*Ponderosa Pine Thinning done in Powder River County*

# Treasure County-Lower Bighorn Wildfire Risk Reduction Targeted Implementation Plan

Reduce Wildfire Hazard in Treasure County in Lower Bighorn Drainage

FY21-FY25

Hysham NRCS Field Office

USDA United States Department of Agriculture

## OVERVIEW AND BACKGROUND

Ponderosa pine (*Pinus ponderosa*) occurs mostly in the southern part of Treasure County. Ponderosa pine is a lower-value tree for commercial grade timber compared to the fir and spruce species found in higher elevations in western Montana. Therefore, timber production is typically a secondary management objective of livestock operations in Treasure county, who seldom invest resources in managing conifers since treatment costs are high relative to land value. In addition, most products being removed are pre commercial and have little to no value no matter the species.

Southern Treasure county is home to many livestock producers, as well as intermixed private residences and ranch headquarters. Much of the woody vegetation within the area is ponderosa pine and rocky mountain juniper (*Juniperus scopulorum*). The century long fire suppression, corresponding with significant conifer (ponderosa pine, rocky mountain juniper) encroachment, have set the scene for a perfect combination of topography, fuels, and limited accessibility in an area particularly susceptible to fire damage. The likelihood of a catastrophic fire continues to increase each year. Livestock producers run the greatest risk of loss from a wildfire disaster. The likely catastrophic fire would detrimentally impact the grazing lands for these ranches, along with ranch headquarters and private residences. Many ranches depend on the availability of forage within the rough terrain of southern Treasure County. Agriculture is the most important financial industry in Treasure County with gross farm income for Treasure County of $48,775,000 in 2017, supporting many of the local businesses.

The Natural Resources Conservation Service (NRCS), in collaboration with the Local Working Group and other partners, has identified forestlands and the volatile fuels within them, as the top resource concern in Treasure county. Treasure County Long Rang Plan (LRP) identifies fuels reduction as a resource concern that needs to be addressed. All partners are pushing for a proactive, inclusive approach, knowing that a reactive approach could be devastating to the county. This targeted implementation plan (TIP) was developed in response to the recognition of the need to improve the resiliency of our forestlands, while protecting the landscape from likely catastrophic wildfires. The TIP's goal is to significantly mitigate the imminent threat of catastrophic wildfire within the project boundary. The Ash Creek Fire in Rosebud and Powder River county burned in similar terrain as southern Treasure county and cost over $3 million dollars to put out (Mayer, 2012), killed hundreds of livestock, burned hundreds of structures, wrecked miles of fence and powerlines.

**Figure 1:** Burned stocktank after the Ash Creek Fire (Swenson, 2012)

The TIP area will be focused using the Wildfire Hazard Potential Layer (https://www.arcgis.com/home/item.html?id=fc0ccb504be142b59eb16a7ef44669a3 ), which provides information on the relative potential for wildfire that would be difficult for fire crews to contain, and FWP's Crucial Habitat designation (Figure 3), which ranks habitat containing the resources that are necessary for the survival and reproduction of wildlife. Elk and deer hunting bring many people to Treasure county in the fall. Elk and deer hunters spent an estimated $774,713 in Treasure county in 2016 (Montana Fish Wildlife and Parks, 2020) making it very important segment to Treasure county economy. A large fire in Treasure county has potential to hurt the elk and deer hunting in the county.

Total area of the Treasure County Lower Bighorn TIP boundary is 69,332 ac. Approximately 6,942 ac of the area is moderate to high fire potential where the money will be focused. Of the 6,942 acres 36% can be mechanically treated due to steepness of terrain and economically feasible to treat which is around 2,500 treatable acres. The percent of acres that can be mechanically thinned was come up with landowner input.

