project Expense	**Annual**	**$ 3 3,173.00**	**$ 35,757.00**	**$ 6 6,405.00**	**$ 20,525.00**	**$ 5 3,493.00**	**$ 5,549.00**	**$ 5 ,549.00**	**$ 220,451.00**
Northwest Energy Contribution	Annual	$ 3 3,000.00	$ 32,000.00	$ 3 2,000.00					**$ 97,000.00**
BLM Contribution	Annual			$ 10,000.00	$ 1 0,000.00	$ 10,000.00	$ 1 0,000.00		**$ 40,000.00**
UGBEP Contribution	**Annual**	**$ 173.00**	**$ 3,757.00**	**$ 2 4,405.00**	**$ 10,525.00**	**$ 4 3,493.00**	**$ (4,451.00)**	**$ 5 ,549.00**	**$ 42,054.40**
Potential for Variance in Herbicide Application Costs	Annual	$ -	$ (3,525.60)	$ (3,525.60)	$ (3,525.60)	$ -	$ -	$ -	**$ (10,576.80)**

Wood Bottom Habitat Management Plan - Project Activities

Project Activities	Calendar Years 2018 --> 2025								Total Acres
	2018	2019	2020	2021	2022	2023	2024	2025	
Pre-seed Herbicide Application		*106*	*133*	*265*	*226*	*226*			*956*
Native Grass Seeding		*106*	*133*	*265*		*226*			*730*

Spot Shot Weed Control or Mowing		*106*	*239*	*504*	*398*	*491*	*226*	*226*	*2190*
Crested Wheatgrass Pasture Herbicide Treatments			*226*	*226*	*226*				*678*
Annual Project Mileage		*200*	*200*	*200*	*200*	*200*	*200*	*200*	*1400*
Total Cropland Acres (In Production)	*704*	*598*	*465*	*200*	*200*	*200*	*200*	*200*	*2767*
Total Pasture Acres Potentially Grazed (Formerly Cropland)			*226*	*226*	*226*				*678*

2019 Cost-Share Proposal Form for NorthWestern Energy Montana Project 2188 TAC Funds

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

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

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

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

All Project proposals must include the following information:

Project Title: Earthquake Lake and Hebgen Lake Weed Treatments 2019

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 returned to the Endangered Species List) 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 Threatened 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 weed infestations around Earthquake Lake, Hebgen Lake, the Madison River, and the surrounding valley.

Total Project Cost: $22,100

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, and hound's tongue 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 approximately 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 2019.

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 2019. 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	**Custer Gallatin NF**	**Total**
Direct Labor	$12,000 (Montana Conservation Crew, 3 weeks)	$9,250 (FS personnel to supervise, inventory, participate in, and monitor treatment)	$21,250
Travel and Living	$0	$0	$0
Material	$0	$0	$0
Other Direct Expenses (Vehicle)	$0	$650	$650
Direct Overhead	$0	$200	$200
Total	**$12,000**	**$10,100**	**$22,100**

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 fall/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.

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

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

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

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

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

All TAC project proposals must include the following information:

Project Title:

Hebgen and Earthquake Lake Bald Eagle Monitoring

Date:

October 23, 2018

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 2018, 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: $6,000

TAC Funds (Cost-Share) Requested for Project: $2,750

I. Introduction; brief statement of project to be completed with pertinent background information.

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; explicit statement(s) of what is intended to be accomplished.

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; description of how Project objectives will be accomplished.

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; when the Project work will begin and end.

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

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

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	$2,700	$0	$0	$2,700
Direct Overhead	2%	$50	$0	$0	$50
Travel and Living	FS vehicle	$0	$0	$0	$0
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		**$2,750**	**$2,250**	**$1,000**	**$6,000**

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

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.

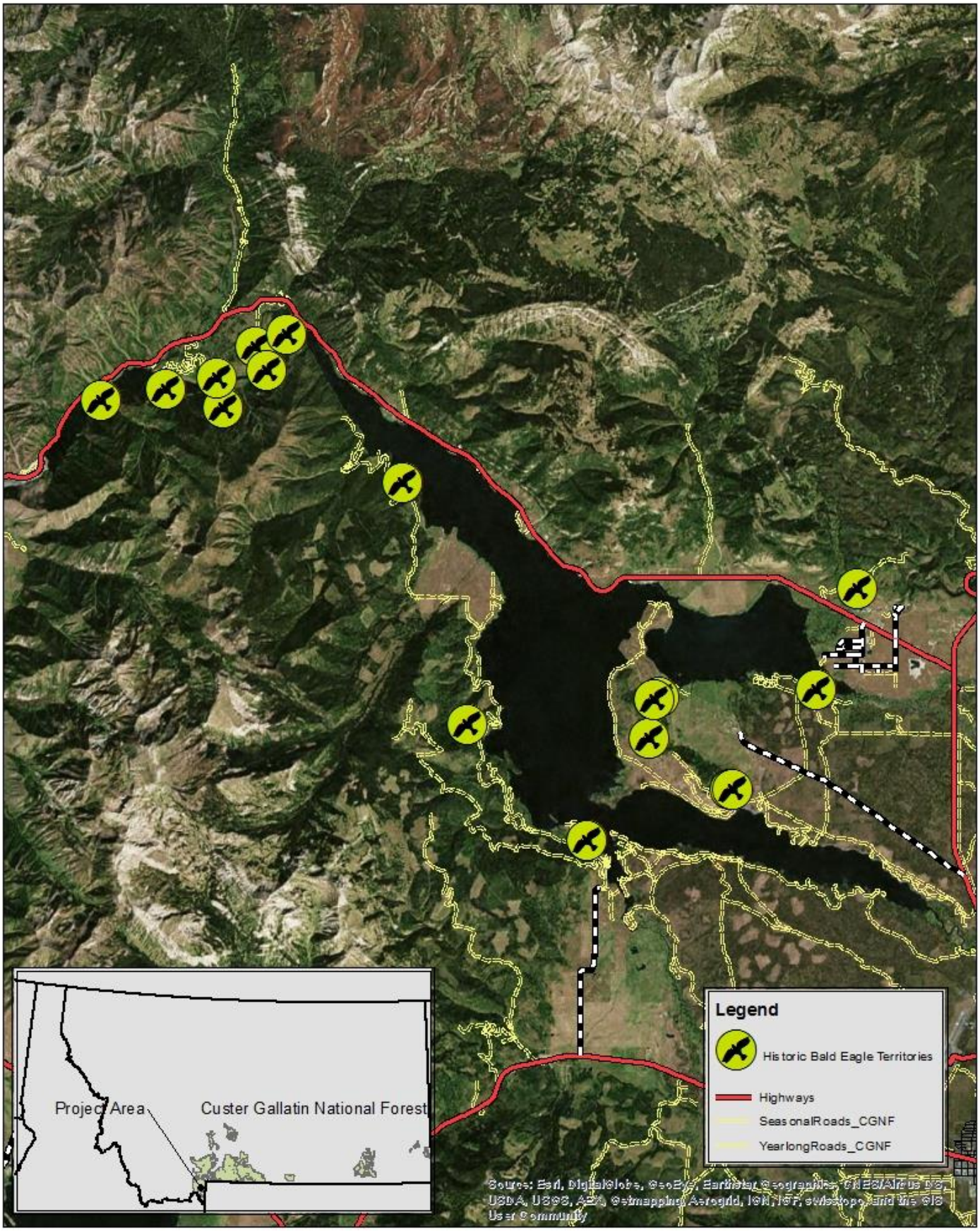
VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings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

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

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Not applicable to this project.

Hebgen and Quake Lake Bald Eagle Monitoring Project



2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

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

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

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

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

All TAC project proposals must include the following information:

Project Title:

Hebgen Lake Plains Spadefoot Breeding Site Enhancement

Date:

October 24, 2018

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

The Northwestern Energy *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 423 NorthWestern Energy 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. The purpose of Article 423 is to ensure that native plant and wildlife populations in the project area will be enhanced. This project addresses habitat enhancement measures that are pertinent to Article 423.

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 (Hebgen Lake), 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:

The proposed sites are located along the north and south shore of the Madison Arm of Hebgen Lake, generally within 200 feet of the shoreline of the lake. The proposed sites are located approximately 4 to 6 miles northwest of West Yellowstone, Montana. The sites are located at T12S, R05E, Section 31; T12S, R04E, Section 36; and T13S, R05E, Sections 5 and 6.

Total Project Cost: $10,000

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

I. Introduction; brief statement of project to be completed with pertinent background information.

The furthest west extent of the range of the Plains spadefoot on the Custer Gallatin National Forest (and the highest elevation population recorded) is located in the Hebgen Lake area in the vicinity of West Yellowstone, Montana. A small number of breeding sites have been found around the periphery of Hebgen Lake in fish-less wetland areas that are hydrologically connected to the lake. Given the scarcity of breeding habitat, several artificial breeding sites were created in 2012. Monitoring has indicated that one of the sites is currently used for breeding, while a second, slightly deeper pond, is not. Based on the relative scarcity of suitable breeding habitat, we have determined that there is a need to provide additional suitable breeding habitat for this species. Knowledge gained during the previous breeding habitat enhancement effort and subsequent monitoring will be used to guide future habitat enhancement activities.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

To enhance or create breeding habitat for the Plains spadefoot at up to five locations along the Madison Arm of Hebgen Lake.

