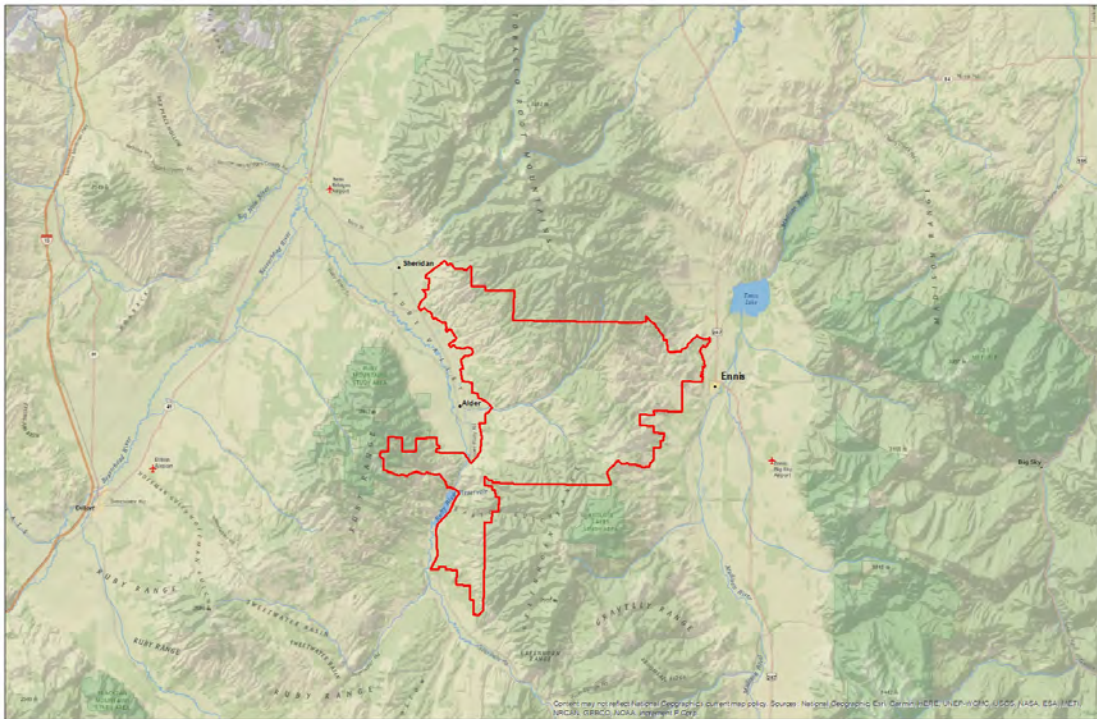


SOUTH TOBACCO ROOT RANGELAND AND CONIFER ENCROACHMENT PROJECT



ABSTRACT

The South Tobacco Root Rangeland and Conifer Encroachment Project is a Targeted Implementation Plan to primarily address conifer encroachment into historically sagebrush – dominated ecosystems, in the tributary watersheds of the Lower Ruby River and Madison River. Treatments may include juniper eradication and thinning in mixed conifer forests. Expected outcomes are improved rangeland biodiversity, wildlife habitat, and water quantity for stream flows which are critical for irrigation in the valleys, as well as aquatic species.

Montana NRCS-
Sheridan Field
Office

2019

“Montana Focused Conservation”

Background-Problem Statement

In the recent history of the area, fire suppression and changes in land use post-settlement, have allowed for conifers such as Rocky Mountain Juniper (*Juniperus scopulorum*), Limber Pine (*Pinus flexilis*), and Douglas Fir (*Pseudotsuga menziesii*) to expand their typical ranges into sagebrush ecosystems. The primary resource concern this Targeted Implementation Plan will address is plant pest pressure. Secondary resource concerns include: terrestrial habitat for wildlife and invertebrates, surface water depletion, loss of plant productivity and health, and decreased organic matter.



Figure 1: (The severity of conifer encroachment over several decades can be seen in this photo comparison of Virginia City, MT from Boot Hill)

Extremely low stream flows and reduced groundwater levels in the Ruby and Madison Watersheds, and many other river basins in Southwest Montana are occurring more frequently. Particularly, Clear Creek, Moore's Creek, and Ramshorn Creek are considered de-watered streams and their watersheds are within the project area. These changes could be attributed to several shifts in the environment, however, a changing plant community on the landscape is considered a contributing factor.

