GRIZZLY CONFLICT MITIGATION TARGETED IMPLEMENTATION PLAN

TIP Summary:

EQIP funds will provide participants with financial assistance for installation of electric fences and electrified drive-over mats to deter grizzlies from entering areas of anthropogenic attractants with potential bear/human conflict. Reducing bear/human conflict is a key strategy to the recovery of the Northern Continental Divide Ecosystem population of grizzly bears. The geographic boundary of the TIP and the efficacy of the chosen conservation practices are supported by empirical data and real-world proven application by partners in the Blackfoot region of Montana. This TIP is a financial and technical partnership between NRCS, The Blackfoot Challenge, Montana Fish Wildlife and Parks, and the US Fish and Wildlife Service. This TIP will align with the wildlife and habitat resource concerns outlined in the NRCS long-range plan for Powell and Missoula Counties.

Background Information:

This Targeted Implementation Plan (TIP) supports the natural resource priority of Terrestrial Wildlife Habitat identified on page 36 of the NRCS long-range plan for Powell, Deer Lodge, and Silver Bow Counties. Missoula County is in the process of updating the long-range plan with this concern. The grizzly bear (*Ursus arctos*, grizzly) is listed as threatened by the US Fish and Wildlife Service under the Endangered Species Act of 1973, as amended. The area surrounding the Blackfoot River and its associated communities has been an area of high grizzly bear/human interaction for decades and continues to this day. The farm and ranch headquarters in this area are often located directly in high quality grizzly bear habitat such as riparian area, travel corridors, and areas of high vegetative productivity. Bears become attracted to home sites and ranch areas by a myriad of food attractants ranging from calves, afterbirth, pet food, livestock feed, barbeque grills etc. Bears that become habituated to exploiting these human associated resources often become nuisance animals and are inevitably captured and relocated or euthanized. It is not acceptable or practical to remove farm and ranch headquarters from grizzly bear habitat. However, it is clear that the presence of these human necessities degrades grizzly bear habitat by creating the attraction of a food source that ultimately results in the bear's removal from the population. This is sometimes referred to as a sink habitat or biological trap. We propose that excluding grizzly bears from farm and ranch headquarters areas will result in an overall improvement to grizzly habitat. It will allow grizzly bears to use the highest quality habitat on the landscape while reducing bear-human conflict. Considering the millions of dollars expended over several decades for grizzly research and management, it makes excellent economic sense to invest in measures to prevent grizzly bear/human interactions that may result in the destruction or loss of grizzly bear/human life and property.

Successful grizzly bear conservation and management depends not only habitat but human tolerance. For grizzly bears to survive, people must accept the grizzly as an inhabitant of the land. Tolerance is maintained when the public has confidence in management agencies to respond quickly and appropriately to grizzly bear-human conflicts and the public is equipped with the knowledge to understand and avoid grizzly bear-human conflicts. Some data suggests that grizzly hibernation patterns are being affected by climate change which may lead to an increased number of conflicts. The objective of conflict management is to maximize human safety and minimize property losses while maintaining a viable population of grizzly bears (Dood et al. 2006). When grizzly bear-human conflicts are not adequately addressed, there are negative consequences for the bear and people involved, and support for grizzly bear management and conservation in the Northern Continental Divide Ecosystems (NCDE) and other officially designated recovery areas become undermined.

Researchers have documented concentrations of conflicts on private agricultural lands in the Montana and southwest Alberta portions of the NCDE that are often precursors to grizzly bear deaths (Wilson et al. 2005, Wilson et al. 2006, Northrup et al. 2012). Additionally, researchers have documented that even low densities of rural residential development in MT, WY, and ID can result in sink habitats for grizzly bears (Schwartz et al. 2012). Because grizzly bear population dynamics are largely driven by female survivorship (Harris et al. 2006), researchers have called for improving female grizzly bear survival rates by minimizing conflicts on private lands (Mace and Waller 1998). As a bottom line, focusing conservation measures on reducing bear/human conflicts and associated bear mortality (specifically females) on

private lands offers great promise in reducing a significant portion of human-cause grizzly bear mortality and conserving core populations of grizzlies in the United States.