III. Methods; description of how Project objectives will be accomplished.

Based on monitoring and accumulated knowledge of the breeding habitat requirements of this species, the Hebgen Lake Ranger District is proposing to create several (up to five) new breeding sites that mimic natural breeding sites and the successful artificial site that was previously created. A skid steer with a bucket and an excavator attachment would be used to excavate up to five small, shallow (2-3 feet deep) depressions in the sedge flats adjacent to Hebgen Lake that will fill and drain as the lake level fluctuates. Sites would be selected where hydrologic connectivity with the lake can be ensured and the potential for fish to invade the depressions minimized by the presence of existing obsidian sand levees along the lake shore. Existing vegetation mats would be stripped off and set aside during excavation. Once the depressions are created, the sedge mats would be used to line the depressions. Excavation would occur in the fall when the lake level has been drawn done. Excavated material would be either hauled off-site and spread on adjacent roads, spread in the uplands in the vicinity (and seeded with native, weed-free seed), or spread along the lakeshore. Woody debris would be placed in the created depressions to provide cover.

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

The enhancement activities would occur at low water. As activities in the early spring are restricted by grizzly bear timing restrictions, activities would be most likely to occur in the fall prior to ice-up. It is expected that activities at each site would require up to one day to complete.

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

The Forest Service wildlife biologist (Randy Scarlett) will be the Project Leader. The work will be completed by the FS wildlife and fisheries biologists, the District Fire Crew, and recreation technician (equipment operator).

VI. Project budget

Category	Description	TAC	FS	In-Kind/ Partner	Total
Direct Labor	FS WL Bio – 7 days		$2,800		$2,800
	FS Fish Bio – 7 days		$2,100		$2,100
	Equipment Operator (Rec Tech) – 5 days	$1,250			$1,250
	Labor (Fire crew) – 5 days x 2	$1,500			$1,500
Travel/Equip.	Skid Steer Rental	$2,000			$2,000
Materials	Fuel	$250			$250
Direct Overhead	2%	$100			$100
Total		**$5,100**	**$4,900**	**$0**	**$10,000**

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Recovery of vegetation at the work sites and subsequent use of the sites will be monitored annually in the late spring and summer. Success for this project will be demonstrated through spadefoot use of the created breeding sites and successful reproduction at the sites.

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

The Zone Archaeologist has surveyed the sites and provided input related to the project; no cultural sites are known to occur at the proposed work sites.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Not applicable to this project.

2019 Proposed Spadefoot Breeding Habitat Enhancement

Project Title: Post-restoration population monitoring and reproductive ecology of the globally rare southwestern Montana endemic, alkaline primrose (*Primula alcalina)*
Date: October 31, 2018
Project License Article for Project Proposal:

Priorities 1 and 2: License 2188 projects that meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir).

The proposed project supports **Article 423 and 409: Article 423**... wildlife habitat protection 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; including identification of specific protection, mitigation, and enhancement strategies for avian species and **Article 409**.....stream habitat enhancement and restoration in the Madison River and its tributaries.

Project Sponsor (submitted by): Tara A. Luna (Rocky Mountain Botany Consulting)

Location of Proposed Project: O'Dell Creek Headwaters, 7 miles south of Ennis, Madison County, Montana

Total Project Cost: $ Option 1: $14,000.00/ Option 2: $19,000.00

TAC Funds (Cost-Share) Requested for Project: TAC Funds (Cost-Share)

I. Introduction:

Alkaline primrose (*Primula alcalina*) is a distylous, rare endemic known only from calcareous spring creek and wet meadows in southwestern Montana and extreme southeastern Idaho. It flowers in mid-spring when pollinators are scarce and when there are few other co-flowering species to draw pollinators to these populations. This species was first described during the 1980's (Cholewa and Anderson 1984). Due to its rarity, small population size and limited distribution and limited habitat, it was recommended for USFWS review as a potential Candidate Species in 1990 (Moseley 1989; USFWS 1990). Idaho populations were monitored over a 4 year period (USFWS 1993; Moseley 1995) to determine population status. Currently, *Primula alcalina* is ranked as G2/S2, imperiled globally and regionally (MNHP 2018, NatureServe 2018), and is known only from seven locations in Clark, Custer and Lemhi County, Idaho and in southern Beaverhead County, Montana.

Total range-wide occupied habitat has been estimated at only 440 acres. Plant populations are highly restricted to calcareous spring creek habitat and are found in narrow spring creek terraces, spring heads, abandoned creek meanders and adjacent calcareous alkaline meadows. Highly constricted habitat occupation within a calcareous wetland may reflect strict environmental parameters required for seedling recruitment and population persistence, such as substrate pH, water temperature, microclimate and hydroperiod. This species has been recently found on the O'Dell Creek floodplain in post-restoration monitoring plots and is a significant range extension.

In 2018, this species was first located in post-restoration monitoring plots, where hydrology has been restored for 6 and 11 years, on the main O'Dell Creek and its tributaries on the Granger Ranch section. Plants were found in narrow stream terraces, near spring heads and vertical stream channel walls adjacent to open water. During other site visits, additional small populations were located in Phase 8 and Phase 4, in streamside habitat where hydrology has been restored for 5 and 12 years. Variant plants have been recorded in post-restoration monitoring plots during previous work.

II. Objectives:

The purpose of this proposal is to document the total population size of the globally rare species, *Primula alcalina* on the O'Dell floodplain and continue post-restoration vegetation monitoring in previous restoration areas. Additional monitoring plots will be established where new sub-populations are found.

1) Assess total population size on Granger and Longhorn Ranch sections along O'Dell Creek and its tributaries and in other suitable habitat in the floodplain and produce map with known localities;

2) Establish new monitoring plots where additional sub-populations are found and collect habitat data (temperature, soils, vegetation data) to determine environmental and ecological parameters required by this globally rare species;

3) Determine reproductive ecology and examine morphological variation of plants at this site; compare with other known populations in southwestern Montana and Idaho;

4) Continue post-restoration monitoring in previous completed phases and establish new monitoring plots in the latest restoration phase on the Longhorn Ranch;

5) If funding is available (Proposal Option 2), leaf and flower tissue samples of *Primula alcalina* will be collected to determine ploidy levels between populations of *P. alcalina* (2n= 18), *P. incana* (2N=54) and homostylous plants that may represent a discreet taxon (2n= unknown).

III. Methods:

At this site, ***Primula alcalina*** flowers in mid-May, usually 1-2 weeks before the sympatric, homostylous species ***P. incana*.** Suitable habitat for *P. alcalina* will be surveyed on the Granger and Longhorn sections of the O'Dell floodplain, during early to mid-May. All populations encountered will be marked with a GPS unit for the mapping product included in the monitoring report.

Habitat data including soils, hydrology and associated vegetation will be collected where any new populations are encountered. Substrate and at-plant-height air temperatures will also be recorded during each site visit. Streamside habitat data will help determine the narrow habitat requirements exhibited by this globally rare species and will be used as part of ongoing, O'Dell floodplain post-restoration vegetation monitoring project.

A minimum of 5 (preferably 10) populations that are separated by distances >200 m will be chosen for all morphological sampling measurements and observations. At each site, all individuals occurring within the plot will be examined to determine reproductive strategy (homostylous, distylous-pin and thrum morphs, variant). Each individual will be marked for field measurements collected during the season.

Floral morphology data collected will include: Corolla tube length, corolla width, aperture width, calyx length and width, anther position, stigma position and total number of flowers per inflorescence. Other morphological data will be collected to compare with other populations from other known sites in southwestern Montana or Idaho.

Sampling will occur in a range of habitat types such as extremely rich fen, spring heads, spring creek streamside habitat and alkaline meadow. At each site, total number of seedlings and mature individuals will be recorded in each plot. GPS coordinates and flagging will be used to mark all sampled individuals (morphs) that will be revisited at 30, 60 and 120 days. All new monitoring plots will include counts of mature plants and seedlings and fruit set rates as part of the ongoing post-restoration monitoring study of rare wetland plant taxa of the O'Dell floodplain.

Monitoring data will also be collected in post-restoration plots established during Phases (4,5,8, 9,10). Additional post-restoration monitoring plots will be established in the latest restoration Phase on the Longhorn Ranch. Approximately 20-23 days of field work will be required for project work.

If funding is available, leaf and flower tissue samples of *P. alcalina*, variants, and *P. incana* will be collected during the first field visits in May, dried in silica prills in paper envelopes and sent to a

laboratory facility for processing and DNA analysis. Results will be reported in the final monitoring report.

IV. Schedule:

Dates	Field work
May 10-17th 2019	Survey for populations, conduct pollinator observations, collect flower and vegetative morphology data and mark all morphs to be studied and sampled at O'Dell; examine other known populations for comparison; collect leaf and flower tissue samples for chromosome analysis (Option 2); collect air/substrate temperature and soils data each month (May to September);
June 13-June 17th 2019	Examine populations for capsule development, collect fruit set data; collect habitat and vegetation monitoring data in plots containing *P. alcalina;*
July 16-22nd 2019	Establish additional postrestoration monitoring plots in Phase 11 Longhorn Ranch (2018) and in previous post restoration monitoring plots (Phases 4,5,8,9,10); Examine *P. alcalina* plots for seed maturation and dispersal;
September 2019	Examine *P. alcalina* populations for flower bud set
November 2019:	Complete map and monitoring report.