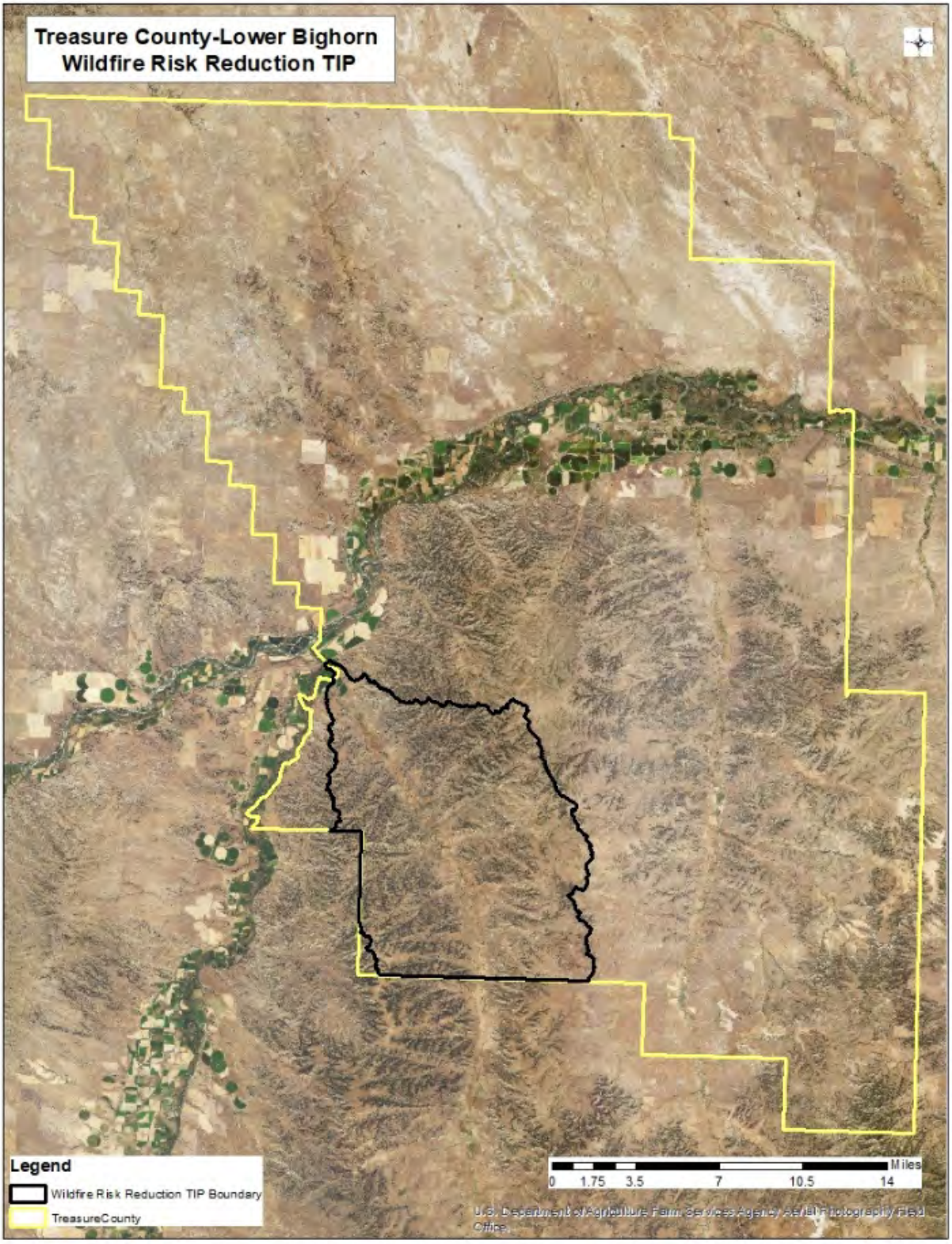


**Figure 2:** TIP Boundary

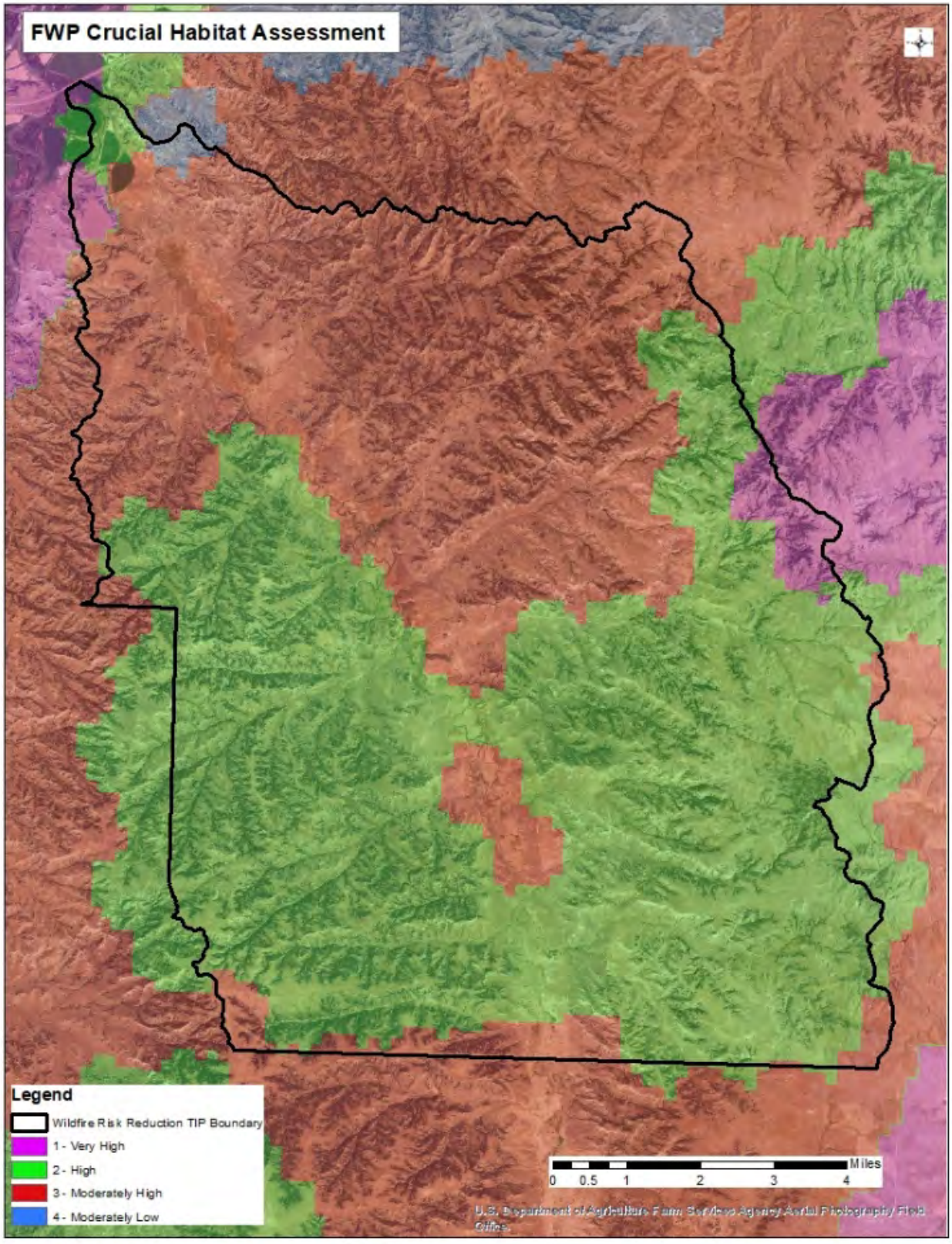


**Figure 3:** Montana Fish Wildlife and Parks (FWP) Crucial Habitat area.

## PROBLEM STATEMENT

Wildfires are a natural part of the forest ecological cycle. However, for more than a century people have made a concerted effort to fight fires, effectively taking fire off the landscape. This has resulted in increased encroachment and densities of our forests. Forests are now much more densely stocked, making them more susceptible to a major fire event. Because of the buildup of fuels, fires have become significantly more intense. These fire events often become stand-replacing events and pose significant risk to people, livestock, infrastructure, and public safety. In Treasure county, stands containing 3,000+ stems/ac can be found. For most sites in the county, 151 to 222 stems of ponderosa pine per acre (corresponds to 14-17' average spacing) is considered optimal for understory health and wood production when trees are in the 4 to 7-inch diameter class. Unmanaged stands typically represent a fuel hazard as the interlocking crowns of the trees make an easy avenue for wildfire to travel. In addition, dense stands of ponderosa pine seedlings represent the perfect 'ladder fuel' to elevate fire to the crowns of mature trees which may have commercial value.

Approximately 85% of southern Treasure County is labeled very high, high, or moderately high habitat based on FWP models. These models look at multiple factors for survival of wildlife important to Montana. A large-scale fire in southern Treasure county would hurt elk and deer habitat and economically hurt Treasure county as hunting is a large income source. A fire would also cause economic losses in the agricultural sector in the short-term loss of grazing resources along with fence replacement and long-term loss of timber resources.

The primary resource concern for this TIP is wildfire hazard from biomass accumulation. Biomass accumulation also negatively impacts plant productivity and health, plant structure and composition which are secondary resource concerns.

