

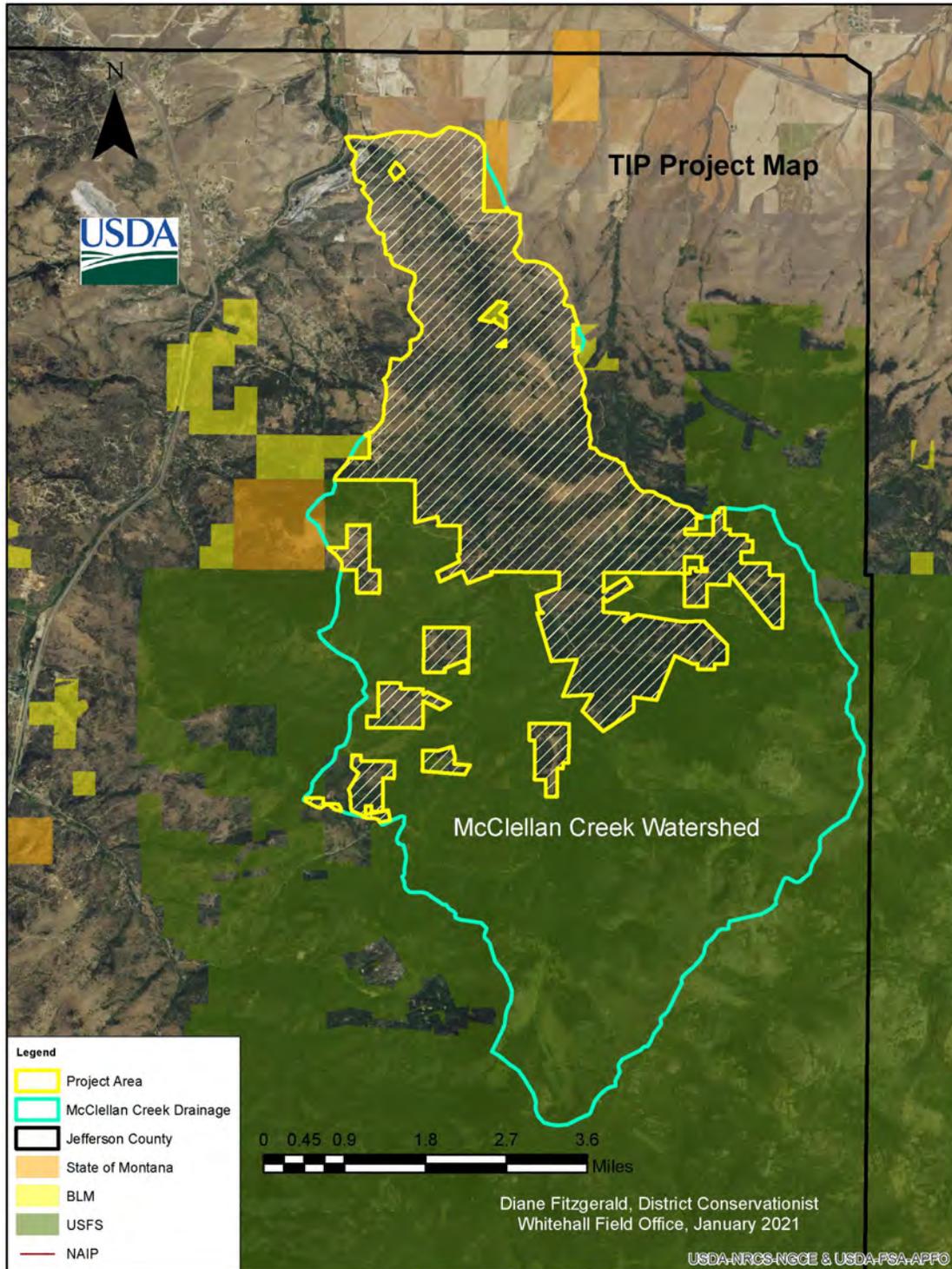
The first in a series of Targeted Implementation Plans designed to improve safety and forest health in the Elkhorn Mountains, one drainage at a time.

