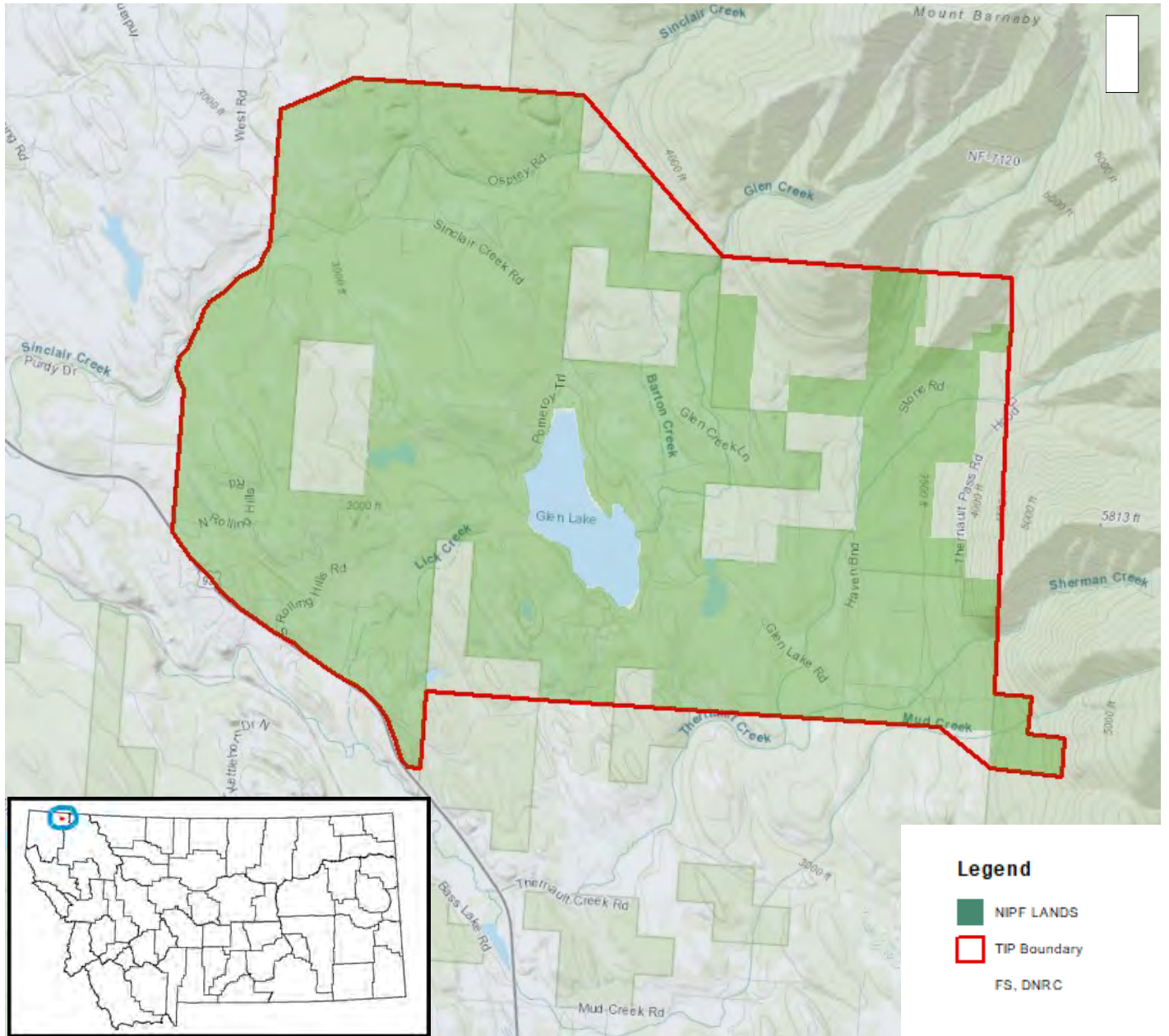


# Targeted Implementation Plan Lincoln County, MT

## GLEN LAKE FUELS REDUCTION PROJECT



Promoting wildfire protection and preparedness in the Glen Lake wildland urban interface through the reduction of hazardous fuels and landowner education.

