Photo 1: K. Bockting-Dillon, MT Unit. Bureau of Land Management

UPPER RUBY WILDLIFE PASSAGE TARGETED IMPLEMENTATION PLAN

Montana Focused Conservation

ABSTRACT

This project is intended to provide managers near the Ruby Reservoir and Sweetwater basin with financial and technical assistance to implement wildlife friendly fencing strategies which will allow more seamless wildlife movement through habitat in these regions.

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Targeted Implementation Plan Summary:

This Targeted Implementation Plan (TIP) use a selection of conservation practices including fence, obstruction removal, and structures for wildlife to convert existing non-wildlife friendly fencing with NRCS wildlife friendly fencing over 75 miles, encompassing approximately 73,000 acres in the Sweetwater creek watershed and west face of the Greenhorn Mountains. The TIP focus area (Figure 1) encompasses public and private lands, located near wilderness study areas and other large tracts of federal public lands. The TIP primarily focuses on private lands on sage-steppe habitat which are winter ranges for elk, mule deer, and pronghorn.

The primary resource concern for this TIP will address **Terrestrial habitat for wildlife and invertebrates** with a secondary resource concern of **Plant Productivity and Health.**

FY 2024	***FY 2025***	***FY 2026***
$420,000	$420,000	$420,000

Total	$1,260,000

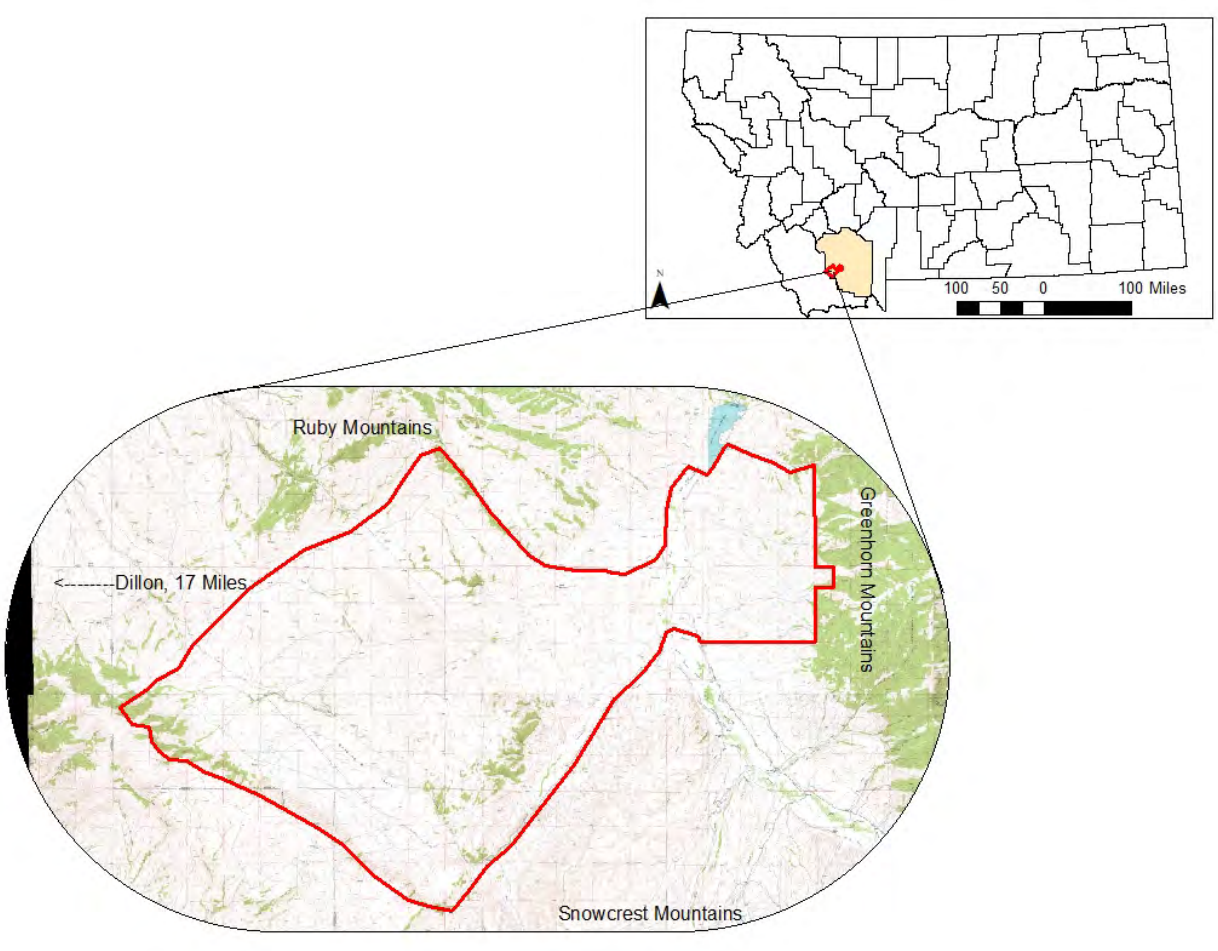

Figure 1: TIP location identified in the southwest portion of Madison-county, between the Ruby, Greenhorn, Snowcrest, and Blacktail Mountains.

Geographic Focus:

This TIP will occur approximately 17 miles east of Dillon, MT and 25 miles south of the Sheridan Field Office. The TIP boundary (Figure 1) was selected since it encompasses approximately 73,000 acres across the Sweetwater basin and west Greenhorn Mountain foothills, both of which provide critical winter range for pronghorn and winter range for other species such as elk and mule deer (Figure 2). The area serves as a seasonal migration corridor for deer, elk, pronghorn, and sheep, with the Robb-Ledford Wildlife Management Area adjacent to the south of the TIP.