V. Personnel:

Tara Luna, will oversee all project work, conduct field data collection, analysis and report completion. Contractor will provide own transportation and equipment necessary for project work.

VI. Budget:	**Option 1**	**Option 2**
Direct Labor	12,000.00	12,000.00
Travel	1,000.00	1,000.00
Materials	0.00	0.00
Liability Insurance	1,000.00	1,000.00
Laboratory Fees	0.00	5,000.00
Direct Overhead	0.00	0.00
Total Requested (Option 1):	$14,000.00	$ 19,000.00
Total Requested (Option 2):	$ 14,000.00	$ 19,000.00

Cost-share funding sources:

There are cost share funding sources associated with this proposed project through the Madison River Foundation.

VII. Deliverables:

A monitoring report and map will be completed by November 25th, 2019.

VIII. Cultural Resources:

There will be no ground or soil disturbance associated with plant population or vegetation monitoring during the course of this project. Soil pH, EC and substrate temperature data will be collected with probes that will not require soil disturbance or movement.

IX. Water Rights:

Vegetation monitoring will not involve ground or soil disturbance associated with active restoration or wetland enhancement at the proposed site. All field work shall comply with Montana water rights, existing laws or policies and NWE'S water rights guidelines associated with wetland projects.

X. References:

Cholewa, A.F. and D. H. Anderson 1984. *Primula alcalina* (Primulaceae): a new species from Idaho. Brittonia 36 (1): 59-62.

Moseley, R.K. 1989. Report on the Conservation Status of *Primula alcalina*; a proposed Candidate Species. Natural Heritage Section. Non-game/Endangered Species Program. Idaho Department of Fish and Game. Boise, Idaho. 41 p.

Moseley, R.K. 1995. Demographic monitoring study of *Primula alcalina*. Conservation Center. Idaho Department of Fish and Game. Boise, Idaho. 39 p.

Montana Natural Heritage Program. 2018. Field Guide: *Primula alcalina.* Helena, Montana.

NatureServe 2018. Url: http://www.natureserve.org/

US Fish and Wildlife Service (USFWS). 1990. Department of Interior. Endangered wildlife and plants: Review of plant taxa for listing as Endangered or Threatened Species. Federal Register Vol 55. No. 35. CFR 50 Part 17.

US Fish and Wildlife Service (USFWS). 1993. Department of Interior. Endangered wildlife and plants: Review of plant taxa for listing as Endangered or Threatened Species. Federal Register Vol 58. No. 188. CFR 50 Part 17.

2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 Priority 1

Project Title **Monitoring Bird Populations and Habitat Conditions in Riparian Areas along the Madison and Missouri Rivers**

Date: November 1, 2019

Project 2188 License Article: This proposal meets **License Article 423** requirements by directly measuring status and trends of bird populations and vegetation conditions in riparian areas within the Missouri and Madison River corridor, and is a **Priority 1** project located within the main stem of the river system.

Project Sponsor (submitted by): University of Montana

Location of Proposed Project: Long-term monitoring points in riparian habitats on the main stem of Madison and Missouri River from Hebgen Reservoir to Fort Peck Reservoir.

Total Project Cost: $62,206
TAC Funds (Cost-Share) Requested for Project: $37,436
(BLM Cost-Share Request: $24,770)

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 habitat priorities based on analysis of vegetation characteristics and bird use
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]. Furthermore, birds are a high priority for wildlife monitoring in this system, since riparian areas support higher bird diversity than any other habitat in the region[3].

[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.

[3] Dobkin, D. S. 1994. Conservation and management of Neotropical migrant landbirds in the Northern Rockies and Great Plains. University of Idaho Press, Moscow.

To date, we have conducted five annual surveys at established long-term monitoring locations within the river system, and collected two years of data on natural resource conditions within Northwestern Energy and BLM-funded project areas in the Upper Missouri River Breaks (UMRB). We have recorded 30,094 individual birds and 155 species, representing 59% of bird species breeding in Montana, including seven BLM Sensitive species, 24 Montana Species of Concern, and 29 U.S. Fish and Wildlife Birds of Management Concern.
Analysis of the bird data collected thus far indicates that sampling every other year is necessary to effectively monitor population change in this system. Following this recommendation, we propose to complete another year of breeding bird and vegetation monitoring at established long-term monitoring locations in 2019 (Fig. 1). Monitoring should target priority species for conservation, so we will continue working with agencies (including BLM, Montana Fish, Wildlife, & Parks, and Montana Natural Heritage Program, and U.S. Forest Service) to capitalize on opportunities to fill data gaps on rare and priority bird species associated with riparian habitats in this system while completing long-term monitoring objectives. We also propose to continue partner-supported monitoring within the UMRB designed to address the information needs of the BLM and other members of the Missouri Breaks Riparian Group, a public and private partnership aimed at restoring cottonwood forest and improving wildlife habitat along the Upper Missouri River.

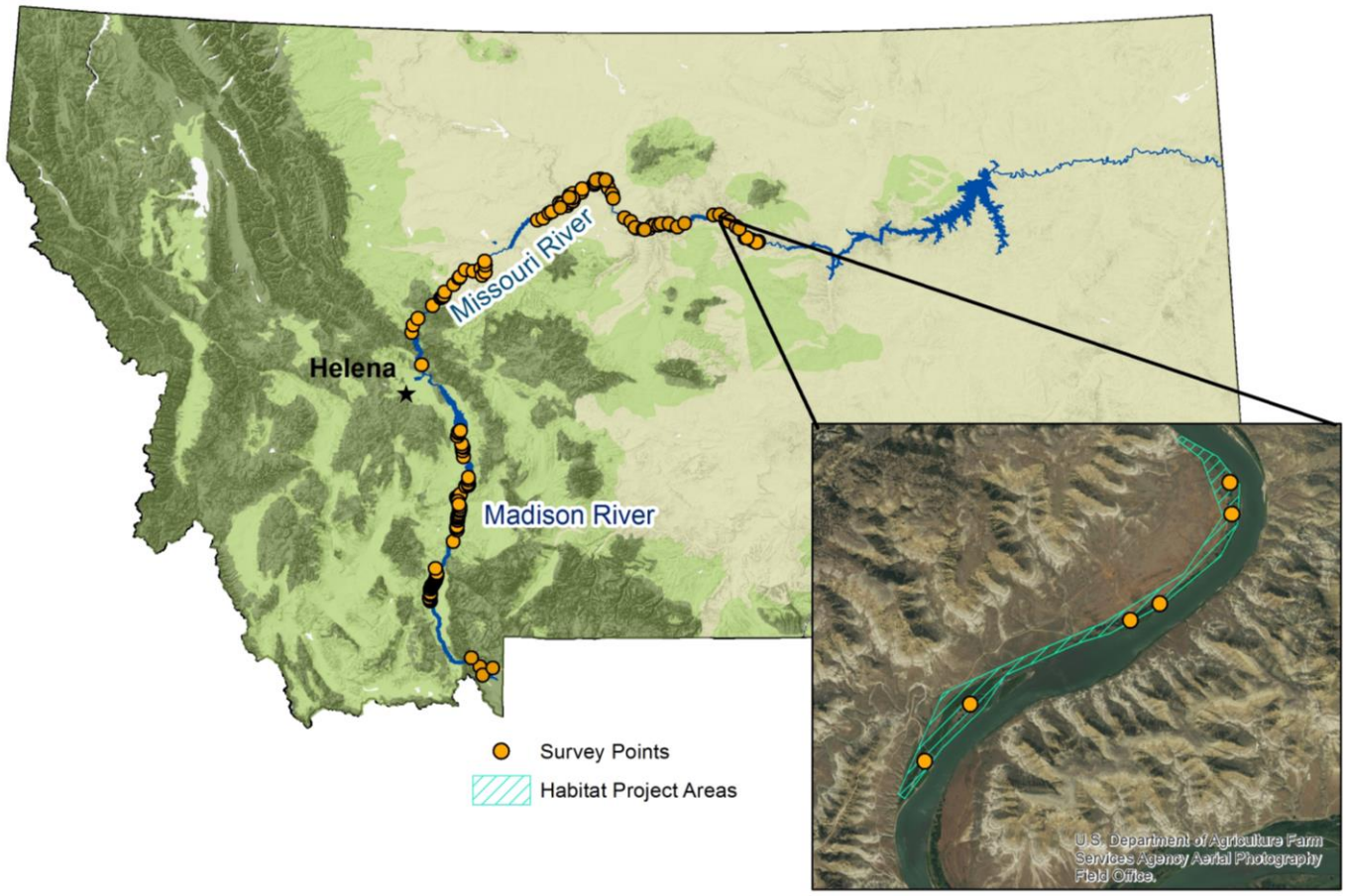


Figure 1. Project area map showing all bird and habitat monitoring locations (large map) and an example of project outcomes monitoring in UMRB.

This project warrants a high priority for funding because it builds on 15 years of monitoring investment by Northwestern Energy and partners that spans hundreds of miles of public and private lands, including the

Upper Missouri Breaks National Monument, contributing to one of the largest databases on riparian bird communities in the region. Continued monitoring will capitalize on this long-term dataset, providing a valuable tool for managers to evaluate the status and trends of migratory bird species and habitat conditions by administrative boundary and relative to specific management priorities along the river system.