## Overview/Background Information

The project area encompasses a range of land ownership including non-industrial private forestland (NIPF) intermixed with Kootenai National Forest land. Of the 11,800 acres in the project area, approximately 8,131 ac are considered NIPF, with 2,018 owned by the USFS, and the remaining 1651 ac being a mix of industrial and investment property types. The Glen Lake area is one of the largest Wildland Urban Interfaces (WUI) in the county and is the most densely populated. There are approximately 511 landowners and 331 homes (or significant structures) in the area. Properties over 10 ac in size represents about 61% of the area or 6579 ac with 200 individual landowners. The average parcel size is 12.6 ac with the neighborhoods surrounding the lake continuing to see subdivision development and new construction.

The focus area is adjacent to the Tobacco Valley about 2 miles south-east of Eureka and is wedged in between the valley bottom and the Galton range to the east. The community is centered around Glen Lake which is the central feature. The lake is man-made and was created by the Glen Lake Irrigation District as a reservoir to store and convey water through a series of canals throughout the Tobacco Valley. Besides irrigation water, the lake is used for recreational boating and fishing which draws many visitors in the summer months. In addition, the project area is considered the gateway to the Ten Lakes Scenic Area, boasting a network of recreational activities such as hunting, biking, fishing, and snowmobiling.

The proposed boundary contains forest classified as Rocky Mountain Dry-Mesic Montane Mixed Conifer eco-type. It receives an average of about 14"-30" of precipitation a year, with most occurring during winter. Timber stands consist of a mix of species from ponderosa pine at the lower reaches, to western larch, Doug-fir and Engelmann spruce in the central and eastern portions. Historically the climax species were ponderosa pine and western larch. Due to the history of fire suppression and Christmas tree farming, which is still evident today, most of the stands are dominated by low quality shade tolerant species of primarily Doug-fir.

Besides recreation, the project area contains other significant features vital to the economic, social and ecological welfare in the area. This includes critical habitat for threatened and endangered species such as Canada Lynx and Bull Trout. The tributaries of Graves creek are important habitat for Bull Trout spawning and rearing, as well as other species of concern such as Westslope Cutthroat trout.

Lincoln County is among the most heavily timbered counties in Montana, with an active local forest economy. The Natural Resources Conservation Service (NRCS) Eureka field office has been heavily invested in planning and implementation of EQIP forest management projects for well over a decade. The Eureka Field Office, along with its partners, brings a level of experience and expertise that has been recognized by local landowners. The proposed focus area has an extensive history of landowner participation and continues to receive a high level of interest. Additional funding through this proposal would build upon the many projects already implemented and completed by NRCS and its partners.

The NRCS and the Lincoln County Local Working Group, along with other partner organizations, have identified forestlands as the number one land use priority in the county. This targeted implementation plan (TIP) was developed to specifically address the NRCS identified resource concern "plants, wildfire hazard from biomass accumulation". It also recognizes that these concerns have the potential to be devastating not only to forest

resources, but also to life and property. Therefore, it is a priority of the NRCS Eureka field office, along with its partners, to invest its time and resources proactively in order to prevent these adverse effects.