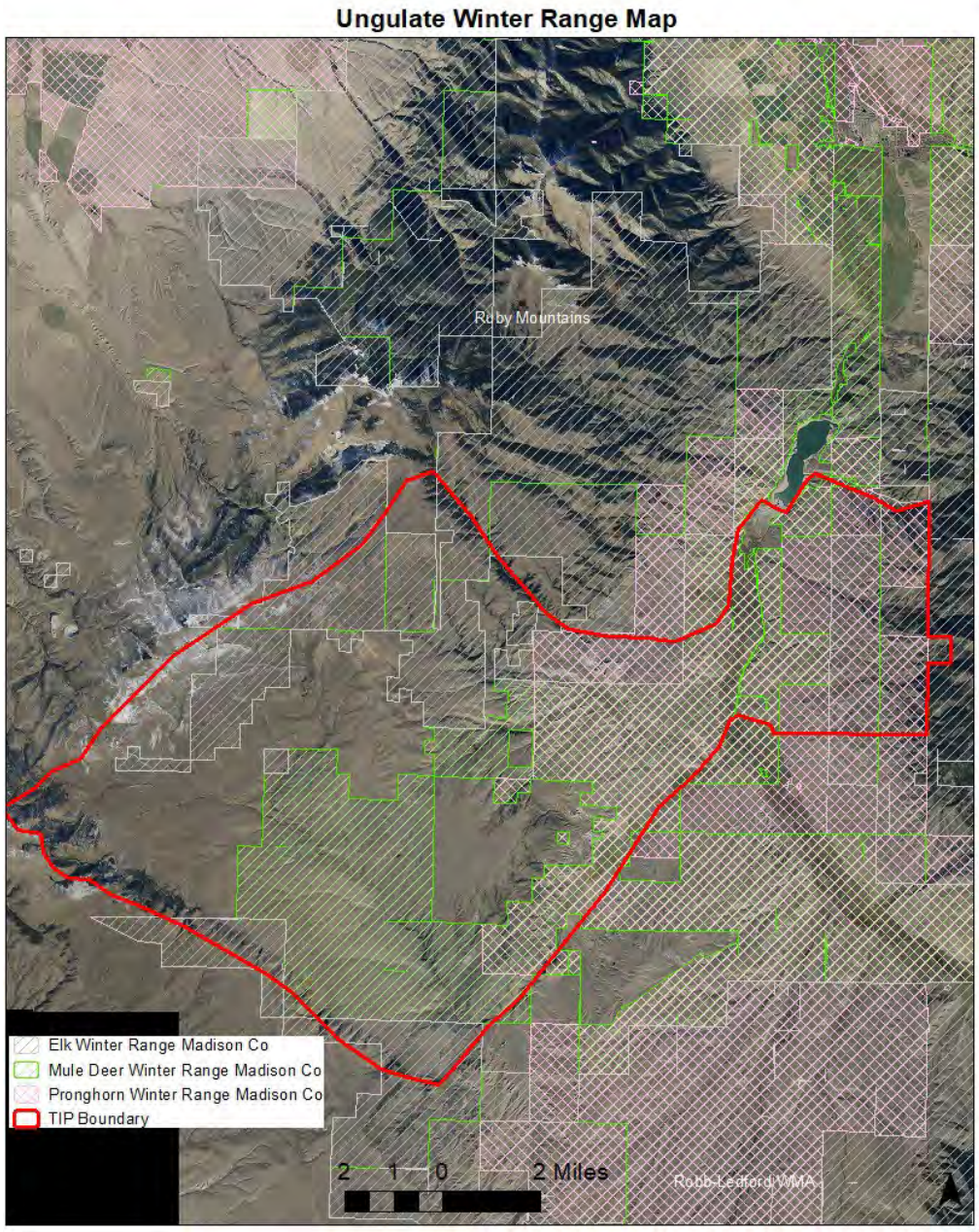

Figure 2: Winter range map for elk (white slanted lines), mule deer (green slanted lines), and pronghorn (pink cross hatched lines) and the TIP boundary in red. Data is sourced from Montana NRCS