II. Objectives

1) Collect, analyze, and summarize breeding bird and vegetation data at established long-term monitoring locations within main stem riparian habitats of the Madison and Missouri Rivers;
    a. Estimate bird population and habitat status by project area and river section;
    b. Estimate trends in bird populations and habitat by river section across years (2004-2019).

III. Methods

The methods used for field sampling and analyses are described briefly below. For more detailed information, refer to the monitoring protocol report[4].

Sampling Design. We will re-visit 239 long-term monitoring points established in randomly selected riparian patches in that extend from Varney Bridge, just south of Ennis, on the Madison River to Fred Robinson Bridge on the Missouri (Figure 1). We will also survey 73 sample points established in project areas within the UMRB.

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. 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.

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.

Analyses. Bird species densities (birds/ha) will be estimated using the program DISTANCE, with distance sampling analyses following Buckland et al[5]. The estimated density, population size, and variance for each bird species will be computed at three scales: site, river section, and across the study area. In 2013, we automated these analyses by developing code using Program R, which streamlined population estimates, and thereby reduced costs associated with providing population estimates for large numbers of species. To assess the presence, magnitude, and direction of trends in vegetation and populations over time, we will use a linear mixed-effects model (LMEM) to assess whether trends varied temporally as well as spatially among river sections.

We will evaluate wildlife outcomes of restoration project areas in the UMRB by comparing baseline data collected prior to project start to changes over time using a Before-After-Control-Impact (BACI) study design[6].

[4] Fletcher, R., T. Smucker, and R. Hutto. 2005. Distribution of birds in relation to vegetation structure and land use along the Missouri and Madison River corridors. Final report submitted to PPL-Montana.

[5] Buckland, S.T., D.R. Anerson, K.P. Burnham, J.L. Laake, D.L. Borchers, and L. Thomas. 2001. Advanced Distance Sampling. Oxford University Press, New York. 416 pp.

[6] 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.

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. Given the annual variability in these systems, at least at least 3 years of field data is necessary to adequately sample baseline conditions in riparian habitats.

IV. Schedule

This project will begin 1 May 2019 and will run until 30 April 2020 (see table below).

2019	
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
2020	
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. Dr. Aaron Flesch (University of Arizona) will be contracted to complete population trends analysis. Two temporary technicians 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	**Total**
Direct Labor	$21,768	$37,619
Travel and living	$4,300	$8,600
Materials and supplies	$1,785	$2,715
Other Direct Expenses:		
Population Analyses	$4,700	$4,700
Direct Overhead	$4,883(15%)	$8,572
Total	$37,436	$62,206

Cost-share funding sources and amounts for this project:

$24,770 -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. Riparian vegetation conditions for riparian areas within the main stem Madison and Missouri Rivers;
3. Distribution and critical habitat information for priority riparian bird species;
4. Bird populations 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.

2017 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

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

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

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

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

All TAC project proposals must include the following information:

Project Title: Upper Missouri River Breaks National Monument Riparian Restoration and Inventory

Date: 11/1/18

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

This project 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, 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.

Project Sponsor (submitted by):

Friends of the Missouri Breaks Monument, in partnership with the Bureau of Land Management (BLM).

Location of Proposed Project:

For the past five years this cooperative team has held annual planting events, with the outcome of 600 cottonwood trees planted along the banks of the Missouri River.

The 2018 planting sites will include restoration of cottonwood galleries on both private and public land within the Upper Missouri River Breaks National Monument. One of the plantings will take place at the Pablo Site *(Figure 1)*, at river mile 72.3L of the "Scenic" portion of the river. The second planting site will be Murray Dugout (*Figure 2*), at river mile 90.8R, located 1.7 river miles upstream of the official "Wild" portion of the Wild and Scenic Missouri River. The maintenance portion of the project which includes re-planting on private land which will take place on Terry Ranch, located at river mile 51.0L (*Figure 3*).

These plantings will be a continuation of a conservation plan to replace seven miles, and 109 acres, of cottonwood forest at ten sites along the river corridor within the Upper Missouri River Breaks National Monument. To this point plantings have taken place at eight sites 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, in 2017 at Little Sandy and Terry Ranch Sites, and two plantings at the Bailey-Hazlewood site in 2018. In total 600 trees have been planted with assistance from NWE TAC's funding.

Figure 2 Pablo Planting Site

Figure 3 Murray Dugout

Figure 4 Terry Ranch

Total Project Cost:

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

I. Introduction; brief statement of project to be completed with pertinent background information.

Riparian zones comprise less than 1% of the total land area within the Upper Missouri Breaks National Monument, yet they support most 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 homogenous landscape, thereby creating 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 an ecologically rich 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 (FMB) and the Bureau of Land Management (BLM) have undertaken an ambitious project to mimic natural regenerative forces and plant native cottonwood cuttings within imperiled riparian zones.

In addition to the cottonwood restoration project, FMB and the BLM are beginning a cooperative project of cottonwood site maintenance and rehab. This will include the development of an assessment in order to document and map 1) all planted cottonwoods, 2) ratio of dead to live cottonwoods at each site, 3) indicators contributing to cottonwood survival and 4)

removing old materials (i.e. PVC pipes) from former planting sites. Furthermore, the rehab portion of the project will include the re-planting of cottonwoods at private land sites with high cottonwood mortality.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

The primary objective of this project is to establish a new generation of cottonwoods within key riparian zones of the Upper Missouri River Breaks National Monument. Presently over half of the monument's cottonwoods are over 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, the cottonwood maintenance aspect of the project will help better identify the survival rates for each site as well as an overall survival rate for the cottonwood restoration project. Inventorying and mapping the sites will provide vital information to the BLM and FMB staff in the coming years as they work to increase cottonwood gallery survival along the river corridor.

On a community level, 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; description of how Project objectives will be accomplished.

After multiple years of planting cottonwoods along the Upper Missouri River, FMB 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. In consideration 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 accomplish this, 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 the PN Ranch and Dog Creek. 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 beavers.

This is a highly complicated process when compared to many other standard planting techniques. However, this method has been developed to remove many of the problems that have plagued past attempts to establish cottonwoods in semi-arid environments like that of the Breaks. The primary problem is lack of water. In addition to our planting method, we have found that seasonal watering through the trees' first two summers has increased survivability. After two trial plantings in 2013 and 2014, each planting producing dismal survival rates, FMB decided to hire seasonal workers to water the young trees in the hottest summer months. To complete the watering the BLM has provided FMB with one horsepower trash pump 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 is strongest at the point closest to the natural water table. Following two years of watering the trees can meet their own water requirements and have shown to be exponentially more successful than other planting projects throughout the West.

For the site maintenance portion of the project, FMB will utilize their AmeriCorps members. These members will work with a BLM point-person in developing the cottonwoods needs assessment. The members will then implement the assessment at each planting site. They will use GPS to capture the coordinates of all planted cottonwoods, demarcate tree success, and identify possible indications contributing to tree mortality (i.e. beavers, flooding, elevation, etc.). The members will map the GPS units later in the year using GIS.

Additionally, re-planting will occur on private land in conjunction with landowner approval and will be implemented by the AmeriCorps members, Montana Conservation Corps (MCC) Conservation Interns, and volunteers.

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

Much of this project's early steps are weather dependent, as the roads and environment of the Breaks can be treacherous during spring rain events. Cutting and planting must occur while the cottonwoods are still in their winter dormancy, which generally lasts until the middle of April. Planting site identification will take place during November while the cutting of cottonwood shoots will occur between mid-to-end of March to early April. The planting events will take place within three weeks of the cuttings, around the end of March to early-to-mid April. Following the planting the trees will receive their first watering in early May and will receive another watering towards the end of the same month. During the hottest summer months, June-September, FMB's AmeriCorps members and MCC Conservation Interns will water the trees on a weekly basis while also completing other land stewardship related projects along the river's riparian corridor.

For maintenance, the schedule will begin in late winter with developing the needs assessment. After an assessment developed, the AmeriCorps members will begin their inventory work in the middle of May. This work will coincide with their watering schedule and will continue until all cottonwoods are documented. It is anticipated that the maintenance project will be complete by the end of August or early September. The rehab portion of this project will begin in late winter by contacting private landowners. Once contact and approval has been made, FMB will work with the landowner in developing a re-planting schedule to occur between March and April.

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

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 FMB and BLM staff, 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 FMB staff and volunteers. Volunteers from FMB will do most of the labor in planting the young cuttings, under the guidance of staff from both FMB and BLM. Post-planting watering and maintenance of trees, including those planted in 2018, will be performed by Conservation Interns hired by FMB as well as their AmeriCorps members. The project co-leads will be Kelsey Anderson, Outreach Manager for the Friends of the Missouri Breaks Monument and Sean Reynolds, BLM Lead Project Ranger based in Fort Benton.

The maintenance and rehab part of the project will be primarily staffed by FMB. Additionally, FMB 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 staff from the FMB.