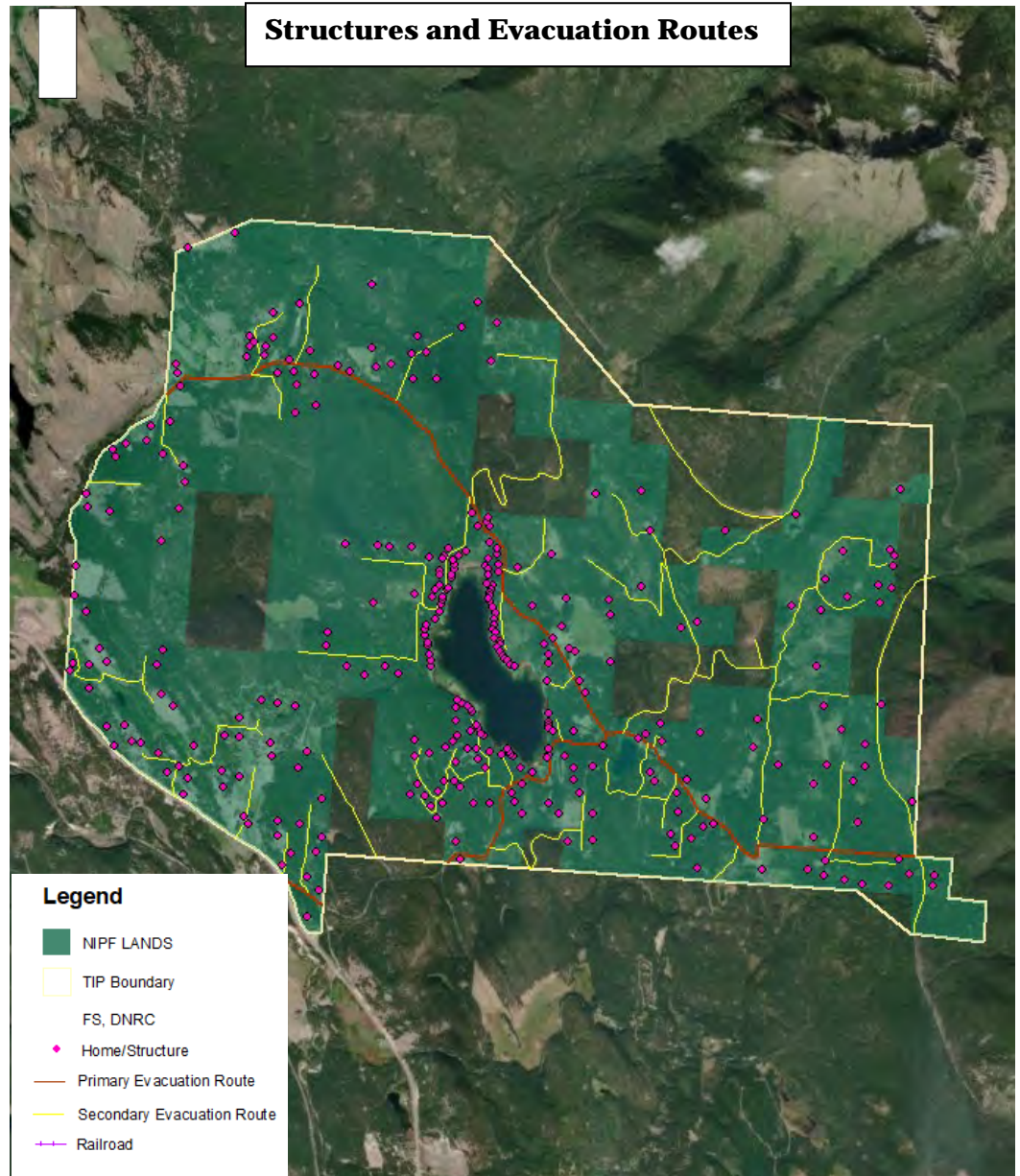
## Problem Statement

The natural forest ecology of the Glen Lake area has become degraded overtime due to fire suppression and poor management. As a result, much of the landscape is prone to catastrophic wildfires.

The century long effort to fight fires has effectively taken it off the landscape resulting in a dramatic change in the composition of these forests. Stands are now more densely stocked and have a much higher component of shade-tolerant species less adapted to withstand fire. Because of this build-up of fuels, and the exasperating effects of recent droughts and high temperatures, fires have become more intense, often being a stand replacing event and posing significant risks to structures and safety.

The Lincoln Community Wildfire Protection Plan (CWPP) has identified the

project area as being "at risk" because of limited evacuation routes, critical infrastructure, and intermix condition where structures are scattered throughout wildland areas. According to the report, the majority of lands within the project area are considered condition class 2 or 3 which represents a significant departure from historical vegetative characteristics and have elevated risk of loss of key ecosystem components. For these reasons, wildfire hazard from biomass accumulation has been proposed as the primary resource concern addressed in this TIP. Due to continued residential development, fire impacts to personal property have been on the rise, with the most recent incident being



the 2017 Gibraltar Ridge Fire which burned almost 13,000 ac of the adjacent land to the east in the Galton Range and forced the evacuation of many residents.