Recent studies in eastern Oregon have linked juniper encroachment to decreased water quantities within a watershed (OSU, Camp Creek Paired Watershed Study, Deboodt et al. 2008). The potential for increased water quantity within these watersheds will be helpful to fish species within the streams, and for irrigation, in accordance with respective water rights.

In addition to water scarcity, conifer encroachment has resulted in degradation of critical sagebrush ecosystems in southwest Montana. Typically, encroachment has occurred on historical rangeland where grass, forbs, and shrubs are necessary browse for large ungulates in their winter ranges. Return of surface water to tributaries heads would be expected to increase livestock distribution, benefit brood rearing sage-grouse and lactating mule deer and elk. This project looks to capitalize on momentum achieved for sage-grouse and treatments already completed through the Sage-Grouse Initiative (NRCS). Within the project, there is a documented, isolated lek on the Virginia City hill. If treatments in this area are successful, it is likely for this population to become more stable. As it is now, if conifers are left unchecked, "...that (sage-grouse) population will likely be gone within our careers" (personal communication with MT FWP biologist).

Significant grazing loss and forage production can be attributed to conifer encroachment, especially when the canopy cover has reached a point where the native ground cover species has been completely shaded out and the conifer has become a monoculture (Phase 3). Phase 1-2 levels of encroachment, shrubs and grasses are dominant or co-dominant with juniper. These sites are estimated to have up to 20% forage loss, and are the most cost-effective sites to treat, because the only needed vegetative treatment is conifer removal. Allowing encroachment to occur will magnify rangeland impacts and increase the costs of treatment in the future. Juniper shade out native grass and forbs with their canopy. The absence of ground vegetation changes the soil structure and causes erosion. Fallen needles from juniper are also highly acidic and hydrophobic, changing the chemical make-up of soil; which further diminishes the potential for typical and favorable rangeland ground cover. Within the proposed project area, in historical Sage grouse habitat, there are approximately 25,000 acres of encroachment on private lands. Across the landscape, it can be inferred that there is a significant amount of forage production lost on private lands.



Figure 2. An example of the severity for which forage production can be lost due to conifer encroachment is shown in Figure 2 (Klamath Watershed Partnership – Klamath County, OR)

Lastly, conifer encroachment can be tied to the decline in the rural economy of Madison County which employs approximately 3,900 individuals. The largest industries within the county are agriculture, hunting, and fishing, and employ approximately 650 (17%) individuals (US Census Bureau). Regardless of employment, for most who live in Madison County it is the diverse and productive natural resources that draws people to the region and keeps folks here. Therefore, it is important to all to protect and improve the health of our rangelands, wildlife, and water flows for all water users and fish species.

South Tobacco Roots Rangeland and Conifer Encroachment Project

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Project Location and Affected Watersheds- map