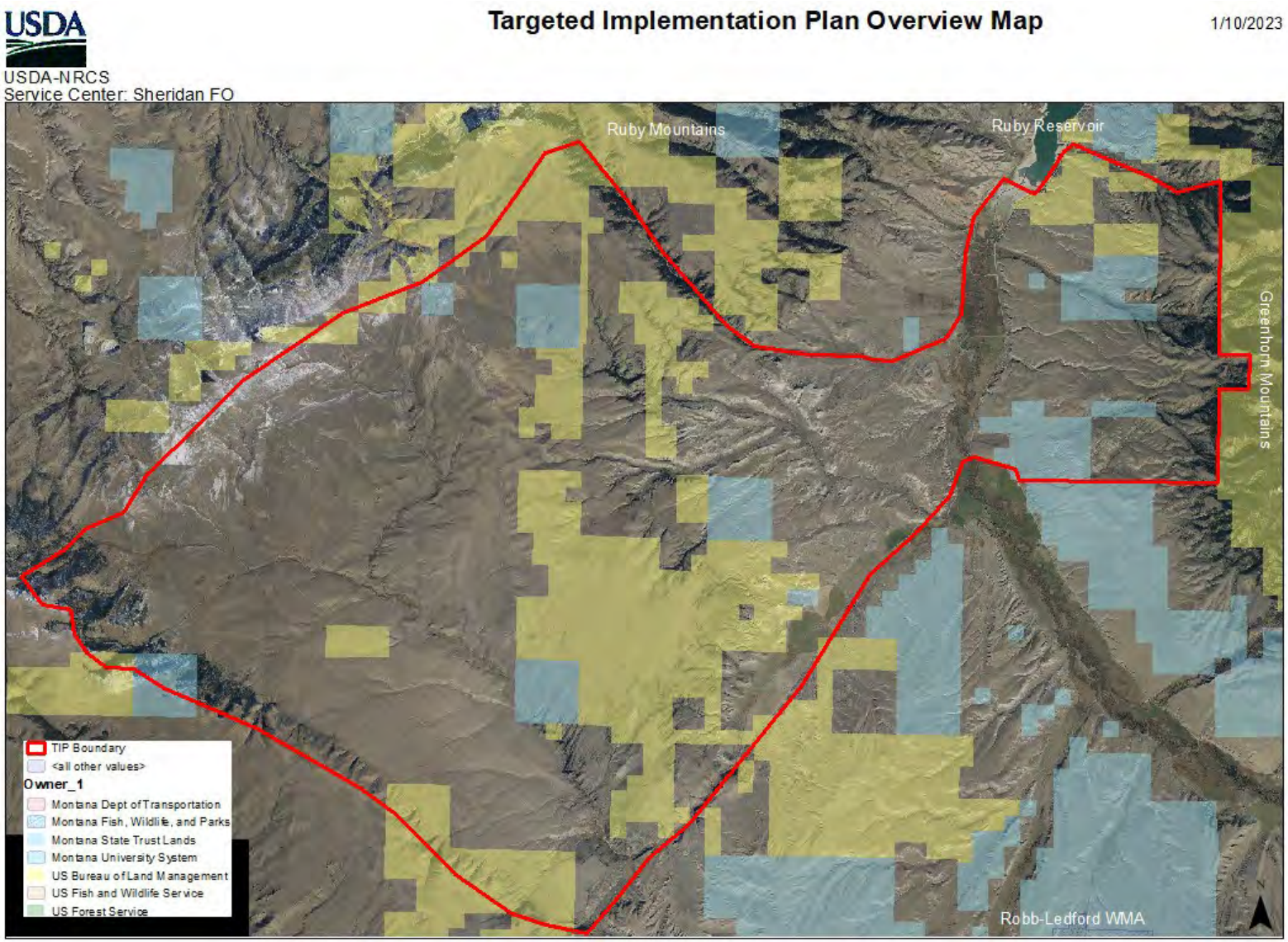

Figure 3: TIP Boundary in red. The yellow color is BLM land, green is Forest Service, blue is state land, and white is private land.

Background and Overview:

NRCS, landowners, and partners convened for the 2022 Local Working Group meeting in Ennis, MT. Many topics were discussed, including the need to mitigate wildlife habitat connectivity issues caused by humans. The group concluded one of the simplest fixes would be working with landowners and managers to either remove unnecessary runs of fence, retrofit existing fence to wildlife friendly, or replace fencing depending on benchmark fencing conditions.

Many of the fences within the TIP boundary were built in the late 19th and early 20th century, which do not meet NRCS specifications for wildlife friendly and are dilapidated and in need of replacement. Livestock production is the main economic driver for land managers within the TIP boundary and with that, comes fencing. Fencing is a ubiquitous part of the landscape across North America, restricting and preventing movement of livestock across boundaries, land management, and to delineate property boundaries. While fencing practices can be beneficial (i.e., reducing animal/vehicle collisions), they can negatively affect the movement of wild ungulates (Jakes, Jones, et al. 2018). NRCS wildlife friendly fences typically have attributes that include smooth top or bottom wires, 12" or more spacing between the top two wires, bottom wires that are 16-18" above the ground, and often visual markers. In Madison County, it is common for fences on private land to have bottom wires lower to the ground and wires higher than the NRCS wildlife friendly specifications. (Buzzard et al. 2022)

Many species undertake long-distance migrations, which help drive ecosystem processes and economically with hunting tags/licenses funding other conservation projects (U.S. Department of the Interior 2011). Further, estimates suggest 75 percent of migration routes for ungulates have been lost in or adjacent to the Greater Yellowstone region (Berger 2004). While the loss of migration routes is indirectly affecting species, the direct effects of barbed and woven wire fences can cause high levels of mortality.