## GOALS AND OBJECTIVES

Forest landowners' goal in Treasure County is to survive periodic fire events. This was the top priority of Treasure County LWG in 2019 and a goal identified in Treasure County's LRP. NRCS will work with partners to reach this goal. Outcomes needed to reach this goal:

- Healthy trees and resilient forests
- Diverse and productive understory appropriate for the site
- Protect buildings and other improvements within forested area
- Enhance/Protect wildlife areas
- Ability to contain wildfires

## PROPOSED ALTERNATIVES AND ACTIONS

To solve the problem, multiple alternatives have been considered. These include:

### ALTERNATIVE ONE – NO ACTION

No Action will not address the identified resource concerns, leaving landscape and structures with little defensibility against wildfire. This alternative leaves a high risk of tree mortality during a fire event. Resource conditions are projected to worsen under this alternative with increase chance of insect and disease outbreaks and further degradation of wildlife habitat, which is not the preferred alternative.

### ALTERNATIVE TWO – PRESRCIBED BURNING (338), FOREST STAND IMPROVEMENT (666), WOODY RESIDUE TREATMENT (384), BRUSH MANAGEMENT (314), HERBACEOUS WEED TREATMENT (315), UPLAND WILDLIFE HABITAT MANAGMEMENT (645)

NRCS considered an alternative to reintroduce prescribed burning (338) into the ecosystem to mimic the historic fire cycle that provided natural fuel breaks and reduced tree densities. Liability concerns and the danger of fire moving out of the intended treatment area are major risks of prescribed burning. This alternative reduces forest fuels and can restore understory herbaceous vegetation. However, the liability and risk factors outweigh the benefits for some landowners. Additionally, NRCS staff does not have the skills necessary to develop prescribed burn plans. It is not the preferred alternative.

### ALTERNATIVE THREE – FOREST STAND IMPROVEMENT (666), WOODY RESIDUE TREATMENT (384), BRUSH MANAGEMENT (314), HERBACEOUS WEED TREATMENT (315), UPLAND WILDLIFE HABITAT MANAGEMENT (645)

NRCS will use Forest Stand Improvement to thin conifer stands, leading to understory recovery by reducing conifer competition and improving fire resiliency in these areas. Woody Residue Treatment will be used following forest stand improvement to chip, shred, or burn the harvested trees. Brush Management will be used to clear areas. Herbaceous Weed Treatment along with Upland Wildlife Habitat Management will be implemented with help of partners and from NRCS conservation technical assistance.

## PROPOSED SOLUTION

Alternative 3 is the chosen alternative. The chosen alternative will give a positive, measurable outcome by engaging private landowners, leveraging partners, and address resource concerns to achieve desirable results.

## PARTNERSHIPS

- Montana Department of Natural Resources and Conservation (DNRC) Forester is available to develop Forest Management Plans (FMPs) on private land for participants. NRCS anticipates being able to utilize information from the FMPs to design practices.

- Treasure County Conservation District supports NRCS focused conservation efforts by sponsoring the LWG meetings and providing input to NRCS. The conservation district will continue support and help with outreach, meetings and trainings that take place.

- The Treasure County Volunteer Fire Department members' knowledge of fire behavior and firefighting access is a valuable local asset. The members are familiar with travel routes and often have personal relationships with landowners throughout Treasure County. NRCS will invite the Treasure County FD to contribute to outreach efforts and provide input to landowners about reducing fire risk around structures and on the landscape.

- The Treasure County Weed Board and Weed Control Coordinator's roles in the partnership:
    - Provide limited herbicide at state bid cost for state listed noxious weeds
    - Provide educational outreach on topics such as weed identification, herbicide recommendations and give all participants Montana Noxious Weed Field Guide
    - Possibility of applying for Noxious Weed Trust Fund Grant to help with mapping and control of noxious weeds. Look into option of biocontrol with bugs along wetland areas where herbicide my not be an option
- Rocky Mountain Elk Foundation letter of support and future funding possibility to improve habitat through them
- Montana Fish, Wildlife and Parks supports the TIP and will serve in a technical capacity as it pertains to wildlife and wildlife habitat.
- Treasure county commissioners support the TIP and will help with outreach
- Montana State Extension Rosebud-Treasure County
    - Oversee private applicator licensing program
    - Public outreach

## IMPLEMENTATION

NRCS will use work done by US Forest Service to identify areas with high wildfire potential and work done by FWP to identify crucial wildlife habitat to target the funding. With the help of partners listed NRCS will begin a targeted outreach campaign to generate interest in the program. Several producers have already expressed interest in a potential wildfire reduction TIP in the identified area. The Treasure County-Lower Bighorn Wildfire Risk Reduction TIP will be funded from 2021-2025.