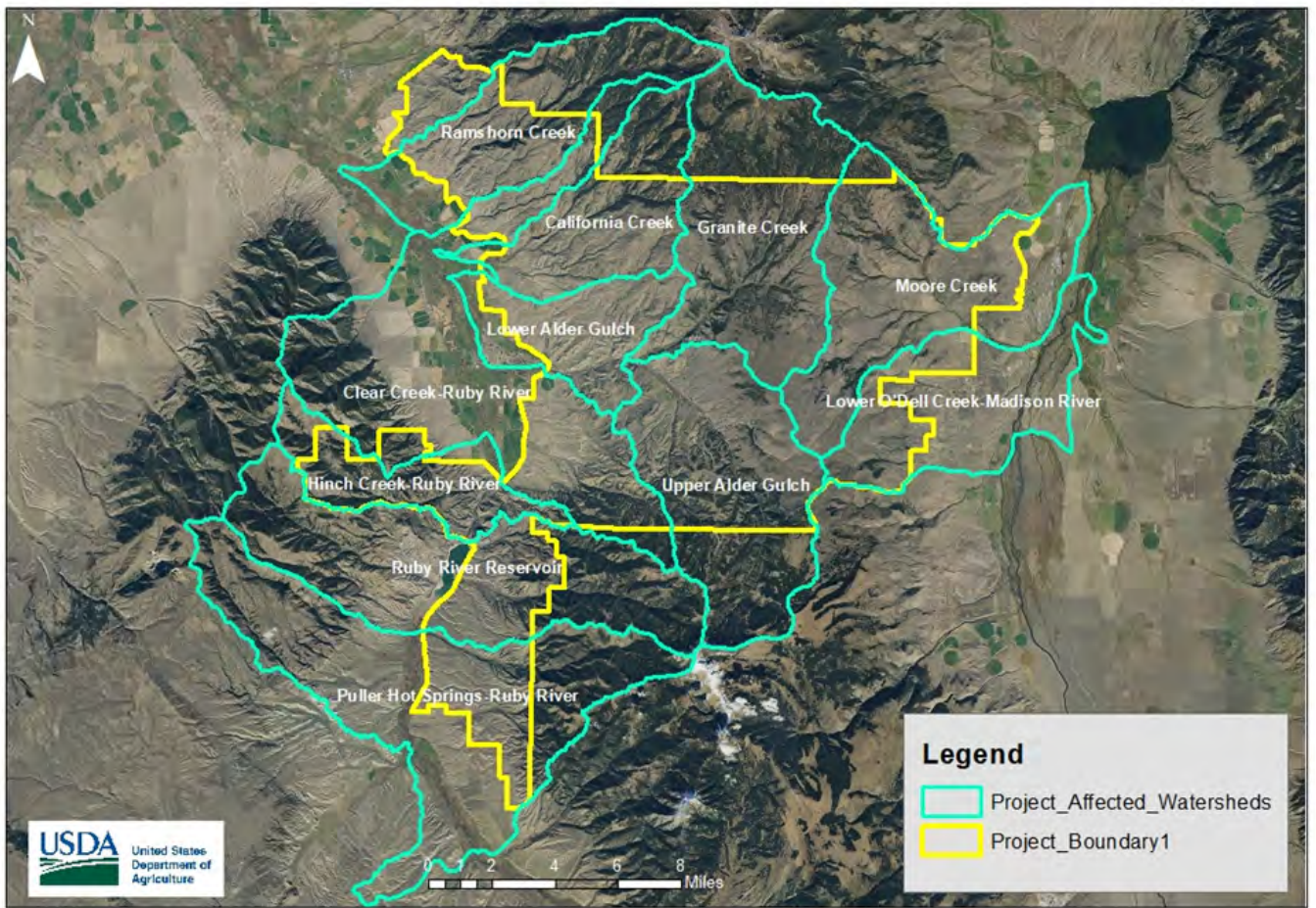


Figure 3 : Watersheds affected by proposed project.

South Tobacco Roots Rangeland and Conifer Encroachment Project

Conifer Encroachment On Historical Sage Grouse Habitat
(DOES NOT REFLECT ENCROACHMENT ON NON SG HABITAT)

24705 Acres on Private Lands

USDA-NRCS
Sheridan Field Office
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2019