VI. Project budget must include amounts for the following:

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

Budget

Personnel Costs

Item	# of People	Hours	NWE Grant	Matching Funds	Total Cost
Executive Director @ $28/hr	1	1000	$2,800.00	$25,200.00	$28,000.00
Outreach Manager @ $17/hr	1	1000	$2,550.00	$14,450.00	$17,000.00
Stewardship Coordinator @ $15/hr	1	1000	$7,500.00	$7,500.00	$15,000.00
Total Personnel			**$12,850.00**	**$47,150.00**	**$60,000.00**

Contract Services

Item	# of People	Hours	NWE Grant	Matching Funds	Total Costs
2 Big Sky Watershed (Jan to Nov)	2		$11,000.00	$11,000.00	$22,000.00
MCC Conservation Interns (May to Oct.)	4		$17,600.00	$17,600.00	$35,200.00
Total Contract			**$28,600.00**	**$28,600.00**	**$57,200.00**

Travel & Food Costs

Item	NWE Grant	Matching Funds	Total Cost
Car Rental @ $115/day for 50 days	$1,725.00	$4,025.00	$5,750.00
Food for Cottonwood hitches (4 people for 72 days @ $12/day)	$1,036.80	$2,419.20	$3,456.00
Total Travel & Food	**$2,761.80**	**$6,444.20**	**$9,206.00**

Equipment & Supply Costs

Item	NWE Grant	Matching Funds	Total Cost
Tools & Supplies	$600.00	$1,400.00	$2,000.00
Personal Protection Equipment	$375.00	$1,125.00	$1,500.00
Total Equipment & Supply	**$375.00**	**$1,125.00**	**$1,500.00**
Subtotal Direct Costs	**$44,586.80**	**$83,319.20**	**$127,906.00**

Indirect Costs

Item	NWE Grant	Matching Funds	Total Cost
Indirect costs @ 6%: rent, utilities, etc.	$413.20	$2,261.80	$2,675.00
Total Indirect Costs	**$413.20**	**$2,261.80**	**$2,675.00**
Total Costs	**$45,000.00**	**$85,581.00**	**$130,581.00**
	34.46%	65.54%	100.00%

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

At the completion of the 2019 field season approximately 150 cottonwood trees will be growing along the Wild and Scenic Missouri River. Along with a complete inventory of each planting site. Additionally, we will have re-planted healthy cottonwoods on selected sites. These deliverables benefit the Upper Missouri River Breaks National Monument and the watershed.

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

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

All Cultural Resource Management requirements have been met and are discussed in the environmental assessment MT-DOI-BLM-MT-M070-2015-0002-EA. This can be found at the BLM NEPA register website at *https://eplanning.blm.*gov/. Along with the prior environmental assessment, all BLM district archeologists 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. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

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

N/A

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

- Andrew.Welch@Northwestern.com
- Brent.Mabbott@northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

Project Title: O'Dell Creek Revegetation
Master Plan Final Design and Implementation of Pilot Project

Date: November 8, 2018

Applicability to Project 2188 License Article(s)

The O'Dell Creek Revegetation Master Plan and Demonstration Project 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 O'Dell Creek Revegetation Master Plan and Pilot 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): Granger Ranches, L.P.
Longhorn Ranch, L.P.
River Design Group, Inc.
Tara Luna
NorthWestern Energy, Inc.

Location of Proposed Project

The proposed Master Plan Project is in Madison County approximately five miles south of the town of Ennis, Montana, on two active cattle ranches, the Longhorn and Granger Ranches (Figure 1). It is located in Sections 20, 21, 28, and 33 of Township 6 South, Range 1 West, and Sections 4 and 9 of Township 7 South, Range 1 West. The proposed Demonstration Project is in Section 33, Township 6 South, Range 1 West, within Granger Ranches ownership.

Total Project Cost: $44,757

TAC Funds Requested for Project: $34,757
Granger Ranches and Longhorn Ranch: $7,000
River Design Group, Inc. In-Kind: $3,000

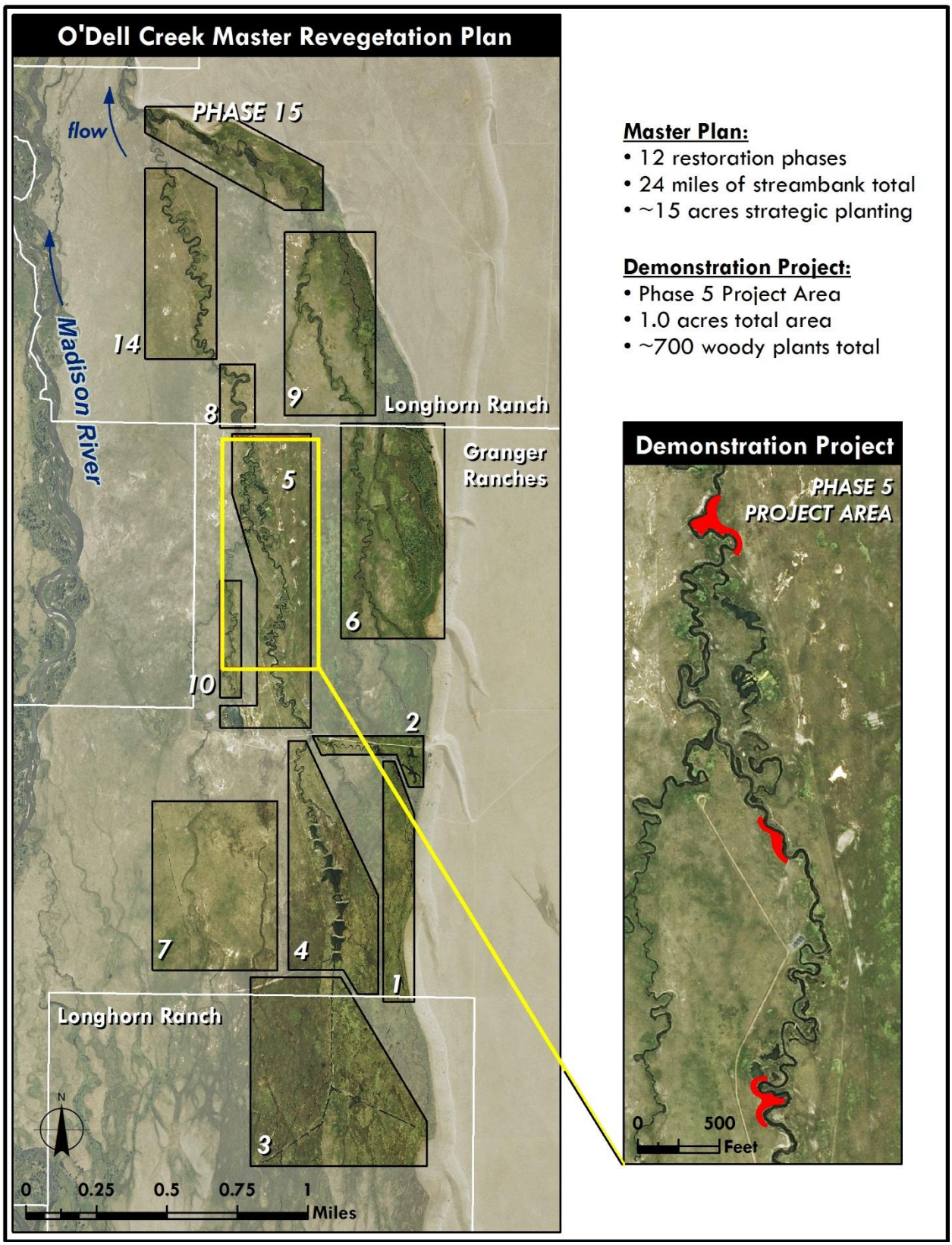


Figure 1. Revegetation Master Plan project location map (left) and Demonstration Project planting locations highlighted in red (right).

I. Introduction

O'Dell Creek and its spring creek tributaries are important ecological connections to the Madison River, providing a source of cool fresh water to the river as well as a variety of aquatic, riparian and terrestrial habitats that are utilized by a host of plant and animal species. Since 2005, 12 phases of stream and wetland restoration have resulted in the restoration of over 11 miles of spring creek and close to 900 acres of wetlands in the O'Dell Creek drainage. While in-stream and wetland habitat have been significantly restored and enhanced over the past 13 years, active vegetation restoration has been limited to planting wetland sod on streambanks and seeding grasses in disturbed areas on floodplains. Passive vegetation restoration techniques have focused on creating appropriate habitat and microsites for vegetation recruitment. While this has resulted in natural recruitment of graminoids (sedges, rushes, grasses), woody vegetation remains lacking through the vast majority of project area streambanks and floodplains.

Woody riparian vegetation provides stream shading and overhanging streambank vegetation, which reduces stream temperatures and improves cover for aquatic species. Over time, woody vegetation on streambanks also provides a source of large woody debris to the stream, which improves fish habitat conditions by promoting pool formation and aquatic habitat heterogeneity. In addition, woody riparian vegetation serves as a seed source for other floodplain areas and provides habitat for a wide range of avian species and small and large mammals. As seen in vegetation reference reaches upstream and downstream of the project area, woody vegetation was likely a large component of the O'Dell Creek riparian system prior to anthropogenic modifications including land clearing for grazing and agriculture. This project aims to restore the vegetation component of the ecosystem to the condition it would have been in had habitat degradation not occurred.

II. Objectives

The following objectives have been developed for the O'Dell Creek Revegetation Master Plan and Demonstration Project in conjunction with the project partners and landowners:

1. Develop a Master Revegetation Plan Final Design which spans the extent of all 12 phases of restoration implemented since 2005, and

2. Design a Demonstration Revegetation Pilot Project in the Phase 5 Project Area, Granger Ranches ownership, with implementation in Fall 2019.

