Little Snowy/Snowy Mountains Forest Health and Fuel Reduction Targeted Implementation Plan

Goal Statement:

The goal of this project is to aid landowners to implement a forest stand thinning and conifer encroachment plan on their places that will reduce a buildup of hazardous fuels, improve range productivity and health, and improve the overall forest stand health on their operations.

Overview/Background information:

The Little Snowy Mountains sit in the SE part of Fergus County about 25 miles from Lewistown, MT, coming off the E Slopes of the Snowy Mountain Range. The area is predominantly livestock cow/calf operations with most of the crop ground in hay production. Most of the woody vegetation in this area is Ponderosa Pine with some Rocky Mountain Juniper.

Historically, fire has been a crucial factor in the forest ecological cycle causing disturbance that recycles nutrients, selects and regenerates plants, reduces biomass, controls insects and disease, and regulates interactions between vegetation and animals. For the past century or more, humans have made a concerted effort to control wildfires, basically removing it from the

landscape. This has resulted in an increase of forest encroachment and stand densities onto sagebrush grass communities in areas like the Little Snowy Mountains. Forests are now more densely stocked making them more susceptible to large fire events that can be devastating and disease/insect problems like pine bark beetle and spruce bud worm. The effects of fire exclusion on the forests of the Rocky Mountains has left a lasting impact that will be felt for years to come. In the past 20 years, Montana forests have experienced epidemic outbreaks of insect and diseases and it is estimated that 85% of Montana's forests are at an increased risk for wildfire.

Problem Statement:

Lack of forest health has become an issue throughout MT and Fergus County due to lack of management and fire suppression. This has led to a dramatic increase in forest stand densities and conifer encroachment onto rangeland. In the Little Snowy Mountain area there has been minimal large fires in recent years, but the potential is there if the right climatic factors come together. On isolated FSI projects Lewistown NRCS has been involved with in the past, stand densities have been measured at 1700-2700 trees per acre. These stands consist mainly of thick dog hair like small diameter trees far exceeding numbers of what would be considered normal for a healthy tree stand. Ponderosa Pine has greatly increased in the area encroaching out into meadows and rangeland that previously had no trees. This greatly reduces grass production and livestock stocking rates. In some areas, Ponderosa Pine is so thick that no grass is growing, and animals cannot even walk through. This creates a very unhealthy tree stand with little resistance to insects and disease along with a huge potential for a catastrophic fire.

The primary resource concern is **wildfire hazard from biomass accumulation**. This resource concern was identified by the local working group in the Fergus county long range plan as a resource problem that should be concentrated on in the county. Timber fuel loads have accumulated on the forest and rangeland due to decades of fire suppression and as a result there are more trees per acre than the forest can maintain. These excess fuels are a huge concern and could lead to a catastrophic fire event. Past studies have shown that thinning areas are effective in helping control and reducing fire damage. In one wildfire in the Pacific NW a 12,000-acre thinned area acted like a doughnut hole and was virtually untouched in the inferno created by the fire zone. In Arizona, thinned forests help stop the huge 2011 Wallow Fire before it reached any homes. After hitting the thinned area, the fire transitioned from an active crown fire to a passive crown fire that was much easier to control. The secondary resource concern is **plant health and vigor**. The thick, overgrown stand creates an unhealthy forest more susceptible to disease/insects. The forage loss is estimated at 100-500 lbs/ac due to the thick canopy overstory shading out desirable plant's underneath. It has also been shown repeatedly that thinning will improve the overall health of the tree stand by removing suppressed, diseased and low vigor trees, allowing for continued growth of the healthiest trees. Hopefully, either the local DNRC forester or the new NRCS state forester will be able to assist with initial stand inventory and assessing any diseases or insects present.

The project area is approximately 84,000 total acres with 3,000 – 4000 acres of timber. NRCS has worked with and been on site with three producers in the area that are willing, able and ready to start a project. NRCS proposes in this project to thin 700 acres of trees or 13%-17% of total forested area.