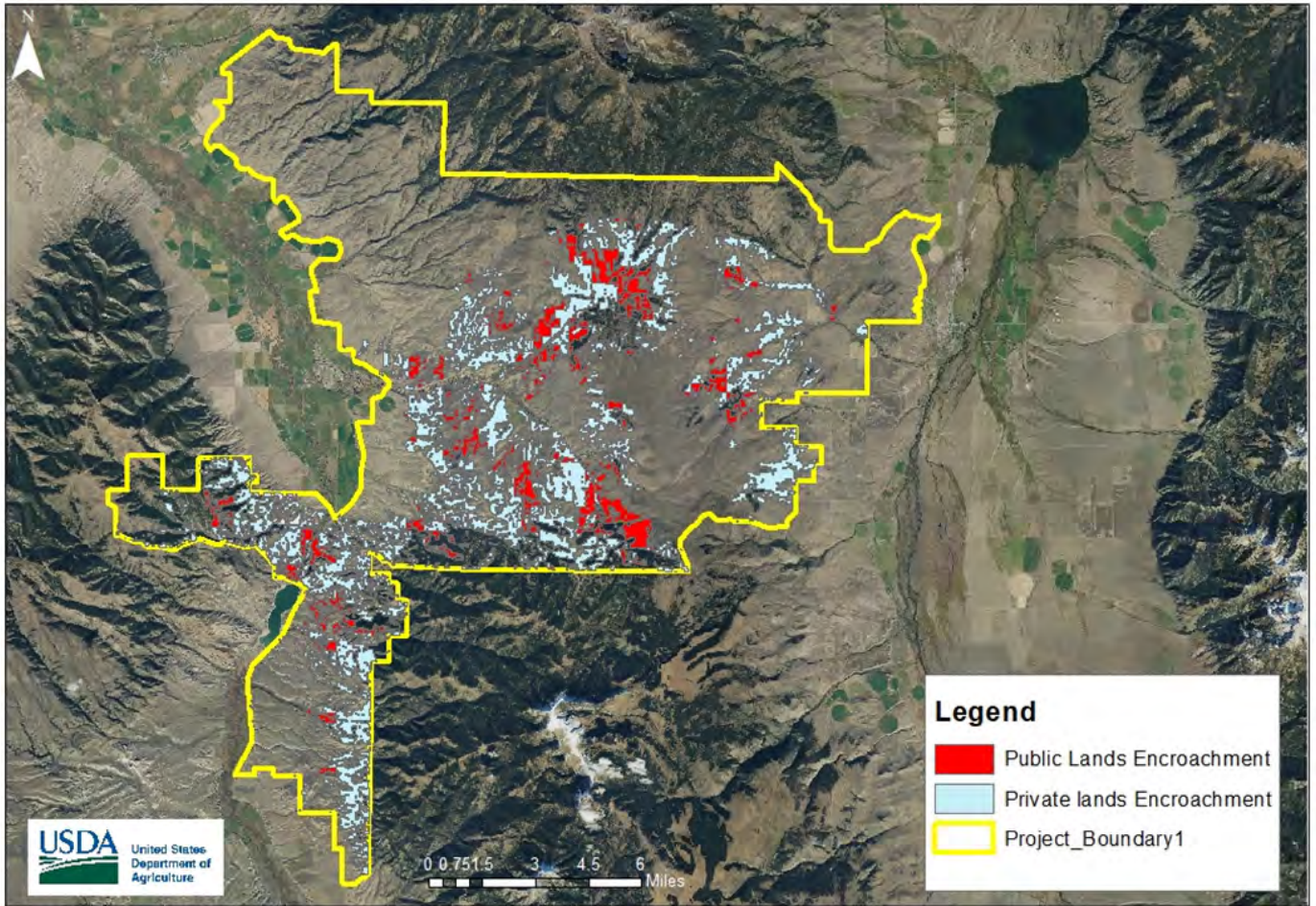


Figure 4: Map showing the extent of conifer encroachment on general Sage-Grouse habitat over 4% canopy cover. Data provided by The Nature Conservancy.



Figure 5: “High Divide Region” Conifer encroachment. Data provided by The Nature Conservancy 2019

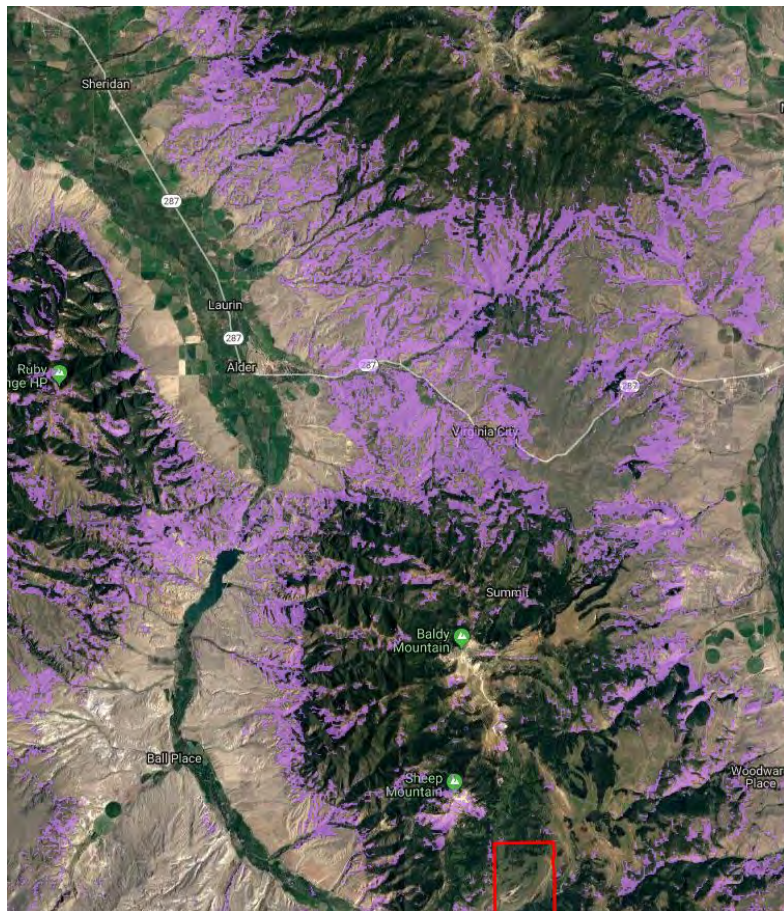


Figure 6: Conifer Encroachment over 1% canopy cover. Data Provide by The Nature Conservancy 2019.