Studies have found that non-wildlife friendly fences can cause on average one ungulate entanglement or mortality for every 2.5 miles and 1.2 miles, respectively. (Harrington 2005; Harrington and Conover 2006). Further, Harrington (2005), found that 90 percent of the ungulates in this statistic were fawns/calves that were separated from their mothers. This type of mortality event is additive, suggesting that the animal(s) were unlikely to die due to natural events. Additive mortality likely results in an increase in total mortality having a greater effect on overall populations, whereas compensatory mortality decreases or increases due to population densities (Anderson and Burnham 1976). Mule deer and pronghorn are most susceptible to non-wildlife friendly fence crossings and prefer to crawl under rather than jump over (Burkholder et al. 2018; Jones et al. 2018; MacDonald et al. 2022). Crawling under barbed wire fence can post indirect health risks due to lateral dorsal scars and hair loss from being cut by the barbed wire. Hair loss has been associated with an increased likelihood of hypothermia and lower body fat levels (Glines & Samuel 1989), although this is associated with ticks in moose, the effects may be similar. Additionally, unsuccessful wildlife crossings can result in fence damages that will cost the landowner time and money to repair or replace the fence. Montana NRCS calculated $3.19 as the total cost per/foot on barbed/smooth wire fence in the Fiscal Year 2023 EQIP Payment Schedule. Replacing and/or retrofitting fences to be wildlife friendly, will benefit the animal and the landowner.

Wildlife friendly fences have been proven to significantly decrease entanglement and mortality in ungulate species. Segar and Keane (2020) found that wildlife friendly fencing increased the probability of a crossing attempt being successful and on average the time to cross the fence was quicker. Having a

smooth bottom wire 16-18” off the ground and reducing the top wire to 42” exhibited a near 100 percent success in crossing for pronghorn and deer but elk were still significantly disadvantaged due to their size (Segar and Keane 2020). Therefore, we are proposing to use an adaptive approach to installing or retrofitting wildlife friendly fencing based on the prevalence of species in the area and conversations with partner groups and landowners. Increasing spacing between the top two wires to 12” or greater should also reduce entanglement of the back legs on animals that typically jump over fences.

Resource Concern:

The **primary resource concern** for this TIP is Terrestrial habitat for wildlife and invertebrates with a **secondary resource concern of** Plant Productivity and Health. Madison County is of the most fence-dense regions in the rural western United States with many of these fences being non-wildlife friendly (Buzzard Et al 2022). Partners with Montana Fish, Wildlife, and parks (FWP) and National Wildlife Federation (NWF) as well as landowners have observed wildlife movement impacts from fencing within the TIP. Within the TIP, landowners experience significant damage to fences due to seasonal movements of elk, mule deer, and pronghorn which limits their ability to manage livestock and ultimately plant condition. Fifty-three miles of non-wildlife friendly fences have been inventoried within the TIP.

The priority resource concerns are outlined on page 18 of the LRP, including wildlife passage.

Photo 2: National Parks Conservation Association: Paradise Valley MT 2017- Pronghorn utilizing wildlife friendly fencing.

Resource Assessment:

Sheridan FO staff has inventoried existing fences to retrofit or replace with interest shown from multiple landowners within the TIP boundary. There are 53 miles of non-wildlife friendly fences which have been inventoried by landowners and NRCS staff that are tentatively planned for replacement or retrofitting through the adoption of this TIP. With a practice lifespan of 25 years on NRCS fencing specifications, it is expected to reduce ungulate mortality and entanglement throughout the implementation of this TIP.