About 100 years ago Eureka self-designated itself as the “Christmas Tree Capital of the World” before the wild Douglas-fir industry collapsed around 1924. Forest stands were converted to Doug-fir and other less resilient species that were popular for Christmas trees at the time. Trees were harvested by cutting or coppicing leaders and allowing them to re sprout from the same “stump culture”. This could be done for many years with one stump producing many Christmas trees. Signs of this practice are readily evident today as new leaders have emerged from old stump cultures producing trees that may be 50’ in height but exhibit very poor form and quality. Once the industry collapsed, these stands typically became unmanaged and fire suppressed resulting in excess biomass accumulation and make them more susceptible to insects and diseases.



Figure 1. Photo of a stump culture

In summary, there are major wildfire hazards from biomass accumulation, creating an elevated risk with the potential to adversely impact natural resources and human life. These excess fuels need to be addressed with a targeted approach utilizing technical expertise and financial resources.

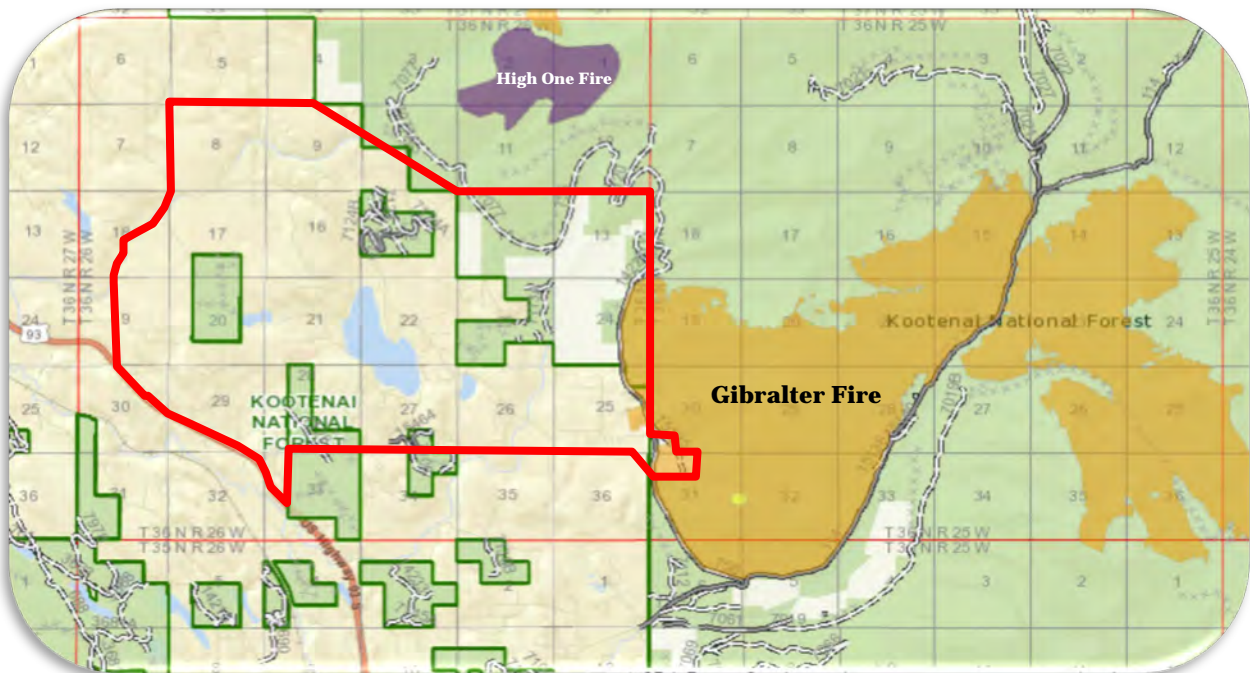


Figure 2. Map showing Glen Lake TIP, Gibraltar Ridge Fire (2017) and High One Fire (1994)