# McClellan Creek Forest Health and Fuel Reduction

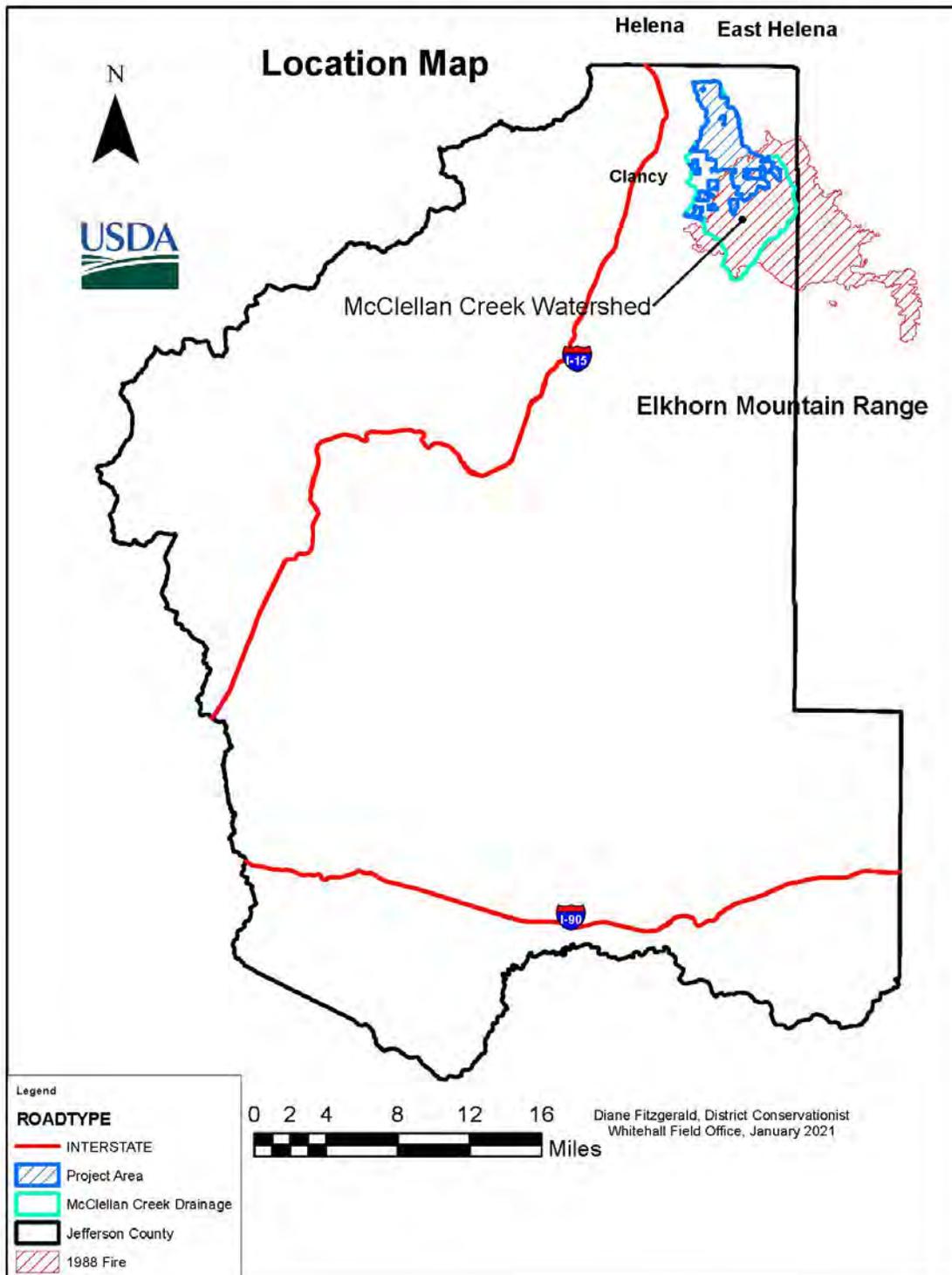
Fiscal Year 2022  
Fitzgerald, Diane - NRCS, Whitehall, MT

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The Targeted Implementation Plan, or TIP is in the McClellan Creek drainage, in the northeast corner of Jefferson County.



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## McClellan Creek Forest Health and Fuel Reduction

### Introduction

The Elkhorn Mountains are an island mountain range primarily in the north part of Jefferson County. McClellan Creek runs generally from south to north and drains into Prickly Pear Creek on the north side of the Elkhorns.