Goals and Objectives:

The goal for the TIP is to either retrofit or replace 75 miles of existing fence and remove 1/3 mile of unnecessary fence. Landowners that have allowed NRCS to inventory fences and/or helped with inventory have expressed interest in converting 100 percent of their remaining non-wildlife friendly fence within the TIP area. Practice implementation will improve wildlife permeability of ranching infrastructure across 73,000 acres of private lands ownership.

Alternatives:

Alternative 1: No action will see ungulates continue to have entanglement caused mortality. Non-wildlife friendly fence will persist on the landscape further degrading migration routes.

Alternative 2: (Preferred) Implementing practices to address the resource concerns. [Fence (328)], [Structures for Wildlife (649)], and [Obstruction Removal (500)] are the practices that may be used in combination or individually to replace or retrofit existing non-wildlife friendly fences. Alternative 2 is chosen because it meets the goals of the TIP, landowners, and the LWG to improve permeability of fences across the landscape.

Alternative 3: [Structures for Wildlife (649]- This practice could be used to only retro-fit existing barbed-wire fences within TIP. The consequence to only choosing this practice may include:

1. leaving runs of fencing on the landscape where landowners have repaired, patched, or built new fences offset 12-18” from the original fencing; which will still pose as a threat to wildlife movement.
2. Old fences are in constant need of repair and if left to the elements, limit the ability of livestock managers to utilize their animals to improve range conditions.
3. Many miles of page wire/ net-fence/ sheep fence, which cannot be “retro-fitted” will remain on the landscape.

Financial Assistance / Practice Breakdown Table

Fence 382- Barbed/ Smooth & Let-down	$875,000 (75 Miles Objective- 53 Miles Inventoried)
Structures for Wildlife 649- Retrofit to wildlife friendly with Sage Grouse markers	$39,000
Obstruction Removal 500- Fence Removal	$345,000

Photo 3: Pronghorn in Paradise Valley NRCS- MT

Implementation:

Some barbed/ smooth wire fences may be functioning for livestock management, but do not meet NRCS specifications for wildlife friendly. Conservation practice 649 Structures for Retrofit will be used to arrange the existing wires in a 16-18", 24", 30", and 42" height arrangement. In cases where the existing/ benchmark fence consists of dilapidated wire fence, page wire, net fence; NRCS will use conservation practice 500 Obstruction Removal to extract the run of fence and replace with wildlife friendly wire fence. In some cases, landowners have shown interest in "let-down" fence to allow passage for wildlife when livestock are not in the grazing cell which would reduce entanglement for wildlife and fence repair required by the managers in the long term. Montana NRCS Fencing standards and specifications and "A Landowners Guide to Wildlife Friendly Fences" by MT-FWP will be used to develop customized implementation requirements for each participant.

Prior to the submission deadline for Fiscal Year 2024, outreach has been done with the landowners within the TIP boundary. It is expected that two to four landowners will participate in the TIP, as two

have worked with NRCS to inventory the existing fences causing the resource concern and have brainstormed alternatives that would best allow wildlife passage across their properties. The alternatives budget reflects the planning strategy to date.

The NRCS Sheridan/ Dillon work unit, Bureau of Land Management (BLM), National Wildlife Federation (NWF), Southwest Montana Sagebrush Partnership (SMSP), and Montana Fish, Wildlife, & Parks (FWP) met in September 2022 to strategize implementation of this TIP and future projects in Madison and Beaverhead Counties.

Implementation will occur with contract obligations in FY 2024-2026. Practice installation will occur within 3 years of contract obligation.

The practices chosen for this TIP are simple and are very commonly installed by NRCS on EQIP projects. The extent of which these practices are planned to be implemented will be the only expected challenge. Design and certification will likely require a significant effort to traverse fences on foot or with ATV's. However, it isn't expected to require assistance outside of the Sheridan FO.

Projects will be prioritized through the ranking criteria, which can be reviewed later in the document.