III. Methods

Methodology to develop a Revegetation Master Plan is two-fold: 1) Complete reference reach vegetation surveys on a minimum of five sites to account for spatial variation, which will determine species composition, stand structure, and density targets for planting sites; and 2) identify appropriate and various planting sites that maximize riparian vegetation habitat throughout the project area. Besides reference reach surveys, all other work will be accomplished remotely utilizing Geographic Information Systems (GIS) and spatial data from previous restoration project phases.

The Demonstration Project will test various site preparation, browse protection, and planting scenarios, to inform future revegetation efforts as will be outlined in the Master Plan. Three sites have been selected on Mainstem O'Dell Creek (Figure 1), and include wetland, riparian, and some upland habitat along the stream. Methods include the design of experimental planting plots utilizing ecological restoration principles and GIS, and the implementation of the design in Fall 2019. Implementation methodology includes various site preparation treatments such as weed control, disking, scalping, and mulching; various browse protection measures such as complete exclosure fences or individual browse protection; and planting scenarios including several structural and functional species combinations, and the use of different planting stock including nursery-grown plants in various sizes, salvaged plants from the vicinity, and the use of cuttings collected from the project vicinity.

IV. Schedule

Depending on contract award and project partner involvement, RDG will initiate design of the Revegetation Master Plan Project and design the majority of the Demonstration Project in winter 2019. Field work will occur in June-July 2019, and the Demonstration Project design will be finalized in July and implemented in late October 2019. Revegetation Master Plan treatments will be actively and adaptively managed to capitalize on knowledge gained from the Demonstration Project.

Phasing options for Master Plan implementation will be detailed in the Master Plan Final Design project document, and various funding-dependent options will be considered. Table 1 presents a project schedule for both project objectives. While one year of data on Demonstration Project performance will be utilized to finalize the Master Plan document, it is

expected that results from Demonstration Project plantings and other phases will continue to inform future phases of Revegetation Master Plan implementation.

Table 1. Project implementation schedule, for year 2019.

Task	January	February	March	April	May	June	July	August	September	October	November
Task 1. Project Management											
Task 2. Master Plan Development											
Task 3. Demonstration Project Design											
Task 4. Reference Reach Surveys											
Task 5. Demo. Project Implementation											

V. Personnel

RDG will be responsible for the bulk of project tasks, including preparing final deliverables. Tara Luna will provide Master Plan review, field assessment and species selection support. 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 except for Phases 1 and 2. Ms. Selita Ammondt, Restoration Ecologist and GIS Analyst, will serve as the project manager and technical lead. Mr. John Muhlfeld, Principal Hydrologist, will review all plans and documents and verify planting design and placement will enhance aquatic and riparian habitat for focal aquatic and terrestrial species. Ms. Tara Luna, vegetation ecologist, will provide guidance on treatment species selection, technical writing and editing of the final Master Plan document.

Implementation of the Demonstration Project will occur with a qualified revegetation contractor such as Basic Biological Services (BBS) who have implemented the seeding plan on previous phases of the O'Dell Creek Stream and Wetland Restoration Project work, including site preparation, seed application, and weed control. RDG will provide construction oversight during project implementation to ensure the project meets all specifications and standards outlined in the final design plan.

VI. Budget

The table below includes a not-to-exceed cost estimate to perform the Scope of Work (SOW). The total cost to perform the SOW is $44,757. RDG is donating $3,000, and Granger Ranches, L.P. and Longhorn Ranch are donating $7,000 in funding to the project for a total TAC request of $34,757.

Cost Estimate: Revegetation Master Plan & Demonstration Project		
Task 1. Project Management	**$**	**1,000**
Coordination with NWE, Owners, Stakeholders	$	1,000
Task 2. Revegetation Master Plan Development	**$**	**12,600**
Research	$	2,400
Cartography	$	3,200
Reporting	$	7,000
Task 3. Demonstration Project Design	**$**	**5,920**
Experimental Design and Materials Research	$	1,200
Planset Production (GIS)	$	3,360
Engineers' Cost Estimate	$	1,360
Task 4. Field Assessment/Reference Reach Surveys	**$**	**5,420**
Field Preparation	$	400
Survey - 2 person crew, 3 days	$	5,020
Task 5. Demonstration Project Implementation	**$**	**17,500**
Construction Oversight	$	3,000
Site Preparation (weed control, disking, etc.)	$	2,000
Browse Protection and Installation	$	5,000
Willow/Cottonwood Collection and Delivery	$	500
Containerized Plants and Installation	$	7,000
Task 6. Direct Costs	**$**	**2,317**
Mileage	$	532
Per Diem	$	435
Lodging	$	600
Mapping-grade GPS	$	500
Report Production	$	250
Estimated Project Cost	**$**	**44,757**
*Cost-Share (River Design Group Cash Contribution)	$	3,000
*Cost-Share (Longhorn Ranch, L.P. Cash Contribution)	$	7,000
Total TAC Funds Requested	**$**	**34,757**

VII. Deliverables

Project deliverables will include the following:

- Revegetation Master Plan Final Design Report and Planset;
- Demonstration Project Final Design Planset; and
- Engineers' Cost Estimate for Demonstration Project

The Revegetation Master Plan encompassing all 12 previous stream and wetland restoration phases on O'Dell Creek will be detailed in a Final Design Report. The report will describe existing vegetation conditions throughout the project area as well as reference vegetation communities and will define restoration objectives and desired post-restoration vegetation community composition. This final deliverable will include a Final Design Planset as an Appendix, and will detail the proposed planting plan, planting schedule, materials list, and specifications, as well as site preparation and browse protection options.

The Demonstration Project Final Design will be summarized in a construction-ready planset, which will include all necessary components required for implementation of the revegetation plan. In addition, the Engineers' Cost Estimate for the Demonstration Project will enable bids from revegetation contractors for project implementation to be evaluated efficiently.

VIII. Cultural Resources

Cultural resources will not be impacted as the project will result in minimal ground disturbance.

IX. Water Rights

Streams or wetlands will not be impacted with this project, and Montana water rights laws, policies, and guidelines do not apply.

Project Title: O'Dell Creek 2019 Temperature Data Synthesis and Analysis
Date: November 6, 2018

Applicability to Project 2188 License Article(s)

This project will collect, synthesize, and analyze stream temperature data on the O'Dell Spring Creek Stream and Wetland Restoration Project. The project intends to use three additional years of data to more definitively explain the effects of restoration on stream temperature.

Priority Classification

The O'Dell Creek 2019 Temperature Data Synthesis and Analysis 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): River Design Group, Inc.
Granger Ranches, L.P.
Longhorn Ranch, L.P.

Location of Proposed Project

The project is located in Madison County approximately five miles south of the town of Ennis, Montana. Please refer to Figure 1 O'Dell Creek Monitoring Data Summary.

Total Project Cost: $16,639

TAC Funds (Cost-Share) Requested for Project: $12,479

*River Design Group in-kind cost share of $4,160 or 25% of total project cost

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I. Introduction

Monitoring of stream water temperature was initiated in 2005 on the O'Dell Creek Stream and Wetland Restoration Project area to better understand water temperatures and to monitor expected improvements from restoration activities. The influence restoration has on water temperature in O'Dell Creek is of concern since pre-restoration water temperatures exceeded optimum and approached lethal conditions in much of the O'Dell Creek headwaters planning area (DJP Aquatic Consulting, Inc. 2011). In 2016 an initial temperature assessment and database compilation was conducted for the project area. This analysis found that more data was needed post-restoration to determine statistically what effect restoration has had at most sites. With three additional years of post-restoration data, there is enough data to analyze more thoroughly restoration effects on water temperature for several of the phases in question.

Pre-restoration channel conditions and dimensions observed in O'Dell Creek generally slowed the transit time of water through the project area allowing for more exposure time and surface area to solar heating. High width-to-depth ratio channel conditions also reduced the influence of shading of the water from streamside vegetation. Restoration activities from 2005 through present are assumed to be reversing the negative impacts observed in O'Dell Creek within the immediate restoration project area, and adjacent waterbodies. Restoration activities that have been implemented to improve water temperature conditions in O'Dell Creek have included: 1) narrowing stream channels; 2) partially filling and completely filling over-widened drainage ditches; 3) re-establishing groundwater hydrology; and 4) developing wetlands that are both connected and disconnected to O'Dell Creek or primary tributaries via a surface water channel.

The goal of this analysis is to continue to answer questions on the impacts throughout the O'Dell Creek restoration project area. Several key questions that this project and analysis will attempt to address are as follows.

- Has water temperature decreased with the completion of restoration phases?
- Which phases have been most/least impactful on water temperature?
- Are daily maximum water temperatures decreasing in the project areas?

- Which restoration techniques are most effective at reducing temperature?

II. Objectives

The following objectives have been developed for this project:

1. Deploy and collect instrumentation for data collection efforts in 2019 at sites shown in Figure 1;
2. Update existing MATLAB database with data collected since previous technical memo;
3. Repeat analysis conducted with new data and expand analysis to include additional statistical methods to better understand the effect of restoration on water temperature; and
4. Prepare a technical memo highlighting updated results and presentation with figures and materials that can be used by NWE in presentations and marketing materials.