The City of East Helena draws part of its municipal water supply from an infiltration gallery in McClellan Creek. This type of inlet is a perforated pipe that must be surrounded by clean, permeable gravel, which makes it vulnerable to contamination from ash and sediment, should a wildfire occur in the watershed. Sediment loading could result in significant water treatment costs for the City of East Helena.

The McClellan creek watershed is 23,230 acres, most of which is forested. The largest land ownership in the drainage is the US Forest Service, Helena Ranger District, managing 14,340 acres. Private ownerships adding up to 8,890 acres range from small acreage, seasonal cabin properties and permanent residences to large cattle ranches primarily used for summer grazing.

A lack of disturbance (logging, thinning, fire, etc.) combined with drought have created overstocked, unhealthy stands as well as increased horizontal and vertical fuel continuity throughout the watershed from ponderosa pine at the lower elevations, to Douglas-fir at mid-level, to lodgepole pine at higher elevations. Elevated populations of forest insect pests such as mountain pine beetle (MPB) and western spruce budworm (WSB) have also caused significant damage. Conifer encroachment into grassland by Rocky Mountain juniper and Douglas-fir is degrading wildlife habitat and contributing to hazardous fuel loading as well as impacting aspen stands.

Transportation and utility infrastructure are also being impacted and noxious weed populations have been on the rise.

Fire historically regulated stocking levels and fuel continuity by thinning out understory trees and creating a mosaic of stand structures and ages across the landscape. Modern fire suppression has allowed continuous, overstocked, stagnant stands to develop which readily burn at high severity and intensity.

A wildfire in August and September of 1988 burned 35,865 acres, forcing evacuation of permanent residences and summer cabins. Of the area burned, about 14,000 acres were in the McClellan Creek drainage, and 2,632 of



*Figure 1: Aspen struggling to survive due to lack of disturbance and conifer encroachment.*

these acres were private land. The fire scar can still be seen today, evidenced mostly by thick regeneration of lodgepole pine. Resulting tree regeneration is stagnating, of little commercial value, and has encroached into grassland reducing forage and degrading wildlife habitat.

Inventories completed within the TIP area reveal burn area regeneration, conifer encroachment and other unmanaged areas typically have stand densities of 3,500-5,000 trees per acre. These populations are excessively overstocked and unhealthy for all tree species present, due to competition between individuals for light, nutrients and water.

Western spruce budworm and Mountain Pine Beetle populations have taken advantage of trees weakened by drought and overstocking, resulting in tree mortality and high fuel loads, estimated at 20-30 tons per acre in much of the drainage. The fire hazard map (page 13) shows most of the watershed in the extreme and high hazard categories, demonstrating the risk to human lives as well as the potential for structure, livestock and wildlife losses.

In addition to excessive fuels, difficult topography and a limited number of roads and alternate escape routes add to the challenges of fire suppression and egress. Also vulnerable to an Elkhorns fire are the utility corridor occupied by the Colstrip 500 KV power line and a 21,000 acre Military Training Center.

Noxious weeds plague much of the private grassland and forest understory, as well as roadsides. The main weed species are houndstongue, spotted knapweed and Dalmation toadflax in varying densities. Desirable herbaceous species present should increase in population, health and vigor with weed suppression. On the summer grazing units, timber management is a secondary concern to landowners, the main objective is cattle grazing and weed control in the grassland. Residential owners have expressed concern about fire hazard, escape route safety, and noxious weeds.