Goals

Using the best available data, to quantify the extent of conifer encroachment on the landscape, it was determined that there are approximately 25,000 privately owned acres affected by conifer encroachment within the project area (The Nature Conservancy, 2018) (Figure 4). The proposed project goal will be to achieve a 25% reduction on the 25,000 acres of encroachment over a 5- to 7-year period through EQIP Farm Bill funds by using mechanical treatment to restore rangeland health. See “Conservation Practices” for appropriate practices to accomplish goals. A 25% reduction would result in approximately 6,200 acres being treated, and 1,200-1,300 acres being obligated funds per year; by means of brush management and forest stand improvement practices. Financial and technical assistance for removing conifer could be a steppingstone for future conservation projects with participating landowners. This project may work well in conjunction with planning conducted by the Madison Conservation District as it overlays priority locations for watershed restoration and drought resilience initiatives for achieving a holistic goal for stakeholders.

Conservation Strategy & Partnerships

This strategy focuses on addressing the issue of conifer encroachment on rangeland and the associated natural resources impacts. This strategy aligns with the priorities of local federal and state agencies and non-government partners as represented in the Southwest Montana Sagebrush Partnership (SMSP)*. By working with our partners, we can approach conifer encroachment and rangeland health holistically across jurisdictional boundaries.

A Memorandum of Understanding between all participating members of the SMSP has been drafted and is under review by each applicable partner. The number one commitment listed in this MOU is: *Restore sagebrush habitat through removal of invading conifers across public and private ownership boundaries.*

*SMSP members include the U.S. Bureau of Land Management (BLM), Beaverhead Watershed Committee, Ruby Watershed Council, U.S. Fish and Wildlife Service-Partners for Fish and Wildlife Program (USFWS), The Nature Conservancy, Montana Fish, Wildlife and Parks (FWP), Montana Department of Natural Resources and Conservation (DNRC), U.S. Forest Service - Beaverhead-Deerlodge National Forest, Red Rocks Lakes National Wildlife Refuge, and the U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS).

The SMSP gained capacity in 2018 as the Intermountain West Joint Venture provided funding to hire the Southwest Montana Sagebrush Conservation Coordinator. This position is hosted by The Nature Conservancy and has ability to work across boundaries and assist all members of the SMSP. While only starting in June, the Coordinator assisted in the completion of 3,400 acres of conifer removal in 2018 and with other partners has another 2,500 acres already planned for 2019.

NRCS and conservation partners can address encroached juniper successfully within a 3-5-year period on private lands. NRCS in Montana and other western states have proven the effectiveness of conifer removal, and results correlating with better rangeland production for grazing, wildlife habitat, and water quantity.

Watershed studies have been conducted by federal and state agencies including the BLM, USFS and Montana FWP; their findings have been incorporated into the development of this Targeted Implementation Plan (TIP). This project will focus on decreasing conifer encroachment and restoring the landscape to more closely resemble the historical plant communities. However, additional projects and practices may be needed to fully achieve the maximum rangeland health within the South Tobacco Root project area.

Overlapping plans with similar priorities:

- Madison Conservation District watershed and drought resilience planning
- Ruby Valley Conservation District- Ruby River Watershed Restoration Plan
- Southwest Montana Sagebrush Partnership Conifer Removal Efforts
 - US Forest Service Greenhorn Project (over 10,000 acres of *proposed* conifer removal projects within the landscape)
 - Bureau of Land Management South Tobacco Fuels Treatments (over 9,000 acres NEPA authorized)
 - Montana Department of Natural Resources and Conservation has MEPA cleared over 2,00 acres of treatment in the same landscape.