## Goals and Objectives

A targeted and collaborative approach will be key to achieving specific objectives. This TIP will be administered and implemented in conjunction with the Kootenai Forest to Rivers Initiative (KFRI) which is a partner lead effort with overlapping goals and objectives. Together we will utilize the professional expertise of individuals within the group and leverage financial resources to magnify the outcome. We will work to identify the top priority areas within the TIP boundary. Fortunately, much of the approximately 8100 ac of NIPF lands have already been treated utilizing the Environmental Quality Incentives Program (EQIP), along with other partner investments. It is the professional judgement of the Eureka field office that roughly 1/3 of the remaining acres are still a high priority for treatment. These properties will be identified and prioritized using the following criteria:

- Properties with close proximity to other fuel reduction projects completed or underway
- Properties determined to have a high wildfire risk due to biomass accumulation
- Properties that contain or are adjacent to homes or significant structures
- Properties with primary or secondary evacuation routes critical for first responders

The field office, along with its partners will determine the level of fire risks to homes, structures, resources, and the greater community. We will utilize resources such as the fire modeling systems available through the DNRC and published in the Community Wildfire Protection Plan (CWPP). Individual site visits will be made to inventory forest stand data and develop management plans that will be used as a guide to implement silvicultural treatments recommended to address the resource concerns. Resource objectives will be as follows:

- 1) Reduce hazardous fuels on 1,015 acres over a 5-year period, significantly decreasing the fire risk measured using fire behavior models and/or other established professional metrics such as index ratings.
  - a) Reduce canopy cover to below 50% or appropriate level to maximize crown spacing.
  - b) Improve forest structure by reducing mid story ladder fuels to prevent crown fires.
  - c) Reduce forest density by selectively removing undesirable species that would exasperate fuel loads.
  - d) Reduce ground fuels such as forest litter, duff and down woody debris.
- 2) Improve the defensibility of residential areas and individual properties to aide first responders and firefighters.
  - a) Promote management practices that improve defensibility around homes and improve line of site on evacuation routes utilizing Montana Firewise standards.
  - b) Educate homeowners on best practices to improve defensibility.
- 3) Increase wildfire awareness and participation in funding opportunities through education and outreach activities.
  - a) Utilize KFRI funding and staff on an annual basis to initiate a mailing campaign targeting all eligible landowners within the focus area to raise awareness and promote program participation.
  - b) Partner with DNRC to facilitate forester visits, management plan development, and fire risk assessments on homes and properties for all program participants.

## Alternatives

1. Alternative 1: No action will result in a failure to address pressing resource concerns leaving homes, timber resources, and other significant structures with little defensibility against wildfire. Forest health will continue to decline in the short and long term due to overstocking, insects, diseases, and undesirable species. Fuels will continue to accumulate in the long term, compounding the resource concern.
2. Alternative 2: (Preferred) Implement a suite of practices to address resource concerns. Forest Stand Improvement (666), Fuel Break (383), and Woody Residue Treatment (384) will be employed to address wildfire hazard from biomass accumulation (primary), inadequate structure and composition (secondary), and undesirable health and productivity concerns (secondary).

Alternatives will be analyzed in compliance with the National Environmental Policy Act (NEPA). All practices chosen for implementation will meet NEPA requirements. Special consideration will be given for practices effecting T/E species, such as Canada Lynx and Bull Trout, in order to meet all federal regulations and NRCS policy requirements. Any cultural resources present will be identified and avoided during planning and implementation of practices involving any federal action.

## Proposed Solutions and Actions

The solution to these substantial resource challenges is to take a comprehensive approach which engages private landowners, leverages partnerships, and utilizes a suite of available practices to achieve desirable results. Due to the scale of the problem, this approach gives us the best chance of achieving a measurable outcome. We will utilize the work already completed in the CWPP report to identify areas with greatest risk levels related to wildfire vulnerability. With the help of partners, the targeted outreach campaign to generate interest and awareness. We will also take advantage of the many active program participants and new applicants who have expressed interest in additional opportunities. Specific actions will depend on the silvicultural treatment recommended by technical experts which will be outlined in the forest management plan developed for each landowner.