This Targeted Implementation Plan draws on the pioneering work of the Blackfoot Challenge, building from Conservation Innovation Grants awarded 2014 and 2020. Beginning in the early 2000s, the Blackfoot Challenge in partnership with the NRCS, US Fish and Wildlife Service, MT Dept. of Fish, Wildlife and Parks and other groups developed a systematic and comprehensive approach to conflict mitigation with grizzly bears. An important tool used successfully to reduce grizzly conflicts are electric fences, and more recently electric drive-over mats.

Electric fences have long been a proven tool to deter grizzlies from calving areas, spring turnout pastures, orchards, homesites, etc. Electric fences can help producers maintain seasonal rest-rotation systems without fear of losing cattle and contribute to overall range heath. In places like the Blackfoot watershed, electric fences constructed on ranches are successful to deter grizzly bears from calving areas and spring turnout pastures and other attractants to prevent livestock losses to grizzlies and maintains grazing systems. In some cases, traditional swing gates used with electric fences on ranch entrances or high-use pastures are time-consuming for producers to open and close, limit electric fence applications, and increase maintenance costs. This TIP seeks to use electric fences and drive-over electric mats (cattle guards) that can replace or work with traditional swing gates and used with electric fences to deter bears from calving areas, spring turn-out pastures, and ranch home and building sites during the season when bears are active.

Goal Statement:

The goal of this Targeted Implementation Plan (TIP) is to prevent and minimize human-grizzly bear (*Ursus arctos*) conflicts in and around working farm and ranch facilities, residences, and headquarters by limiting bear access to anthropogenic attractants and food sources. Electric fence, electrified drive-over mats will be installed to deter grizzly bears from accessing attractants in areas of potential human-grizzly conflict. Reducing human-grizzly conflicts results in a reduction in the number of bears euthanized and/or relocated. This will help stabilize the population and will be more cost-effective conservation.

Location:

This TIP will primarily be in Powell County along the Blackfoot River corridor with overlap into Missoula County. The boundary is based on 21 years of Grizzly-human conflict data collected from 1998-2019 (n = 697 conflicts). Sara Williams (citation pending) completed a spatial analysis of these conflicts to produce Kernel density estimates representing the location of 95% of conflicts during the spring, summer, and fall (see figure 3). Kernel density estimation is a model that gives greater weight to a point based on its proximity to other data points. In this case, it is a great tool for identifying areas where human-grizzly conflicts are clustered or reoccurring. We based the geographic boundary of the tip on the composite 95% Kernel densities of the 3 seasons combined. In addition, we generally bounded the TIP to exclude contiguous areas of public land such as State of Montana, BLM, and National Forest ownership. High concentrations of grizzly conflict are also documented in the Seeley Lake area, but the region has been excluded because most conflicts were residential and commercial rather than agriculturally related. Additional portions of Powell county, upper Nevada Creek (southeast portion of the boundary) and

Douglas Creek (south central portion of the boundary) were included because they are areas of emerging concern for conflict.

Figure 1. Grizzly Conflict Management TIP boundary map.