III. Methods

Custom programming in MATLAB will organize and analyze the data. With completion of 2019 field data collection several sites will have enough pre/post data to conduct more detailed analysis. RDG plans to use the one-way ANOVA (Analysis of Variance) to test if there are detectable differences in average monthly temperature or peak recorded temperature. This will serve as a starting point for further exploratory statistical testing. All programming code built for this analysis can be reused when additional data becomes available as monitoring continues.

IV. Schedule

Following contract award, RDG will initiate Task 1, project management. Task 2, data collection, will require two site visits for deployment and retrieval before winter and will occur in May and November 2019. Task 3, updating the database, will occur directly following data retrieval. Tasks 4 and 5, analysis and documentation, will occur in December 2019 with a final deliverable before December 31st 2019.

V. Personnel

RDG personnel to be assigned to this project include:

John Muhlfeld – Project Manager
Ryan Richardson, GIT – Fluvial Geomorphologist
Josh Lenderman, PLS – Instrument Technician

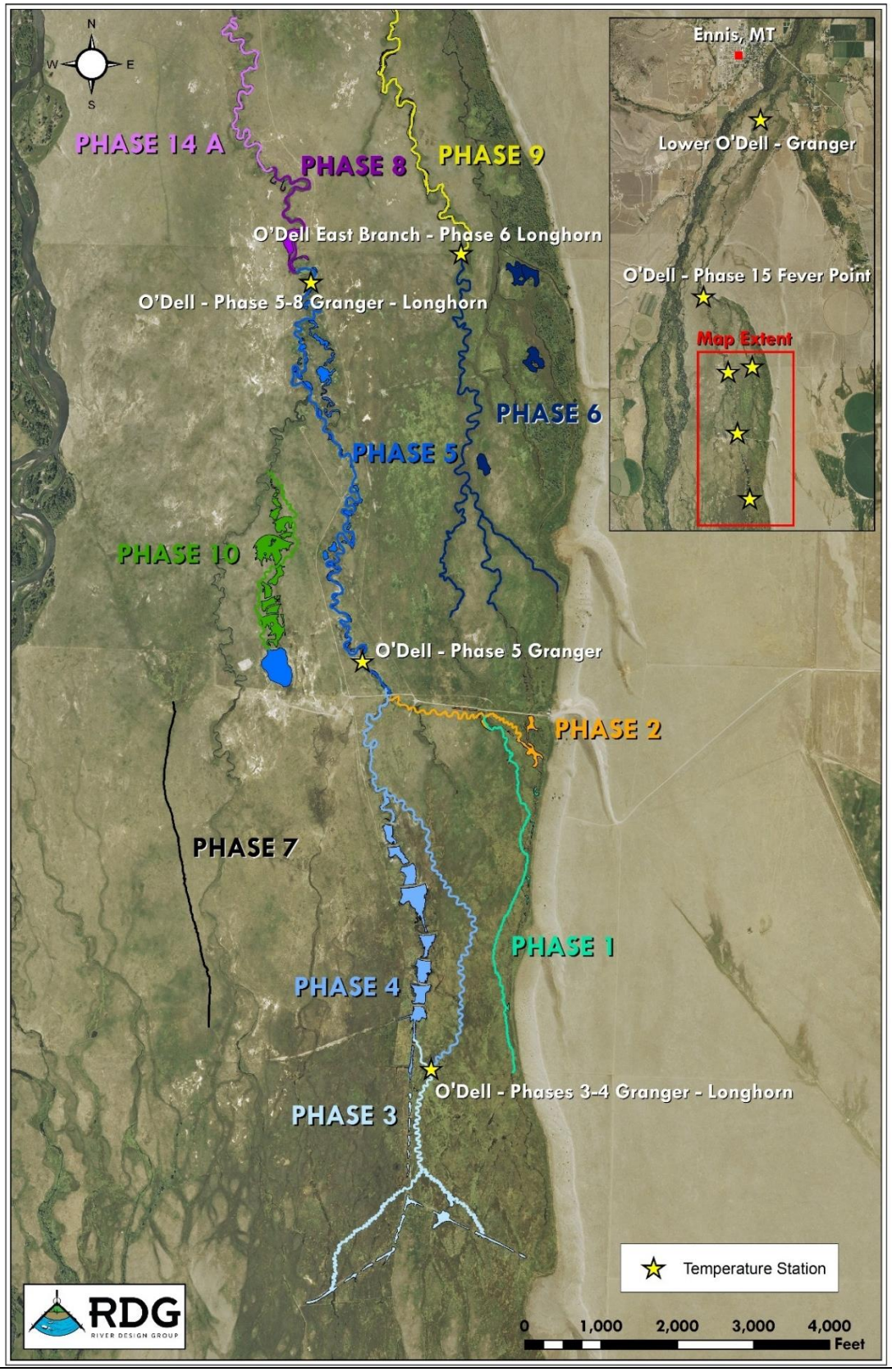

Figure 5. Overview of temperature data collection sites for O'Dell Spring Creek.

VI. Budget

Table 1. O'Dell Creek Temperature Data Scope of Work Cost Estimate.		
Task	**Cost**	
1. Project Management	**$**	**635**
Coordination with NWE	$	635
2. Data Collection	**$**	**4,718**
Equipment deployment	$	2,359
Equipment collection	$	2,359
3. Database Update	**$**	**4,104**
Process new temperature data	$	2,052
Update MATLAB database	$	2,052
4. Data Analysis and Summary Statistics	**$**	**5,130**
Analyze data and prepare plots using MATLAB	$	5,130
5. Prepare Deliverables	**$**	**2,052**
Prepare technical memorandum	$	2,052
Estimated Project Cost	**$**	**16,639**
***Cost-Share (River Design Group, Inc.)**	**$**	**4,160**
Total TAC Funds Requested	**$**	**12,479**

VII. Deliverables

Scope of work deliverables will include the following:

1. Updated MATLAB database
2. Technical memorandum with data plots and summaries of analysis conducted.

VIII. Cultural Resources

Not applicable. No ground disturbing activities are proposed with this project.

IX. Water Rights

Not applicable. No ground disturbing activities are proposed with this project.

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

Date: November 8, 2018

Applicability to Project 2188 License Article(s)

Phase 16 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 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 O'Dell Creek Phase 16 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 Township 6 South, Range 1 West, Section 20. Please refer to Figure 1.

Total Project Cost: **$**244,060

TAC Funds (Cost-Share) Requested for Project: $214,060

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 13 miles of spring creek, and 780 acres of improved wetland functions. This project proposal furthers 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.

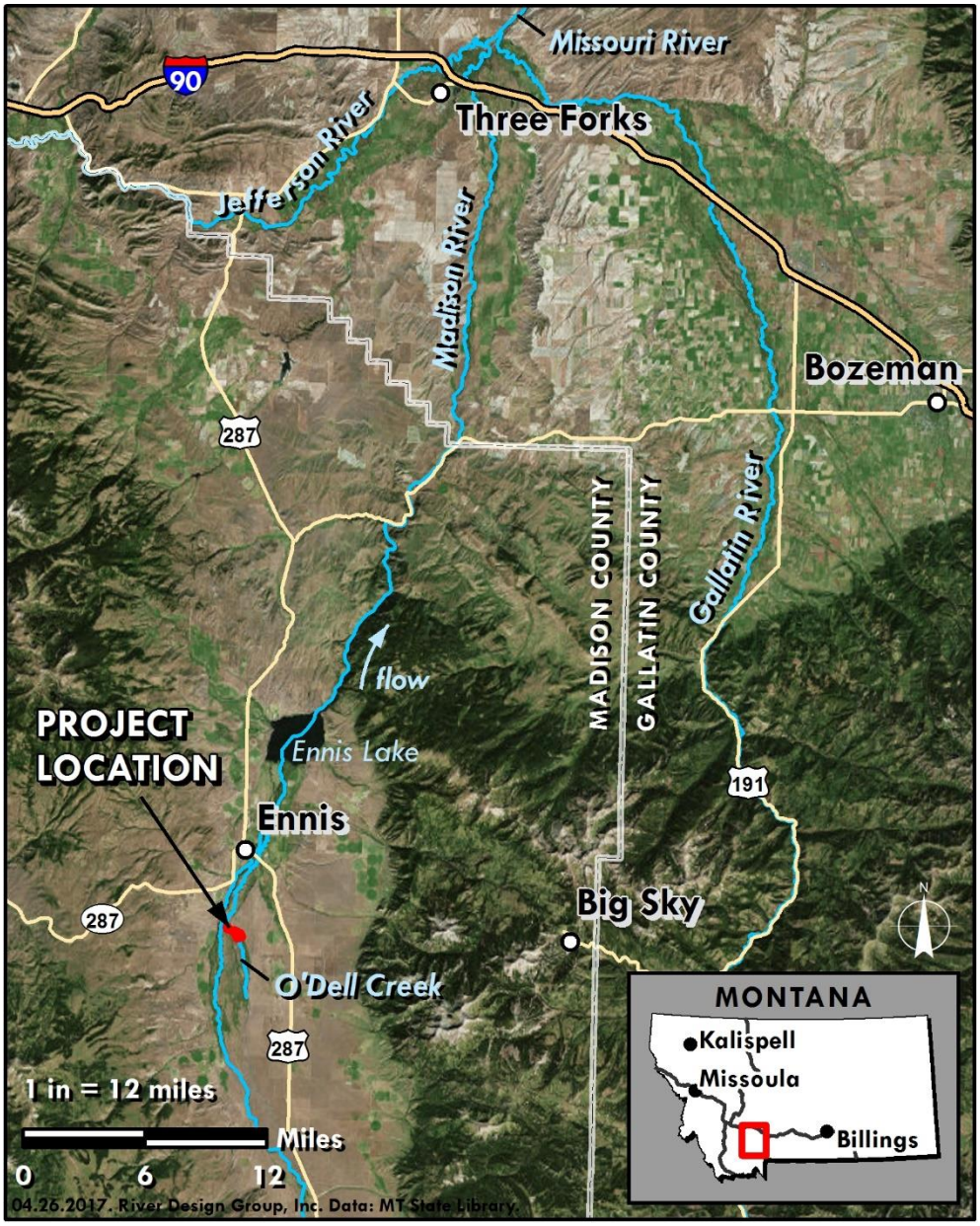

Figure 1. O'Dell Creek project vicinity map. The project is located on the Longhorn Ranch.