These practices will include:

**Forest Stand Improvement** (666) may be used for several treatment options such as pre-commercial thinning, sanitation harvests for stands with substantial insects and disease outbreaks, and other silvicultural treatments. Most of this work will be completed by NRCS with the potential for partnering with DNRC through their Kootenai Forests to Rivers Initiative. (core practice)

**Fuel Break** (383) will be used to aid in protection and defensibility of homes and structures and involve a more intensive approach to treating fuels. As with past partner projects, some of this work on smaller properties may be done through Lincoln County with some grant opportunities or through NRCS EQIP funding. (core practice)

**Woody Residue Treatment** (384) will involve reduction or elimination of slash generated from the above activities. Options will include piling and burning, chipping, shredding, and removal for utilization. Most of this work will be done through NRCS funding with the potential for partnering with DNRC or Lincoln County. (core practice)

The following (table A.) provides specific target acreages for individual practices contracted over a 5-year period:  
 Table A. NRCS Deliverables

<i>Activities</i>	2021	2022	2023	2024	2025	Total
<i>Forest Stand Improvement (NRCS-666)</i>	300	250	200	150	100	1000
<i>Woody Residue Treatment (NRCS-384)</i>	300	250	200	150	100	1000
<i>Fuel Break (NRCS-383)</i>	5	5	2	2	1	15

## Partnerships

The Glen Lake Fuels Reduction Advisory Group will consist of the following partners:

- Lincoln County FireSafe Council
- Montana DNRC
- American Forest Foundation
- Lincoln County
- NRCS

This project capitalizes on the current partnerships and augments the many projects already completed or underway in the project area. As mentioned earlier, this project will be administered in coordination with the Kootenai Forests to Rivers Initiative (KFRI) which is a grant being rolled out with the aid of the American Forest Foundation, Lincoln County, and DNRC. The KFRI partnership uses targeted outreach to bring technical and financial assistance to private landowners and has tripled landowner use of these services since the initiative launched in 2018. Specifically, they have initiated a mailing outreach campaign, developed an informational website, and provide funding for forester visits and management practices such as thinning and fuel breaks. They specialize in fire prevention around homes to promote sound building practices and defensible space. Several planned projects will be co funded with KFRI. In addition, they have committed to helping with smaller projects, allowing the NRCS to focus on larger acreage properties in high priority areas. Another outreach campaign, tailored specifically to NRCS programs, will also be initiated to landowners in the Glen Lake area. Several post cards and letters will be sent out during the initial sign up period and repeated as needed throughout the life of this project. The Advisory Group itself will serve as a collaborative steering committee to help guide the project with decision making, technical expertise, outreach and data analysis.

Noxious weeds associated with forestry activity can also be addressed through partners such as the Lincoln County Weed Board and Lincoln Conservation District which offers technical assistance with the potential for grant funding.

The following table is a breakdown of the funding commitment for the Kootenai Forest to Rivers Initiative which includes the Glen Lake area, but was focused more broadly in the county aimed at landowners with 20 ac or greater:

Table B. KFRI Contributions

	# completed/Planned	Funding Provided \$
<i>Marketing (Direct Mail)</i>	2 (county wide)/planned annually	\$5,800
<i>Marketing (Email)</i>	6 (county wide)/planned annually	\$2,000
<i>Marketing (Social Media)</i>	Planned annually	\$4,350
<i>Forester Visits &amp; Man. Plans</i>	18 (Glen Lake TIP)/planned annually	\$5,850
<i>Total:</i>		\$18,000 +

There are currently more grants being written for KFRI, so additional contributions are expected. Most recently the American Forest Foundation (AFF) has been awarded a grant through NRCS to co-sponsor the hiring of an “NRCS Service Forester” to be placed in the Eureka NRCS field office. The purpose of this position is to aid in the planning and implementation of this and other potential TIPS. They will also act as a bridge between the various agencies, helping to communicate and coordinate the various aspects of the project as they get underway. Specific duties will include writing forest management plans, laying out project boundaries, marking SMZs, communicating forestry concepts and best management practices, relaying specifications, overseeing implementation, and assisting with certifications as projects are completed. This will significantly improve the capability of the field office to get projects off the ground and represents a renewed commitment to addressing forest related conservation issues into the future.