#### Resource Concerns

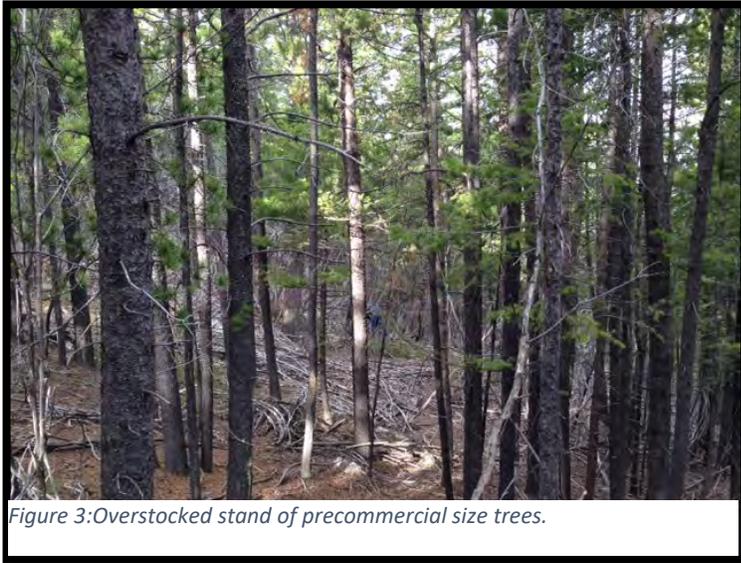


*Figure 2: Example of hazard resulting from beetle kill.*

#### **The primary resource concern in McClellan Creek is wildfire hazard**

from biomass accumulation. Secondary resource concerns are plant productivity and health, plant structure and composition, and plant pest pressure. Please refer to the Jefferson County Long Range Plan, where forestry concerns are addressed on page 20, and weed concerns on page 21.

Fire was always an important part of the normal ecology of forests. Fires are now commonly suppressed, due in part to the increased human presence in the Wildland Urban Interface. The removal of the natural role of fire has resulted in overstocked stands, fuel buildup, encroachment, and insect infestations. When fire does come to this weakened, unnatural forest, it is a far more intense, stand-replacing event. Dead and overstocked trees immediately adjacent to public and private roads are prone to falling across the road, allowing a fire to jump the road, or otherwise preventing egress in an emergency. The risk to people, animals, homes, and public safety is of great concern.



*Figure 3: Overstocked stand of precommercial size trees.*

The “doghair” and beetle killed stands described in the introduction are unnatural and fire-prone for all tree species present. In areas with high MPB mortality, the dead trees, touching crowns and ladder fuels set the stage for a potentially devastating fire event.

The attached fire hazard map ratings were developed by the USFS, DNRC, Disaster and Emergency Services’ CWPP (Community Wildfire Protection Plan), Tri-County Firesafe Working Group and Montana Prescribed Fire Services Inc. It is a dynamic document, as changing climate issues bring

increased temperatures, drought, insect attacks and fire activity. The ratings are based on slope, vegetation, fuel loading, and assets at risk, using current data available. An abbreviated interpretation follows:

Low. Potential for fast spreading fire when grass is cured. Herbaceous vegetation and brush less than 2 feet tall. Fire easily mitigated.

Moderate. Medium density conifers with grass and brush understory.

High. Potential for high intensity crown fires, dense conifers.

Extreme. Severe fuel hazard. High intensity and extreme rate of spread. Dense, flammable over 2 feet tall.

Species of concern in the Elkhorns include westslope cutthroat trout in four streams, including McClellan Creek, and occupied sage grouse habitat in the foothills on the south part of the range. An Elkhorns wildfire could load cutthroat habitat with sediment, reduce or eliminate stream shading, and result in higher water temperatures. The sagebrush providing occupied sage grouse habitat in the south Elkhorns is vulnerable to a widespread Elkhorns fire as well. A fire could also destroy elk habitat in hunting district 380, which is managed for trophy bulls. The hunting of these elk is economically very important for Jefferson County’s small communities. Whitebark pine is present in the higher elevations and is

proposed for listing by the US Fish & Wildlife Service under the Endangered Species Act. According to FWS, Canada lynx and grizzly bears, listed threatened, may be present in the Elkhorns.

## Goals

The goal of this TIP is to address fire hazards, forest health and noxious weeds in the McClellan Creek watershed.

Local Work Group outreach meetings held in the summer of 2019 identified wildfire risk, unhealthy forests and noxious weeds as primary issues in Jefferson County. Please refer to the Jefferson County Long Range Plan, pages 19-22, available on the Montana NRCS homepage, under Programs, and What's available in my (Jefferson) county, as well as internally on the SharePoint under Montana Focused Conservation. An outreach mailing to landowners in the McClellan Creek watershed in the summer of 2020 resulted in response from 39 forested property owners who expressed needs for fuel reduction, weed control, and improved forest health, and were interested in forming a TIP.