- MT Fish, Wildlife, and Parks strongly supports these efforts and has over 1,700 acres treated or to be treated in adjacent Wildlife Management Areas.
- The Nature Conservancy High Divide Headwaters Strategy
- Sage Grouse Initiative

Sheridan FO staff will focus on the upland rangeland areas where landowners request technical and financial assistance. Staff will use a combination of on-site visits and GIS technology to conduct inventory and evaluation. Inventory will be used later to determine feasibility and formulation of alternatives for the landowner. Other agencies, as well as NRCS, have performed similar treatments near the project area and have had success with restoring native plant communities. Additional conifer treatments are planned by these agencies to be completed within our overall project area on public and private lands.

NRCS Practices and Implementation

Alternatives will be developed by the planner and may be any combination of the practices listed below, depending on baseline resource concerns. A large majority of the work will be in low density areas and costs will be relatively low per acre. Required NEPA considerations will be addressed before contract obligation including, including the special environmental concerns of the CPA-52.

The acreage goal of this TIP was set at 6,200 acres, as previously mentioned. It is estimated that 85% of the brush management practice acres will be light density (1%-15%), and 15% of the practice acres will be high density (15%-25% canopy cover). Woody Residue Treatment may be used as a supporting practice with high density (15%-25% canopy cover) brush management and Forest Stand Improvement to remove excess debris from the landscape. Forest Stand Improvement (Code 666) will be used when the canopy cover of conifers (13-feet tall or taller) is greater than 25%. Rocky Mountain Juniper is excluded from these requirements. A grazing plan that meets or exceeds the Prescribed Grazing (528) Specification will be developed and implemented for projects in 15-25% canopy cover when using hand tool removal methods. (Deferment of treatment area may be required in the grazing plan, evaluated on a site-specific basis). A grazing plan that meets or exceeds the Prescribed Grazing (528) Specification will be developed and implemented when using heavy equipment removal methods, regardless of pre-treatment canopy cover. (Deferment of treatment area will be required in the grazing

plan). The practice may be used on approximately 10% of the yearly acreage goals. Herbaceous weed treatment is expected to be used on less than 10% of the yearly acreage goals, as there has been no evidence on local projects to necessitate the practice. However, the practice could be a crucial tool if the need arises while implementing the TIP.

Conservation Practices

Brush Management 314

Trees will be typically felled by chainsaw crews, or possibly heavy machinery.

Woody Residue Treatment 384

Trees may be “lopped and scattered” in low densities, or hand and machine piled for later disposal.

Forest Stand Improvement 666

This scenario may be used in dense stands (above 25% canopy).

Prescribed Grazing- 528

Prescribed grazing (deferment) is required for areas with 25%+ canopy cover, or 314 treatments conducted with heavy machinery.

Herbaceous Weed Treatment 315

May be needed where weed infestations arise, post tree removal.

* A waiver for retreatments can be approved for conservation practices 314 and 315. *

Estimated EQIP Costs

| Fiscal Year | EQIP Request | Planned Acres | Average Cost/ Ac. | Completion Date |
|-------------|--------------|---------------|-------------------|-----------------|
| 2020 | \$250,000 | 1200 | \$208 | 2023 |
| 2021 | \$250,000 | 1200 | \$208 | 2024 |
| 2022 | \$300,000 | 1300 | \$230 | 2025 |
| 2023 | \$300,000 | 1300 | \$230 | 2026 |
| 2024 | \$250,000 | 1200 | \$208 | 2027 |
| Total | 1.35 Million | 6200 Acres | | |

Time Investment by NRCS

| Practice | Task | Hours | Travel | Total |
|-----------|---------------|-------|--------|-------|
| 314 B.M | Inventory | 3 | 1.5 | 4.5 |
| 384 Slash | Inventory | 1.5 | 1.5 | 3 |
| 666 FSI | Inventory | 3 | 1.5 | 4.5 |
| 315 HWT | Inventory | 1 | 1.5 | 2.5 |
| 314 B.M | Field Layout | 2.5 | 1.5 | 4 |
| 384 Slash | Field Layout | 2 | 1.5 | 3.5 |
| 666 FSI | Field Layout | 2.5 | 1.5 | 4 |
| 315HWT | Field Layout | 1 | 1.5 | 2.5 |
| 314 B.M | Certification | 4 | 1.5 | 5.5 |
| 384 Slash | Certification | 4 | 1.5 | 5.5 |
| 666 FSI | Certification | 4 | 1.5 | 5.5 |
| 315 HWT | Certification | 1 | 1.5 | 2.5 |