## Implementation

The Eureka NRCS Field office, along with its partner coalition, has an extensive history of working with NIPF owners and has a track record of successful implementation. This project will occur over a five-year period, beginning in 2021. Conservation planning will be done by NRCS field office staff along with partners. The specific skill-set and resources of each partner will be leveraged for optimal efficiency. NRCS will primarily focus on Forest Stand Improvement and Woody Residue Treatment on larger areas with an emphasis on removing hazardous fuels. KFRI partners will actively recruit smaller acreage projects with a focus on implementing management practices to improve defensibility around homes, structures, and evacuation routes. They will also initiate an outreach campaign timed with NRCS sign up deadlines to increase awareness and interest in the funding opportunities available to individual landowners. DNRC will provide consultation, written management plans, and some project oversight during implementation.

First year participants will be selected from a pool of applications already submitted, along with additional sign ups generated through the KFRI outreach efforts. There are currently over 200 proposed acres that have already been evaluated, inventoried, processed and ready to move forward.

Budget projections are based on the typical cost share rates per acre for common forestry practices in Lincoln County which are approximately \$900/ac, but may vary from year to year based on changes in the cost list and individual practices selected. Several factors including practice implementation history in the focus area, the current applicant pool, and District Conservationist engagement with landowners were also used to get the projected acreage targets for each year.



Table D. NRCS Budget Projections

<i>CONTRIBUTIONS</i>	2021	2022	2023	2024	2025	TOTAL
<i>NRCS EQIP FA</i>	\$270,000	\$225,000	\$180,000	\$135,000	\$90,000	\$900,000

The following are estimates of staff hours required to meet the projected goals:

Table F. CTA Projections

<i>CONTRIBUTIONS (HRS)</i>	2021	2022	2023	2024	2025	TOTAL
<i>Outreach</i>	20	20	20	20	20	100
<i>Planning</i>	300	250	200	150	100	1000
<i>Implementation/Certifications</i>	200	150	100	75	50	575
<i>Area Staff Consultations</i>	10	10	10	10	10	50
<i>Totals</i>	530	430	330	255	180	1695

## Ranking

These additional ranking questions will allow the field office to further prioritize the pool of applicants to ensure the proposed projects are meeting our stated objectives:

1. Is a core practice within ¼ mile of an existing homestead?
2. Are the treated acres within 1000' of any forest thinning or fuels reduction units that are planned or have been completed in the last 5 years?
3. Are the treated acres adjacent to primary ingress/egress routes that would be critical to residents or first responders in the event of a wildfire?
4. Is the stocking of proposed acres over 700 TPA or 85% or greater canopy cover?

## Progress Evaluation and Monitoring

The effectiveness and extent of completed practices will be evaluated annually by NRCS and partners. Inventories will be completed before and after each treatment to document improvements and include acreages, stocking rates, condition %, species %, average diameter, timing and method of slash treatment, wildlife mitigation measures, photo points, and contractor invoices. Each project will be overseen by field office staff with certifications being made upon completion, contingent on practices meeting NRCS standards and specifications. Progress will be recorded in Conservation Desktop or other appropriate databases. 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 U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)*

Appendix A. Example of Completed Inventory

The following forms are the proposed monitoring protocol to be taken on Glen Lake TIP projects. A basic inventory will be taken using a 1/100<sup>th</sup> acre plot with stem counts and a simple rating on each tree of "Good" or "Poor" based on form, defects/deformities, canopy position or any other observable factor that may pertain to the current or future health of each tree. TPA (trees per acre) and average diameter will be calculated using this information. If the stand is noted to be more even aged then the D + formula will be used to derive a desired target TPA. Uneven aged stands can use the Basal Area stocking guidelines. Most stands are a mixture of both and are not purely even-aged or uneven-aged classes so both inventories will be available for whatever the stands suggest should be used. Additionally, canopy cover readings will be taken with a densiometer at fixed monitoring plots along with photo points of before and after photographs to capture the visual differences.