Proactive treatments to address these concerns, although expensive, are not as costly as firefighting efforts, which cost taxpayers \$400 million in Montana in 2017. This figure represents suppression only on 1.4 million acres, and does not include post-fire rehab., mitigating water quality degradation, nor the value of destroyed timber, structures, and habitat. Future fires are expected to be larger, and the fire season longer, due to the effects of climate change including warmer winters, earlier snowpack melt, and more frequent and severe droughts. More carbon and greenhouse gases are released to the atmosphere during large fires, adding to climate concerns.

The treatment outlined in this TIP would be funded by utilizing the NRCS EQIP program and existing partnerships in the McClellan Creek watershed. This TIP was developed in response to several private landowners reaching out to NRCS with fuel concerns prior to the outreach mailing, and in fact inspired the outreach effort.



*Figure 4 shows a thinning project recently completed in McClellan Creek*

## Alternatives

### Alternative 1 - No Action

This alternative does not address the identified resource concerns nor the Jefferson County Long Range Plan and would leave the drainage in its current vulnerable state. Another catastrophic wildfire like the one in 1988 is likely in the Elkhorns. Weakened stands left untreated will be vulnerable to stand replacing wildfire, insect attacks and reduced quality of wildlife habitat. The threat to surrounding communities would continue.

### Alternative 2

The preferred alternative is to apply conservation practices, either alone or combined, to address the problems identified, which are overstocked stands, noxious weeds and fuel loads. Eligible primary practices will be 383 Fuel Break, 666 Forest Stand Improvement, 384 Woody Residue Treatment, and 315 Herbaceous Weed Treatment. 660 Tree/Shrub Pruning is the eligible secondary practice.

Fuel break would be used to protect structures, escape routes and property boundaries. Forest stand improvement would be used to address unhealthy stands, improve understory and species diversity, and improve insect and fire resiliency. Forest stand improvement may be combined with pruning, and woody residue treatment. Herbaceous weed treatment would be used to treat existing noxious weed infestations which are likely to expand as a result of the disturbance from forestry practices. This may be accomplished by chemical, mechanical, or biological means.

### Alternative 3 – Prescribed Fire

This alternative is not chosen due to the number of residences and cabins in the drainage.

## Partnerships

The following are financial and supporting partnerships currently in place and active:

US Forest Service – Helena Ranger District. The Forest Service has completed 3,228 acres of forestry work for \$2,582,400 through the Elkhorns Habitat Improvement CE. Planned and in-progress projects (NEPA cleared only) include prescribed burning on 2,200 acres for \$880,000, and includes roadside and trail work on the forest in the McClellan Creek watershed. (72.6% of expenditures, 74.8% of treatment acres) The Forest Service is also collaborating with the NRCS on a Joint Chiefs proposal for the Elkhorns.

TriCounty Firesafe Working Group – TriCounty conducts home risk assessments and for over 30 years has installed fuel reduction projects in this area and throughout Jefferson, Lewis and Clark and Broadwater Counties. They are responsible for creating and updating the regional CWPP. Specific to McClellan Creek, completed 5 projects on 30 acres for \$30,000, and 3 ten-acre projects are planned for \$39,000, with funding from BLM, DNRC and USFS. (1.4% of expenditures, <1% of treatment acres)

Bureau of Land Management – Butte Field Office, with scheduled and completed projects in the Elkhorns. Specific to McClellan Creek, completed 400 acres of Strawberry Mountain treatments in 2017, for \$200,000. 250 acres of additional treatments in McClellan Creek, planned for 2023. (6.8% of expenditures, 8.9% of treatment acres)

Montana Department of Natural Resources and Conservation – The DNRC Central Land Office is available to NRCS to complete forest inventories and forest management plans. They also have the Good Neighbor Authority program to be utilized for forestry work. DNRC, working collaboratively with several agencies, was recently awarded a grant for fuels reduction south of Helena through the Montana Forest Action Plan.

Jefferson Valley Conservation District - JVCD has taken the lead for local workgroup meetings, prioritizing resource needs in Jefferson County, tours, and various other forms of support.

Jefferson County Weed District, JCWD invests approximately \$16,000 annually in McClellan Creek for cost share herbicide, roadside spraying, biocontrol agents, and staff time for site visits, consultations and monitoring. 5 years of practice installation=\$80,000. (1.7% of expenditures, no acreage figure available.