** Time estimates are to complete a 15-acre treatment polygon**

Outreach Efforts

In 2017, the Dillon BLM and Ruby Watershed Council hosted a public meeting on the subject of conifer expansion and treatments; over 30 members of the public including local landowners participated and expressed strong interest and support for removing conifer expansion. NRCS began outreach efforts starting in spring of 2019 with community meetings in the Ruby Valley. NRCS developed a presentation with the help of local partners to show the need for treatments, as well as, success stories in the local area. The Sheridan field office has compiled a list of landowners within the project area. Interested landowners will be assisted through the application process and begin conservation planning in preparation for contract obligations in 2020. The Gravelly Landscape hosted a community forum in Ennis, MT in February of 2020. Speakers from BLM, SMSP, and USFS presented info to members of the public on how these types of projects are a benefit on the landscape and how there will likely be more in the next 3-5 years on public and private lands. The District Conservationist from the Sheridan Field Office took this as an opportunity to explain the NRCS mission, Montana Focused Conservation, and this TIP.

Project Ranking and Prioritization

MT300-19-23, Attachment F

Montana NRCS 2020 Targeted Implementation Plan (TIP) Application Prioritization Tool

Instructions: Complete this worksheet for each Fiscal Year 2020 TIP application.

This completed worksheet will be filed with the application and subsequent contract if selected for funding.

| Section 1 - Application Information | |
|--|--|
| Applicant Name: | County: |
| Application Number: | Field Office: |
| Evaluator Name: | Date: |
| Primary Resource Concern: | TIP Name: |
| Section 2- To be completed for Ranking Prioritization in ProTracts | |
| 1. Has the applicant had an NRCS program contract terminated since January 1, 2017; OR does the applicant have an existing contract that has been determined to be in noncompliance and currently under an active NRCS-CPA-153 (only answer as Yes if the non-compliance was for something within the participant's control)? If yes, identify the following: Date of Termination or date participant signed the NRCS-CPA-153 with an existing deadline to bring the contract back into compliance. | Yes –Application is a LOW priority. No – Continue to question 2. |
| 2. Is the proposed conservation treatment within the geographic boundaries of this Targeted Implementation Plan (TIP)? | No – Application is a LOW priority and will not be ranked. Yes – Continue to question 3 |
| 3. Does the application meet the intent of the Targeted Implementation Plan, (TIP) and is for practices currently offered in the TIP that will treat the identified priority resource concern? | Yes-Application is a HIGH priority and will be ranked. No-Application is a LOW priority and will not be ranked. |

Local Questions

1. Does the project include conifer removal in >4% threshold general Sage Grouse Habitat?
2. Is there a perennial stream within the planned land units?
3. Are mesic resources (Sage Grouse Initiative) located within treatment units?
4. Is there an intermittent stream within the planned land units?
5. Are the planned land units adjacent to current/ planned conifer reduction projects?
6. Is prescribed grazing a contracted practice?

Progress Evaluation and Monitoring

FO staff will compile a yearly report to outline acres treated by 314 and 666 practices for removing conifer from the landscape. This report will be provided to the Assistant State Conservationist – Field Operations, their review and input will be requested for further streamlining the planning process, monitoring efforts that may be conducted, and if any adjustments or changes will be made in the future for implementation.

Each contract will have one monitoring point per major ecological site within treatment boundaries. Monitoring will be conducted pre-treatment and two years post-treatment. Planners may choose to add monitoring sites if treatment types or site conditions warrant. For example, a contract with 314 brush management completed with mastication/ heavy machinery and chain-saw hand felling. Planner may monitor each treatment type. With the goal of conifer removal, monitoring goals should be to demonstrate the treatments have effectively removed trees from the landscape. Monitoring will include 100' transects with ground cover and landscape photos. These points will likely be the same location as the transects used to determine canopy cover in the planning stages for determining appropriate practices.

Examples:

Figure 7: Phase 1 conifer before treatment (Hand felled-Lop and Scatter)



Figure 8: Phase 1 conifer after treatment. (Hand Felled- Lop and Scatter)

Photo: MT- NRCS (Madison Co.)



Figure 9: Phase 3 Conifer Before (Mechanically felled and piled.)



Figure 10: Juniper piled for burning



Figure 11 & 12: Piles burned for Woody Residue Treatment (384) and ground conditions post burning.



Figure 13: Mountain Big sagebrush establishment within burn scar after piling and burning. (MT-FWP)



Figure 14: Grass and Forb regeneration post mechanical treatment. Red line represents previous canopy cover. (MT-FWP)