Partnerships:

National Wildlife Federation: NWF is working to conduct telemetry studies on pronghorn and implementing similar practices in the Horse Prairie and Big Hole Valleys (Beaverhead Co.). Their staff has agreed to work with NRCS on developing alternatives for fencing strategy, and potentially organize CTA work through volunteer groups.

Bureau of Land Management-Dillon Unit: BLM Rangeland department will provide fence material to grazing lessees such as wire, posts, clips, etc. to implement wildlife friendly fencing on BLM pastures within the TIP boundary.

Southwest Montana Sagebrush Partnership: SMSP has agreed to allocate staff time in helping coordinate cross-boundary practice implementation with contractors conducting work through financial assistance or volunteer groups conducting CTA work.

Photo 4: National Wildlife Federation: Volunteers implementing fence removal- Horse Prairie MT

Outcomes:

Wildlife-friendly fencing is a well proven application for minimizing impacts to wildlife and is widely adopted by NRCS and other federal and state agencies, and non-governmental organizations. Wyoming-NRCS has replaced around 500 miles of fence in Sublette County alone. The Wyoming Migration Initiative has observed restored migration routes by minimizing fence barriers in key areas (Sawyer, H., M.J. Kauffman, A.D. Middleton, T.A. Morrison, R.M. Nielson, and T.B. Wyckoff. 2013). It is expected for this TIP to experience have similar benefits, just in a different footprint. Based on statistics referenced on page 4 by (Harrington 2005; Harrington and Conover 2006), one could assume this project would reduce entanglements and mortality on ungulates in the hundreds over the practice lifespan. Sheridan FO staff will continue to work with partners to develop a way to improve ways to monitor and deliver stronger outcomes for quantifying mortality reductions through wildlife friendly fencing TIPs in the future. The outcome of this TIP is expected to replace at least 53 miles of inventoried fence, entirely remove 1/3 miles of non-wildlife friendly fences, and work with remaining landowners to retrofit or replace the remaining runs that were built throughout the late 19th and early 20th centuries that do not meet NRCS specifications for wildlife friendly. Another outcome is to reduce the burden and cost on landowners associated with fixing damaged fences caused by wildlife which would be measured anecdotally through conversations with the landowners. Furthermore, the implementation of the TIP practices is maintaining or improving the participating landowner's ability to manage their livestock and the improve vegetative composition in the planning area. Given the scale of the project and the known success wildlife friendly fences have, monitoring for entanglement and mortality is not warranted. The implementation of this TIP is a great opportunity for NRCS to influence what fences will look like and mitigate their impact on wildlife permeability across tens of thousands of acres in the Greater Yellowstone Ecosystem, and specifically important wintering areas for elk, pronghorn, and mule deer. NRCS will improve the ability of multiple species to navigate their seasonal movements between summer and winter ranges between lower elevations of the sage-steppe ecosystems where they winter and the higher elevations of the Snowcrest, Ruby, and Greenhorn/ Gravelly Mountain ranges. Sportsmen and women will directly benefit from the TIP implementation as the boundary encompasses public lands and private lands that participate in the MT-FWP Block Management Access program, which hunters visit each season pursuing a variety of species.

Ranking Criteria:

NRCS will use current fiscal year workload prioritization tool/ screening tool prior to ranking process.

1. 51% or greater of the fences planned will replace woven wire/ page wire/ net fencing, which is the most impactful to wildlife movement.
2. 51% or greater of the planned footage for Fence CP 382 implementation requirements include smooth bottom wire **and** 18" + from ground. (16" from ground required for wildlife friendly specifications)
3. 51% or greater of the planned footage for Fence CP 382 implementation requirements include top wire less than or equal to 40" high from ground. (42" maximum for wildlife friendly specifications)
4. Fencing CP 382 planned and/or Obstruction removal CP 500 locations will result in overall net reduction in footage of fencing on landscape.
5. 51% or greater planned fencing CP 382 occurs on Pronghorn, Elk, or Mule deer winter range (See Ungulate Winter Range Map, page 2

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