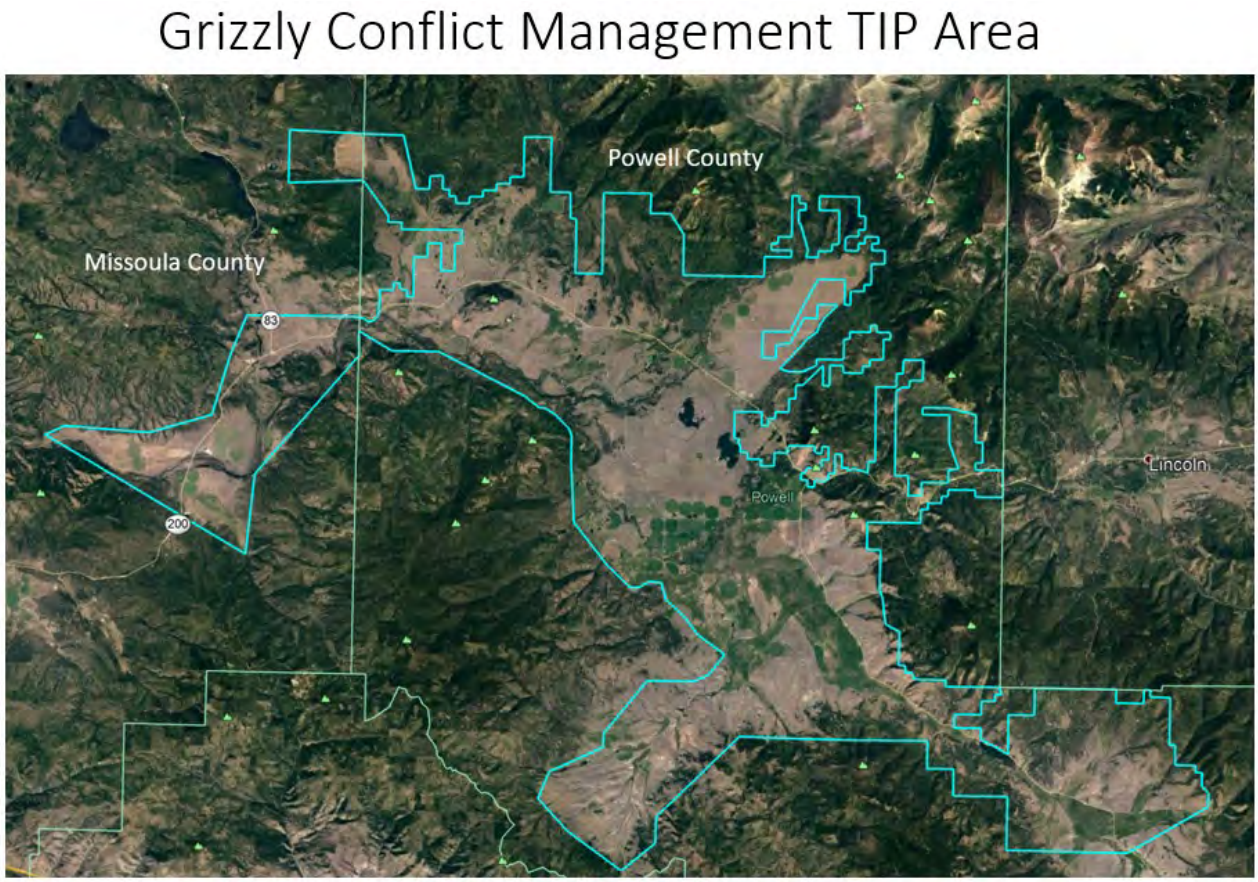

Figure 2. Location of 697 Grizzly-human conflicts 1998-2019. (Sara Williams, citation pending)