| Practice | 2021 | 2022 | 2023 | 2024 | 2025 | 2021-2025 |
|---|---|---|---|---|---|---|
| **Forest Stand Improvement** | 200 | 250 | 350 | 350 | 250 | 1400 |
| **Woody Residue Treatment** | 200 | 250 | 350 | 350 | 250 | 1400 |
| **Brush Management** | 20 | 25 | 35 | 35 | 25 | 140 |
| **Weed Control (not contracted)** | 20 | 35 | 55 | 55 | 40 | 205 |
| **Upland Habitat Management (not contracted)** | 600 | 1,200 | 2,000 | 2,000 | 1,500 | 7300 |
| **Total NRCS Financial Assistance** | $176800 | $221000 | $309399 | $309399 | $221000 | $1237597 |

| Example of Fuels Reduction Contract | | | | |
|---|---|---|---|---|
| Practice | Component | Amount | Payment | Cost |
| Forest Stand Improvement | Thinning | 150 ac | $505/ac | $75,750 |
| Woody Residue Treatment | Chipping | 150 ac | $347/ac | $52,050 |
| Brush Management | Mechanical | 15 ac | $308/ac | $4,620 |
| | | | | $132,420 |

Note: Payment based on 2020 Cost List

## PROGRESS EVALUATION AND ASSESSMENT

Estimated to complete 1,540 ac of mechanical thinning (Forest Stand Improvement and Brush Management) focusing on high to moderate fire potential areas capable of being mechanically thinned (2,500 ac). The final goal is 62% of the focused area will be treated (1,540 ac treated / 2,500 ac treatable). Depending on landowner interest it may be possible to complete more than 62% of the focused area.

Inventories (tree density, range production) will be completed before and after each treatment to document improvements along with photo documentation. Progress in achieving the objectives of the TIP will be measured by number of acres receiving forest stand improvement treatment relative to the yearly goal. Main objective after TIP completed is to reduce wildfire potential in the TIP and avoid a large-scale fire. Secondary benefits of improving/maintaining

wildlife habitat (Upland Habitat Management), improve forage production for livestock (photo inventories before and after treatments).

Final outcomes are to show landowners and the public the benefit of fuels reduction. Reading the Billings Gazette at time this TIP is written in early September 2020 headlines include towns and residents being evacuated in areas across Montana and all the fires currently burning across the state and how much money it is costing. Followed by air quality warning for residents across the state from fires. Obviously, the landowners stand to gain the most from this TIP. Also, the goal is improved health and safety of the public through improved air quality and local firefighters not being forced to try and contain a fire with high fuel load and possibility of someone getting hurt. This TIP and future TIP's will be asking for a lot of taxpayer money which hopefully invested today will save time and money in future from firefighting cost. Plus, the secondary benefits of cleaner air, abundant wildlife, and overall healthier landscape. With 1,400 acres of forest stand improvement plus 140 acres of brush management the goal is to reduce approximately 400,000 trees in the targeted area. Also, increase grass production by 250 lbs/ac for grazing of livestock and wildlife 2 years after thinning is completed.

Research from DNRC shows we can say that fuels reduction works when the altered forest conditions are maintained. Going back to previous fires there were places where multiple adjacent neighbors reduced the hazardous fuel conditions on their property, and it resulted in (positively) changed 'downwind' fire behavior; sometimes even stopping the progression of the fire at the treated areas. This was a positive outcome of fuels reduction work and created a greater "community protection" benefit. In other areas of that fire, where it was a single landowner who treated their property… there were positive outcomes only on their property because of the treatment, but it did not alter the fire behavior at a community protection level.

Multiple producers in southern Treasure county have expressed interest in fuels reduction. Future TIP's are planned to on adjacent watersheds to build off this TIP and expand area in Treasure county that will have reduced wildfire potential.