Jefferson County Disaster and Emergency Services – DES has invested approximately \$2,000 in staff time to complete the task of rural addressing and evacuation plan formulation for McClellan Creek. They have a Pre-disaster Mitigation plan and are in full support of this TIP. (<1% of expenditures, no associated acreage figure)

Montana Department of Fish, Wildlife and Parks is providing support with information on fisheries and habitat needs this project (or lack of one) could affect.

Natural Resources Conservation Service, providing technical and financial assistance through the EQIP program. Forestry and weed control EQIP contracts for about 120 acres and \$157,000 have been completed in McClellan Creek. \$677,016 requested to treat 1,000 acres. (17.5% of expenditures, 15.5% of treatment acres)

Private landowners – with 39 owners expressing interest so far, they will be the partners determining the success of this project. Their contributions combined with EQIP program dollars will address the private land resource concerns identified in McClellan Creek.

Elkhorn Mountains Cooperative Management Area – The partners listed above participate in this group effort for the resource improvement of the Elkhorn Mountain Range.

Citizens groups active in the Elkhorns include the Elkhorn Restoration Committee and the Big Elk Divide Restoration Committee, part of the Montana Forest Collaborative Network.

## Measure of Success

Success of the project will be measured by the following criteria with pre- and post-treatment data:

Twenty-one homes with improved fire protection in the extreme and high-risk categories. (35% of the homeowners on the original outreach list, as some are not in extreme or high categories)

400 acres of forest treated in the 1988 fire scar and/or extreme risk category for overstocked trees, thinned to appropriate populations and improved age and species diversity where possible. This is 50% of acre estimates from outreach respondents. Field investigation revealed that about half of the desired acres for treatment are not accessible (steep, rocky, lack of roads, etc.)

500 acres of noxious weeds treated and plant community improved by biological, chemical, or mechanical means. This is 50% of acre estimates from outreach respondents as some will opt for a partner program. Success will be measured by pre-and post-treatment transects and photo points.

1,000 linear feet of public roads with improved safety due to private lands fuel reduction adjacent to the road, to enhance Forest Service and Tri-County roadside projects.

500 linear feet of private roads and driveways with improved safety for egress, based on interest/need expressed by outreach respondents.

5 properties adjacent to public land installing conservation practices on their own land, and where cross-boundary work on the adjoining public land could be facilitated.

100 acres of fuel breaks installed. This category could overlap with the home safety and road safety success categories, but could also include property boundaries and other strategic areas.

## Monitoring

Practice installation will be closely monitored once commenced by NRCS and/or DNRC, to ensure standards and specifications are being met. Before and after inventories, transects and photo points will document improvements to the resources. NRCS will provide guidance for Operation and Maintenance once practices are completed, to ensure proper functioning for the life of the practice. The weed district will assist with monitoring weed infestations and provide guidance and advice for preventing expansion.

## Budget

A three-year budget (2022, 2023 & 2024) based on the FY21 HU EQIP costs for a total of \$677,016 is being requested. These figures are from the 39 interested landowner's requests for fuel break installations, timber thinning and weed control.

Practice	Prac. Status	Cost 2022	Cost 2023	Cost 2024
383-Fuel Break - \$940.57/ac.	Primary	40 ac. \$37,622.80	30 ac. \$28,217.10	30ac. \$28,217.10

666-Forest Stand Improvement \$660.25/ac.	Primary	135 ac. \$89,133.75	135 ac. \$89,133.75	130 ac. \$85,832.50
384-Woody Residue Treatment \$483.02/ac.	Primary	100 ac. \$48,302.00	150 ac. \$72,453.00	150 ac. \$72,453.00
315-Herbaceous Weed Treatment \$110.33/ac.	Primary	100 ac. \$11,033.00	200 ac. \$22,066.00	200 ac. \$22,066.00
660-Tree/Shrub Pruning \$352.43/ac.	Secondary	70 ac. \$24,670.10	70 ac. \$24,670.10	60 ac. \$21,145.80
	Totals:	\$210,761.65	\$236,539.95	\$229,714.40

### Ranking Questions

Is the proposed treatment area adjacent to or near any forest thinning or fuel reduction project (public or private land) in progress or completed in the last 5 years?

Immediately adjacent

Within ¼ mile

Over ¼ mile

Is the proposed treatment area immediately adjacent to an ingress/egress route to be used by residents for escape/first responder access?

Adjacent to primary/public road

Adjacent to a secondary/private road or driveway

Not adjacent to a road

Is the project adjacent to public land where cross boundary work would be possible and will be accommodated by the landowner?