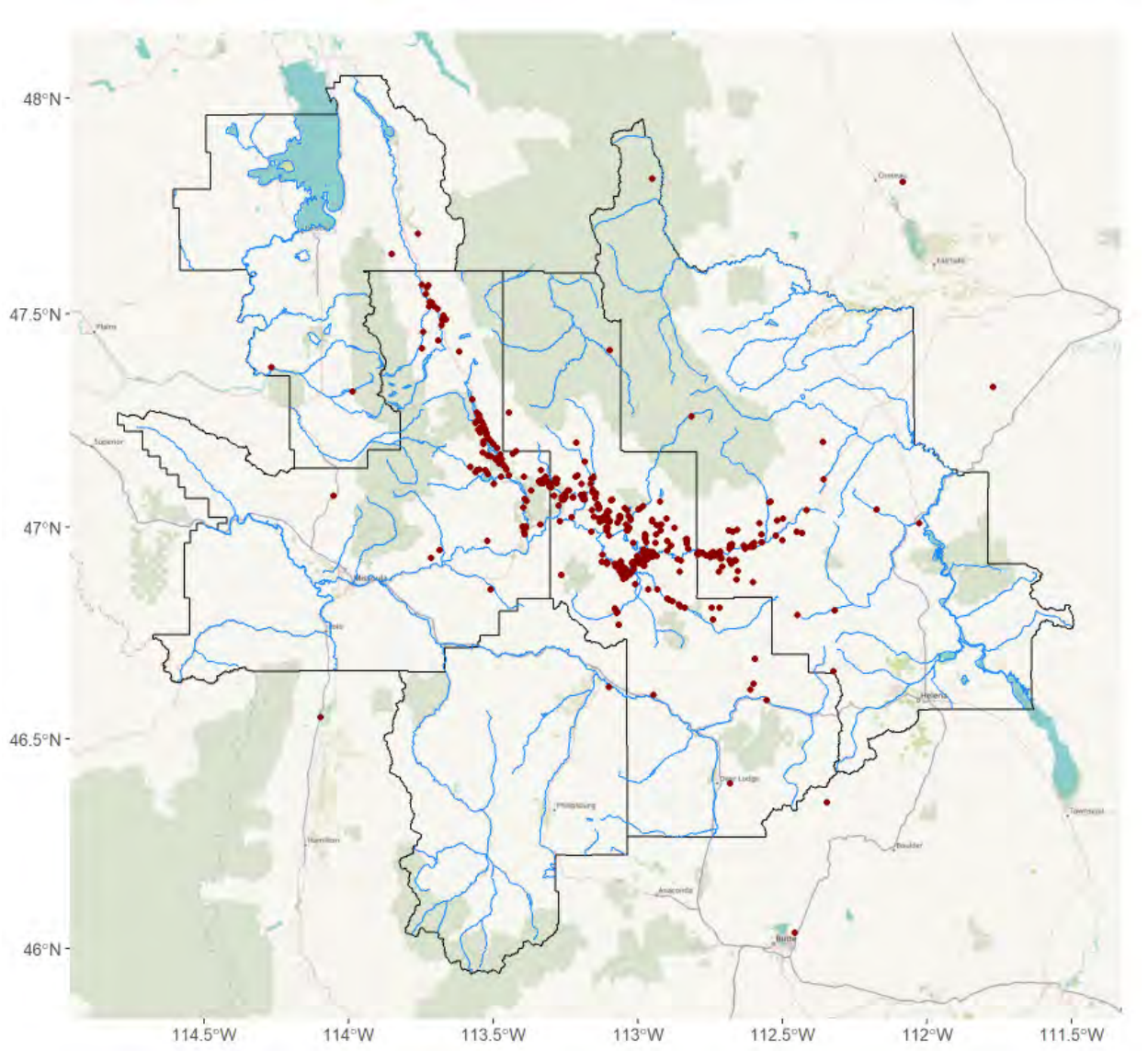

Figure 3. Kernel density estimate for 95% of conflicts during spring, summer, and fall. (Sara Williams, citation pending)