Photo: Typical area of Ponderosa Pine stand that has become overgrown.

Goals:

The desired outcome for our treatment units in the Little Snowy/Snowy Mountains are as follows:

- Overall fuel reduction hazard and catastrophic wildfire risk. Reduce stand densities ranging from 1500-2700 trees per acre down to 200-400 trees per acre based on the diameter (D +10) spacing. This usually averages out to a 15-17' spacing. Manage woody residue by piling/burning or lopping/scattering. Will monitor with before and after pictures and use DNRC local forester to assist with both stand management and monitoring.
- Improve plant health and production of both forest stand and understory vegetation through stand thinning and conifer removal. One study showed that thinning a stand to an 18-foot spacing increased forage production from a few scattered grasses and forbs to 550 lbs/ac (.18 aums/ac) after seven years. This goal will be monitored by before and after photos combined with clipping hoops in the treated area to estimate forage production.

Objectives:

700 acres of forest and rangeland land treated East of Tyler Cutoff road area to reduce wildfire risk and improve plant health and production over the next three years. There will be three signup periods held, with the first being for 2021, with additional signups in 2022, and2023. This area was chosen for several reasons, first NRCS has worked with several landowners in prior years and is familiar with area, terrain and typical forest stand found there. Second, Tyler cutoff road, which runs North to South from Grass Range Mt to Flatwillow Creek is an improved gravel road that allows good access to many of these producer's places and would act as a natural firebreak if need be. It runs parallel to the West of highway 87 ranging from 3-6 miles away. The third reason is NRCS field office had two neighboring landowners, people NRCS had not worked with, come into the office to inquire about possibility of funding for thinning and NRCS has been on both places.

- Implement NRCS practices to include: Forest Stand Improvement, and Brush Management with cost share assistance and require producers to follow woody residue treatment specification 384 without cost share.
- In the future, expand timber fuel reduction area to move west into rest the Big Snowy Mountains and Missouri River breaks country with new TIP proposal.

Alternatives:

1. **No action:** This alternative would lead to an increase in tree stock density, further encroachment of trees on range ground, thereby increasing risk for catastrophic fires, continued reduction of plant health and vigor and increase in insect/disease damage.
2. **Fuels reduction through prescribed fire:** This would be the most natural way to address conifer encroachment and fuel reduction hazard but could pose a risk due to high fuel loads from the exclusion of fires in the past. Using prescribed fire is also challenging because weather conditions must be favorable to encourage fire behavior but not too much so burning does not get out of control. Most landowner will not implement this practice due to the liability risk.
3. **Fuel Hazard Reduction through mechanical treatment:** This alternative is the most feasible and flexible treatment, though is labor intensive. Treatment can range from using a Bobcat or excavator fitted with a masticator to a hand crew with chain saws. The masticator can treat more acres in a timely manner, but the hand crews can work on steeper slopes found in draws and coulees in this area. Excessive woody residue can become a problem using these methods and must be treated following NRCS specification guidelines.

Photos: Masticator at work and after thinning Treatment.