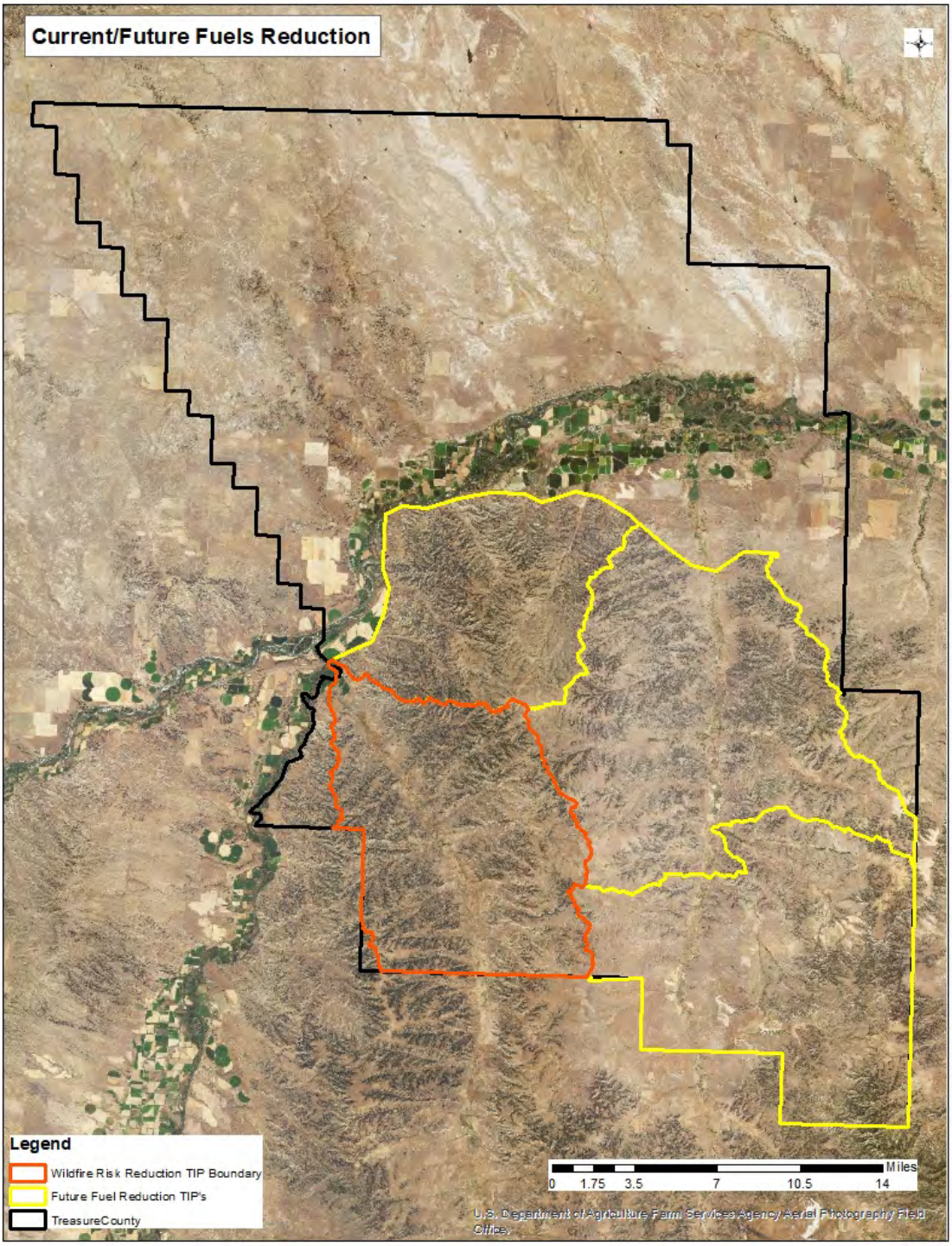


**Figure 4:** Current/Future Fuel Reduction TIP's

## PRIORITY AND RANKING

### LOCAL RANKING QUESTIONS (400 POINTS)

1. Will over 50% of the forest stand improvement acres be in Moderate or Higher wildfire hazard potential?
2. Does the application have structure within 1/8 mile of the planned treatment area that the defensibility of structure will be improved by treatment?
3. Does the application have structure within 1/4 mile of the planned treatment area that the defensibility of structure will be improved by treatment?
4. Does the application have structure within 1/2 mile of the planned treatment area that the defensibility of structure will be improved by treatment?
5. Will over 50% of the forest stand improvement acres be in Very High or High FWP crucial habitat?

## REFERENCES

Montana Fish, Wildlife & Parks, The Economics of Big Game Hunting in Montana, Accessed May 2020.
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Brown, Mather, Billings Gazette, July 2012, https://billingsgazette.com/news/state-and-regional/montana/dead-livestock-devastation-left-in-wake-of-western-fires/article_48f1f91d-d247-5df4-8ff1-78dee1f9d93d.html