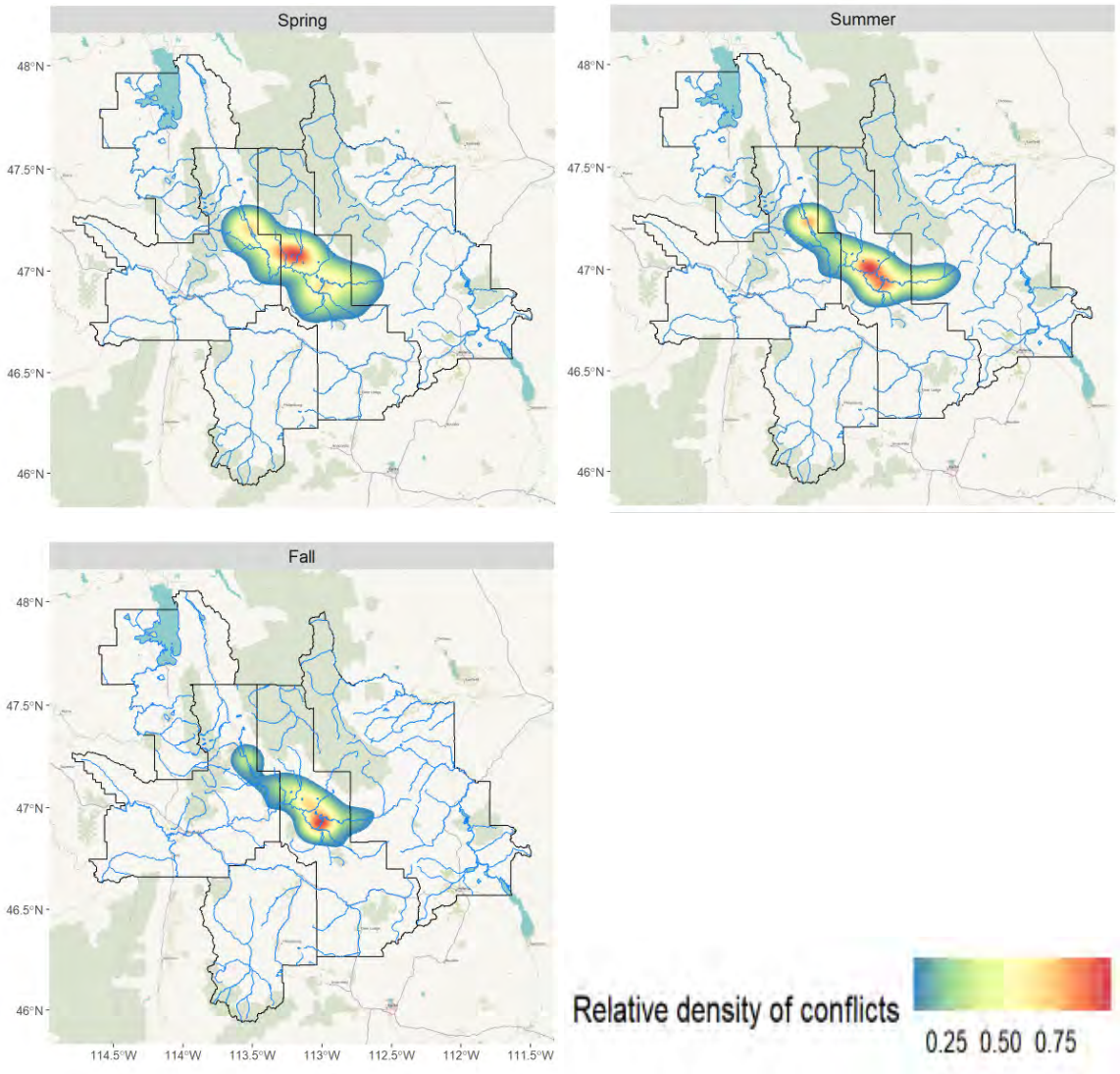

Figure 4. Electric Fence installed to deter grizzly bears from entering a ranch headquarters area. This installation uses an electric wire over top of gates to prevent climbing.

Problem Statement:

Human-based foods and attractants association with livestock and agricultural production can bring people and grizzlies into conflict. Grizzly bears seek out and forage on a variety of attractants that may include household garbage, pet food, livestock food, cereal crops such as corn and oats, fruit (orchards), apiaries, and domesticated livestock. Livestock carcasses can also attract grizzlies into agricultural settings (Wilson et al. 2006). As a general rule, grizzlies are inquisitive and resourceful and will exploit an array of agricultural related attractants when available. In Alberta, where ranching practices and the ecological setting is similar of Montana, researchers have found that ranches in areas close to streams, with extensive habitat edges and at lower elevations are most susceptible to chronic conflicts with grizzly bears (Northrup et al. 2012).

Previous work by Wilson et al. (2005; 2006) in Montana, found similar conditions and identified chronic conflict areas as hotspots—where concentrations of agricultural attractants (carcasses, calving areas, beehives) were in high quality bear habitat (riparian areas) (Wilson et. al., 2006). And important finding from both Northrup and Wilson was that these conflict zones can readily be identified and mapped so that proactive measures can geographically be targeted to ameliorate conflicts.

Figure 5. Electrified drive-over mat designed by Brady Stone Fabrication.

Goals & Objectives:

The objective of this TIP is to deter bear-human conflicts by limiting bear access to anthropogenic attractants and food sources. Subsequently, this will reduce conflict associated mortality to grizzly bears.

The goal of this Targeted Implementation Plan (TIP) is to prevent and minimize human-grizzly bear (*Ursus arctos*) conflicts in and around working farm and ranch facilities, residences, and headquarters by limiting bear access to anthropogenic attractants and food sources. Electric fence and electrified drive-over mats will be installed to deter grizzly bears from accessing attractants in areas of potential human-grizzly conflict. Terrestrial wildlife habitat will be improved for grizzly bears by limiting their access to a habitat feature that results in bears being relocated and/or euthanized. This will help stabilize the population and will be more cost-effective conservation.

Primary Goal: reduce the number of bear-human conflicts in the Blackfoot Valley at farm and ranch headquarter areas.