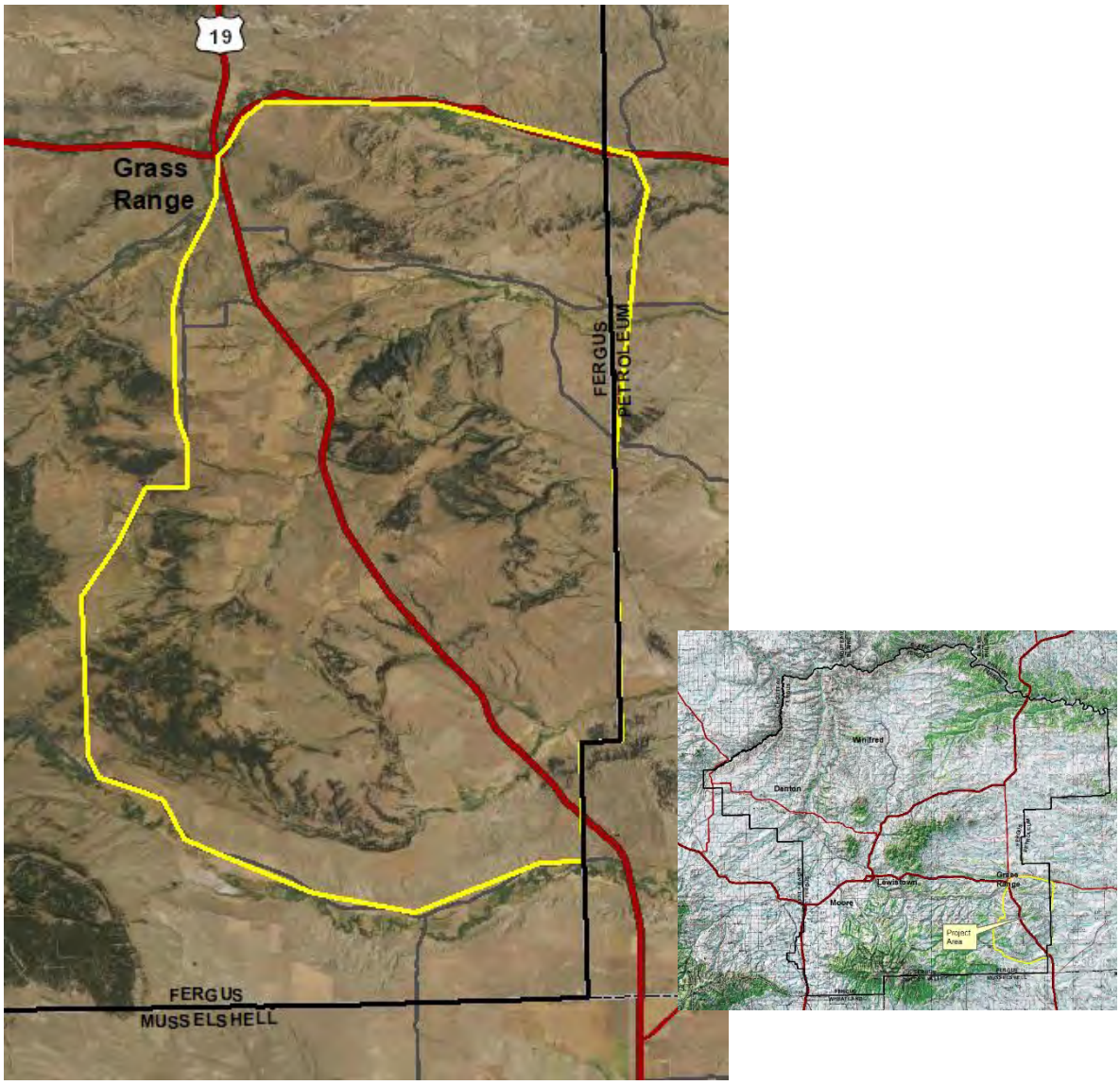
Proposed Solution: Alternative number three (fuels reduction with mechanical treatment) is the best option for Fergus NRCS to pursue when considering landowner objectives, ease of implementation, and financial considerations. While the problem is widespread throughout Fergus County, focusing in this area where we have had landowner interest will be a good start to treating the wildfire hazard resource concern in the Tyler Cutoff road area. This should generate interest and allow us to have a second signup in the same area. The goal is to then write another proposal and move West of this region into the Big Snowy Mountains and possibly N into the Breaks country.

NRCS Conservation Practices to be Implemented:

- 666 – Forest Stand Improvement will be used to thin tree stands on heavily infested acres.
- 314 – Brush Management will be used on areas where trees have begun to encroach on rangeland.
- 384 – Woody Residue Treatment will be required by producers with no cost share.