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. 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 downstream to the Granger Ranches, LP on the Longhorn Ranch property boundary. 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. In 2018, the East Branch O'Dell Creek Phase 15 project was implemented. This 2019 cost-share proposal is for implementation of Phase 16, which will include approximately 0.5 miles of restoration on the East Branch and mainstem O'Dell Creek (Figure 2).

The purpose of this project is to improve aquatic habitat conditions of the East Branch and mainstem 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; and 5) converting areas within the existing upland herbaceous plant communities to wetlands by creating new, lower surfaces adjacent to O'Dell Creek.

II. Objectives

The following objectives have been developed for the Phase 16 project area in conjunction with the project partners and landowners:

3. Produce clean water consistent with supporting aquatic life and beneficial uses in the O'Dell Creek watershed and downstream receiving waterbody, the Madison River;
4. Create complex aquatic habitat components such as depth, velocity, substrate, cover, and pools that support populations of wild trout and other aquatic organisms;
5. Construct a stream channel that is connected to and interacts with the floodplain in terms of hyporheic flow and nutrient exchange; and
6. 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 prepare preliminary and final design plansets in coordination with NorthWestern Energy and Longhorn Ranch. Regulatory permits will be prepared and coordinated with the US Army Corps of Engineers, Montana Department of Environmental Quality, and Madison Conservation District. Supplemental information needed includes a wetland delineation report with mapping exhibits illustrating existing and proposed (both temporary and permanent) wetland impacts.

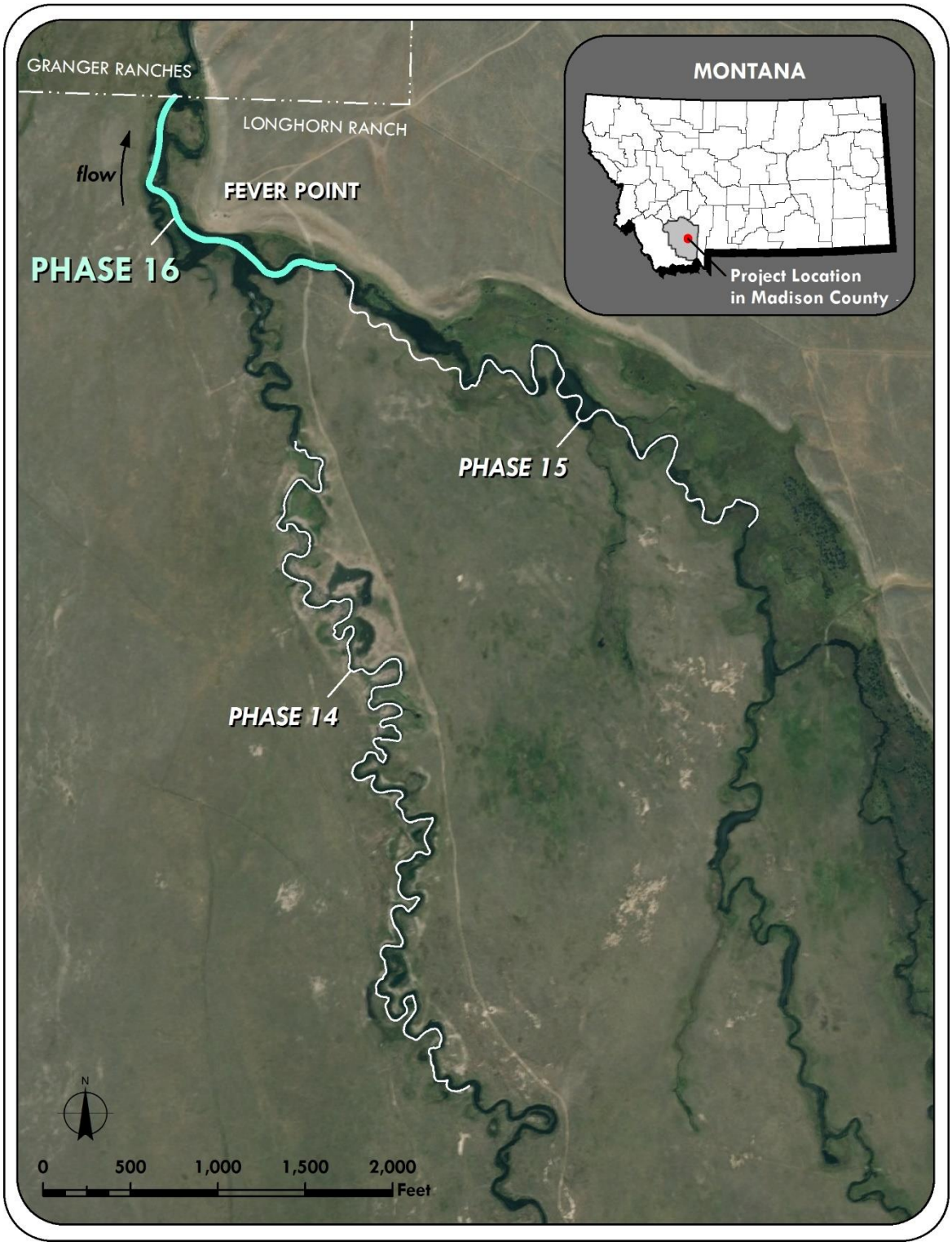

Figure 2. Phase 16 project area map, and proximity to Phases 14 and 15.

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 will be coordinated by NorthWestern Energy and RDG. Table 1 includes a proposed project schedule.

Table 1. Project schedule for the Phase 16 Restoration Project (2018).

Task	January	February	March	April	May	June
Task 1. Project Management						
Task 2. Engineering, Permitting, Construction Management						
Task 3. Construction Implementation						
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 13 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 except for Phases 1 and 2. John Muhlfeld will serve as the project manager and technical lead on behalf of the design team. 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 will be conducted prior to ground-disturbing activities.

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 $244,060. As noted, project partners have $30,000 (cash contribution) committed in cost-share accounting for approximately 12% of the total project cost. This proposal is requesting TAC funds in the amount of $214,060.

Table 2. O'Dell Creek Phase 16 Cost Estimate.		
Task		**Cost**
1. Project Management	**$**	**2,000.00**
Coordination with NWE, Owners, FWS, Stakeholders	$	2,000.00
2. Engineering, Permitting and Construction Management	**$**	**41,500.00**
Design, Engineering and Pre Construction Services	$	12,500
Regulatory Permitting (Joint Permit Application)	$	4,250
ACOE and Conservation District Joint Permit Permit Site Review	$	2,750
Construction Management	$	22,000
3. Construction	**$**	**195,500**
Excavator Class 320 with GPS	$	53,250
Excavator Class 320	$	52,750
CD 110R-2 Komatsu 10CY Dump Truck	$	26,500
CD 110R-2 Komatsu 10CY Dump Truck	$	26,500
All Surface Vehicle	$	12,000
Mobilization and Demobilization	$	10,500
Per Diem and Lodging for Contractor (4 Person Crew)	$	9,000
Seed Bed Preparation, Seed Application, Weed Control (BBS)	$	5,000
4. Direct Costs	**$**	**5,060**
Mileage	$	2,330
Per Diem	$	840
Lodging	$	1,890
Estimated Project Cost	**$**	**244,060**
*Cost-Share (US Fish and Wildlife Service Cash Contribution)	$	15,000
*Cost-Share (Longhorn Ranch, L.P. Cash Contribution)	$	15,000
Total TAC Funds Requested	**$**	**214,060**

* Cultural Resources Investigation for Phase 16 will be completed by NorthWestern Energy, Inc .

VII. Deliverables

Project deliverables will include the following:

- Preliminary and final design plan sets;
- Wetland delineation report including GIS mapping exhibits and field forms;
- Joint Permit Application;
- Approximately 2,700 feet of spring creek; and
- 30 acres of improved and/or enhanced wetland functions and values.

VIII. Cultural Resources

NorthWestern Energy will coordinate the necessary cultural resources investigations. A pedestrian cultural resources inventory covered a portion of the project in 2017, 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 16 project intends to restore wetland habitat by enhancing existing wetlands through grading and revegetation. The restored wetlands will have identical hydrologic and vegetative characteristics to existing wetlands in the immediate area. Riverine wetland habitat will be converted to shallow open water and emergent wetlands by narrowing of the current over-widened stream channel. 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.