Objectives:

- Install bear deterrent fencing and drive-over electric mats on 25 farm/ranch hq and working facilities

Alternatives:

1. **No Action**

Several landowners within the TIP boundary have already successfully implemented electric fences and electric drive-over mats to deter grizzly conflict. Partners such as the Blackfoot Challenge, USFWS, and MT FWP encourage these practices and offer technical and financial assistance when possible. However, grizzly conflict continues as a major concern in the Blackfoot River corridor. Financial assistance to landowners is generally limited and prioritization of projects by the partners is often reactive to conflicts rather than proactive at preventing them. No Action by NRCS will likely result in the continued slow adoption of deterrent fencing. Trap/transfer and euthanasia of problem grizzlies will likely continue and may increase with population and range expansion.

2. **Proactive Methods**

Removal of attractants, education, bear exclusion fences and gates. This will be a joint effort between NRCS and the partners. NRCS will offer financial assistance through the EQIP program for installing bear deterrent fencing and cattle guards around headquarters and other areas attractive to bears. All partners will assist landowners through education for minimizing bear attractants and conflict.

Selected Alternative:

Alternative #2 (proactive methods) is the preferred action alternative. This will be a joint effort between NRCS and the (partners). NRCS will offer financial assistance through the EQIP program for installing bear deterrent fencing and drive-over electric mats around headquarters areas attractive to bears. Partners will assist landowners through education for minimizing bear attractants and conflict and will provide additional financial assistance for complimentary practices and for offsetting participant out-of-pocket expenses.

Partnerships and Other Funding Sources:

Narrative description of partners and funds. The annual breakdown of financial assistance requested to implement this project is found in Table 3.

Table 1: Partners and contributions to the Grizzly Conflict Mitigation TIP. Funding could be used to offset producer costs of implementing EQIP or could be applied as complimentary practices.

Partner Contributions to Grizzly Conflict Mitigation TIP

Partner Organization or Agency	Contribution Type	Funding Provided
MT Fish, Wildlife, and Parks	Fence Energizers	$5,000
Blackfoot Challenge	Cash Match toward projects	$50,000
United States Fish & Wildlife Service	Cash Match toward projects	$40,000*
Total		**$95,000***

*USFWS commitment is $40,000 toward grizzly deterrent fencing projects in years 2021 and 2022. It is likely that additional funds will be committed for years 2023-2026.

United States Fish and Wildlife Service

USFWS will be contributing $40,000 in 2021 and 2022 for grizzly conflict mitigation fences and drive-over mats in the Blackfoot watershed. They will serve as a technical advisor throughout the TIP timeframe and likely contribute additional cash resources in years 2-5 of the TIP.

Montana Fish Wildlife and Parks

MT FWP has been able to provide fence chargers for grizzly fencing projects in the past and anticipates continuing to do so. In addition, MT FWP provides vital information on grizzly movements and conflicts to guide implementation.

Blackfoot Challenge

The Blackfoot Challenge staff has been instrumental in developing the practices offered in this TIP and will continue to spearhead outreach for landowner participation. They will also assist NRCS with planning practices for applicants and consulting with program participants and contractors during implementation. The Blackfoot challenge will provide $10,000 annually to offset producer costs and/or to install complementary practices associated with EQIP contracts in this TIP.

Implementation:

Implementation of the Grizzly Conflict Mitigation TIP is ready to begin in FY 2022 with added contract obligations in 2023, 2024, 2025, and 2026. Approximately 6 properties of landowners inventoried are ready, willing, and able to begin implementation of conservation practices addressing grizzly conflict mitigation. An additional 30-40 properties have been identified as having a potential need to address this resource concern. We anticipate contracting with 25 landowners within the TIP boundary over 5 years.

The sequencing of the practice implementation will begin with committed landowners who are ready to begin work immediately and continue with other landowners over the five-year obligation period as

they are ready. During this time the Deer Lodge and Missoula Field Office staff, and the partners, will continue to conduct outreach in the area to identify additional interested landowners for TIP sign-up periods in years 2 through 5.

NRCS will contract only the fence portion of projects during FY2022. The electric drive-over mats installation on these projects will be through the CIG grant awarded to the Blackfoot Challenge in 2020. This will serve as a pilot year for the TIP to roll out the technology refined by the CIG and partner work over the last few years. By FY2023, electric drive-over mats will be added as a component to the NRCS cost list and contracted through EQIP.