Partnerships:

NRCS plans on working in conjunction with DRNC and their local forester out of the Lewistown field office. The plan is to use his expertise in helping put together forestry management plan on producers' places that sign up for the program and to help with monitoring after project treatments have been applied.



Implementation:

This would be a three-year TIP with the first signup in in 2021 and continuing through 2023 to work with producers in the Little Snowy Mountains for producers' operations that lie east of the Tyler Cutoff Road. Knowing how labor intensive the practice is, and after talking to landowners in the area about how many acres they could thin in a year, it was decided to break out treatment acres evenly over a three-year period. The first contracts would be approved by summer of 2021 and treatment practices set up to go from 2021 – 2024. Producers will be responsible for either completing their own work or hiring a contractor. Equipment used will either be a masticator attached to a Bobcat or similar type of equipment or hand crews using chainsaws. It is estimated that this project will generate 3-5 applications the first year and possibly up to another 4-5 in the subsequent years.

2021 Signup Payment Estimates				
Practice	Extent	Type	Payment Rate	Total
Forest Stand Imp. (666)	300	ac	$505.55	$151,605.00
Brush Management (314) Light Density	50	ac	$104.30	$5215.00
Total				$156,820

2022 Signup Payment Estimates				
Practice	Extent	Type	Payment Rate	Total
Forest Stand Improvement (666)	200	ac	$505.55	$101,110.00
Brush Management (314) Light Density	30	Ac	$104.3	$3129.00
Total				$104,239.00

2023 Signup Payment Estimates				
Practice	Extent	Type	Payment Rate	Total
Forest Stand Imp. (666)	200	ac	$505.55	$101,110.00
Brush Management (314) Light Density	30	ac	$104.30	$3129.00
Total				$104,239.00

Progress Evaluation and Assessment & Outcomes:

NRCS will monitor progress as producers begin projects. Prior to project implementation, NRCS, along with DNRC forester and state NRCS forester, will conduct a pre-treatment evaluation of stand consisting of stand composition, stand density, tree spacing, and disease /insect evaluation. After completion, acres will be certified in the field by the NRCS field office with input from local DNRC forester. Completed acres in the unit will be measured by GPS. Producers will sign and agree to follow the 666-specification based on certain parameters like spacing, size of leave trees, and how to manage biomass on the ground. Biomass levels will be measured before and after treatment to show the reduction which will benefit grassland health, tree stand health and reduce fire hazard on these acres. Reduce stand densities ranging from 1500-2700 trees per acre down to 200-400 trees per acre. Photo monitoring will be used to assess before and after range and forest condition. Increase in forage production will be measured by clipping several hoops in each treated area with cut forage, bagged, dried and weighed for production estimated in pounds per acre. As mentioned above, studies have shown an increase ranging from 200 – 500 lbs. per acre depending on the treatment spacing. Progress will be recorded in Conservation Desktop. This also provides immeasurable benefit to reducing fire hazard on these acres. Monitoring will be conducted periodically to ensure outcome longevity and address any unforeseen complications that may arise due to natural disturbances or land use changes. Follow-up treatments can then be determined if deemed

necessary at that time. The outcome plan is to treat 700 acres with practice 666 or 314 to reduce fuel load, improve health of the forest stand and open understory to improve forage production. Forage production clippings and stand density measurements will be used to measure outcomes after treatment is completed in project areas.

Ranking:

Local Issues Addressed

Issue Questions	Responses
1. Is all or part of the proposed project area located directly adjacent to a public road?	
2. Will forage production for wildlife and livestock be improved on lands that are currently grazed?	
3. Are the acres proposed for treatment adjacent to publicly controlled land, specifically State of Montana or Bureau of Land Management where the opportunity for partner assistance would enhance practices in the application?	
4. % of acres treated compared to total timber acres on operation.	
5. Are there structures that will be protected from fire with fuels reduction on the operation?	