Client:	EXAMPLE	Date:	EXAMPLE																
Location:														Notes:					
Stand:														<p><b>Red trees = need to be cut (431-535 tpa)</b>  <b>Green trees = potential retained crop trees (155-259 tpa)</b></p> <p>The red trees represent those that should be cut and the green represent those that should be kept. This table was created from the inventory done on the property and was used to formulate the prescription for this contract. It is intended to give a rough idea of how the property looks before and what it should look like after the thinning is complete. I am recommending removing all trees with a diameter of 5" or less. Most are poorly formed or have been suppressed long enough that they will not exhibit good vigor or form in the future. Above the 5" range all trees with poor form or obvious insect/disease infestation should be removed.</p>					
Acres:																			
Collector:																			
Plot size:	1/100th																		
Species	P E 0 1	P E 1 3	P E 3 5	P E 5 7	P E 7 9	P E 9 11	P E 11 13	P E 13 15	P E 15 17	P E 17 19	P E 19 21	P E 21 24	total					total after	%sp. Before
Douglas-fir	2 1	9 3	9 5	8 7	2 3	4 1	1						57	14	83	61			
Englemann spruce								2					2	2	3	9			
Lodgepole pine				2									2	2	3	9			
Subalpine fir						1							1	0	1	0			
Western larch			1	1	1	2	1 1						7	5	10	44			
													0						
													0						
													0						
total	2 1	9 3	10 5	8 10	2 4	5 3	1 2	0 2	0 0	0 2	0 0	0 0	1 69	23					
avg. dbh calc	3	24	60	108	48	80	36	28	0	36	0	0	1						
avg. dbh calc after	0	0	0	48	32	30	24	28	0	36	0	0							
existing condition:				desired condition:															
# Plots:	10				43,560 (sq.ft./acre)/Average Diameter + 8 squared														
trees per acre:	690				155 207 259														
Average Diameter (inch):	6.1				low ideal high														
Average Diameter (inch) AFTER					6.5														
% high quality:	48%																		
% poor quality:	54%																		

Basal Area Inventory

EXAMPLE

Plot #	# trees before	#trees after	BAF	ft <sup>2</sup> /ac. After	ft <sup>2</sup> /ac. After
1	8	7	10	80	70
2	11	6	10	110	60
3	12	5	10	120	50
4	9	6	10	90	60
5	14	7	10	140	70
6	10	6	10	100	60
7	14	6	10	140	60
8	16	5	10	160	50
9	9	7	10	90	70
10	15	5	10	150	50
<b>AVG Total</b>				<b>118</b>	<b>60</b>

Canopy Cover-BEFORE					
EXAMPLE					
Plot#	Cardinal Direction	Densiometer Points	(C x 0.96)	100 - D = CC%	Avg. on Plot
1	N	12	11.52	88.48	89.92
	S	8	7.68	92.32	
	E	11	10.56	89.44	
	W	11	10.56	89.44	
2	N	21	20.16	79.84	65.2
	S	39	37.44	62.56	
	E	41	39.36	60.64	
	W	44	42.24	57.76	
3	N	11	10.56	89.44	92.32
	S	9	8.64	91.36	
	E	8	7.68	92.32	
	W	4	3.84	96.16	
4	N	14	13.44	86.56	89.44
	S	11	10.56	89.44	
	E	9	8.64	91.36	
	W	10	9.6	90.4	
				Total Avg.	84.22

Canopy Cover-AFTER					
EXAMPLE					
Plot#	Cardinal Direction	Densiometer Points	(C x 0.96)	100 - D = CC%	Avg. on Plot
1	N	25	24	76	64
	S	30	28.8	71.2	
	E	40	38.4	61.6	
	W	55	52.8	47.2	
2	N	60	57.6	42.4	40.48
	S	70	67.2	32.8	
	E	68	65.28	34.72	
	W	50	48	52	
3	N	55	52.8	47.2	47.2
	S	60	57.6	42.4	
	E	70	67.2	32.8	
	W	35	33.6	66.4	
4	N	45	43.2	56.8	44.8
	S	60	57.6	42.4	
	E	55	52.8	47.2	
	W	70	67.2	32.8	
				Total Avg.	49.12