The Deer Lodge NRCS office staff is a Supervisory District Conservationist and a Soil Conservation Technician. The Missoula NRCS office staff is a Supervisor and FO District Conservationist. NRCS also contributes funding to a partner position with the Blackfoot Challenge. This staff will be able to accomplish implementing this TIP with very limited assistance from additional NRCS staff. Partner entities have already contributed to outreach activities and will continue to assist.

Timeline:

Year 1 – Contracts limited to Powell County applicants with CIG paying for drive-over mats

Year 2 – Contracts limited to Powell County applicants, drive-over mats will be contracted in EQIP

Year 3-5 – Full implementation with contracts in Powell and Missoula Counties

*Table 2: **Projected Typical Contract Amount** - NRCS payment estimates for typical contract in Grizzly Conflict Mitigation TIP.*

Practice	Extent	Type	Payment Rate	Total
Structures for Wildlife (649) 5 wire Electric Fence	4500	ft	$1.84	$8280
Obstruction Removal (500) Fence Removal	2500	ft	$0.79	$1975
Structures for Wildlife (649) 12’ Drive-over electric mat	2	ea.	$3445.00	$6890
Total	-	-	-	$ 17145

Table 3: **TIP Obligation Request -** *Requested financial assistance obligation for the* Grizzly Conflict Mitigation TIP *2022-2026.*

Year	Contracted Projects	Obligation Requested
2022	3	$45,000
2023	6	$100,000
2024	7	$117,000
2025	6	$100,000
2026	3	$50,000
Total	**25**	**$412,000**

Progress Evaluation:

We propose to measure outcomes using metrices at a site specific level and within the entire TIP boundary by monitoring reductions in:

1) confirmed livestock losses at the specific site level

2) confirmed conflicts associated with other attractants at the specific site level

3) confirmed conflicts within the TIP project area with a 1.6 km buffered area*

4) grizzly bear mortalities within the TIP project area with a 1.6 km buffered area

*(24-48 hour foraging bout range for male grizzlies in MT (Wilson et. al. 2006).

Grizzly Conflict Mitigation TIP Ranking Questions

Local Ranking Questions:

1. Has there been a documented Grizzly conflict at the application site?
2. Has there been a documented Grizzly conflict within 1 mile of the application site?
3. Is the application site located in an area identified by MT FWP, USFW, or University of Montana as a high priority Grizzly area?

Grizzly Conflict Mitigation TIP Prioritization Tool

The appropriate prioritization tool will be used for each sign up.

Literature Cited:

Harris, R.B., C.C. Schwartz, M.A. Haroldson, and G.C. White, G.C. 2006. Trajectory of the Yellowstone grizzly bear population under alternative survival rates. In: Schwartz, C.C., Haroldson, M.A., White, G.C., Harris, R.B., Cherry, S., Keating, K.A., Moody, D. and Servheen, C. (eds.) 2006. Temporal, spatial, and environmental influences on the demographics of grizzly bear in the Greater Yellowstone Ecosystem. Wildlife Monographs. 161:44-57.

Mace R.D. J.S. Waller, T.L. Manley, K. Ake, and W.T. Wittinger. 1999. Landscape evaluation of grizzly bear habitat in western Montana. Conservation Biology. 13:367-377.

Northrup, J.M., G.B. Stenhouse, and M.S. Boyce. 2012. Agricultural lands as ecological traps for grizzly bears. Animal Conservation. 15:369-377.

Schwartz, C.C.; P.H. Gude, L. Landenburger, M.A. Haroldson, and S. Podruzny. 2012. Impacts of rural development on Yellowstone wildlife: linking grizzly bear *Ursus arctos* demographics with projected residential growth. Wildlife Biology. 18: 246-257.

Wilson, S.M., J. A. Graham., D.J. Mattson, M.J. Madel. 2006. Landscape conditions predisposing grizzly bears to conflict on private agricultural lands in the western U.S.A. Biological Conservation. 130:47-59.

Wilson, S.M., M.J. Madel, D.J. Mattson, J.M. Graham., J.M. Belsky, J.A. Burchfield. 2005. Landscape features, attractants, and conflict hotspots: A spatial analysis of human-grizzly bear conflicts. Ursus. 16:117-129.