Yes

No

Is the treatment area within, or within ¼ mile of the 1988 wildfire? (Warm Springs Creek Fire)

Yes

No

Does the application include weed control?

Yes

No

Is the treatment area in the Extreme or High fire hazard zone?

Extreme fire hazard zone

High fire hazard zone

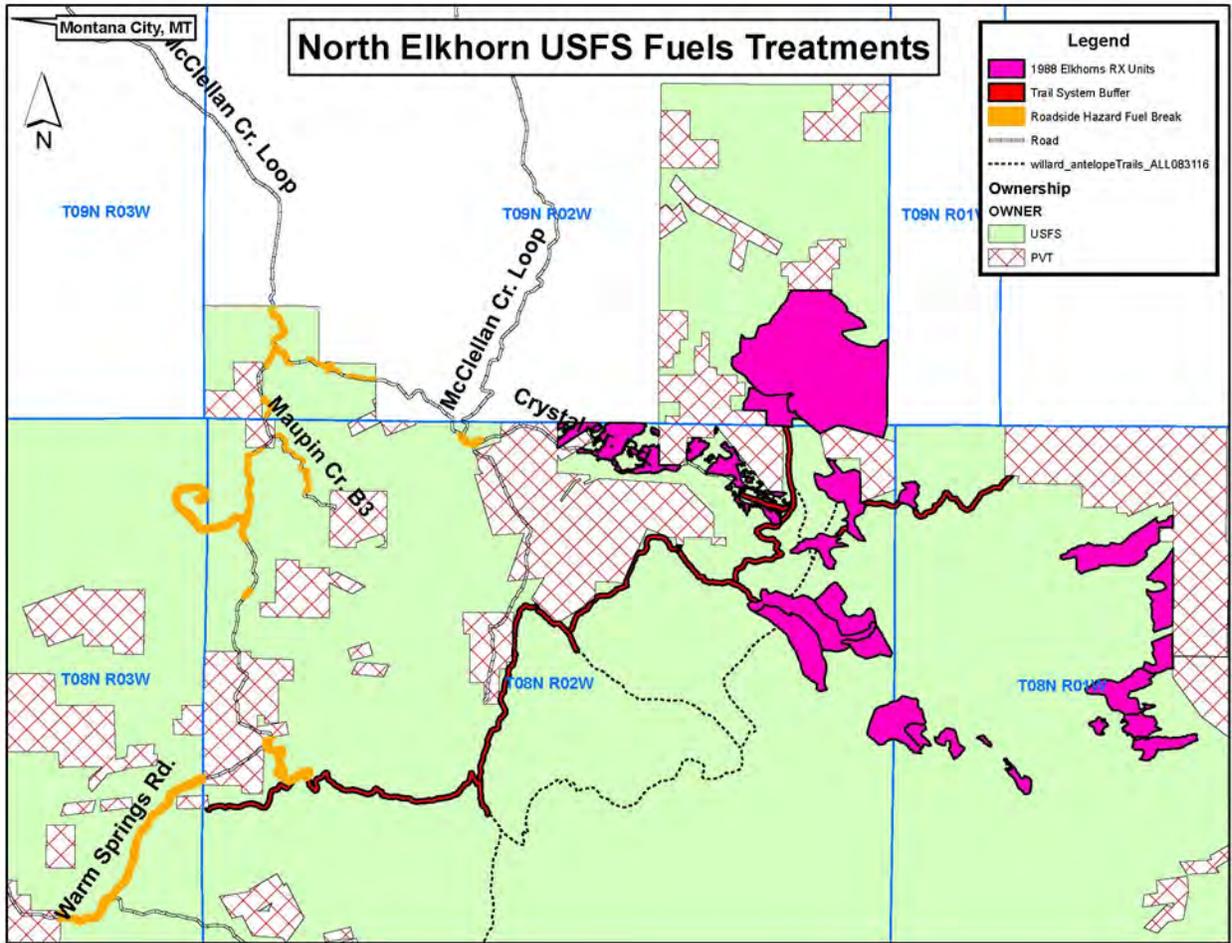
Medium or Low fire hazard zones

Should there be too many applicants, a screening tool will be used for application management.  
(Attachment F in Bulletin 300-19-23)

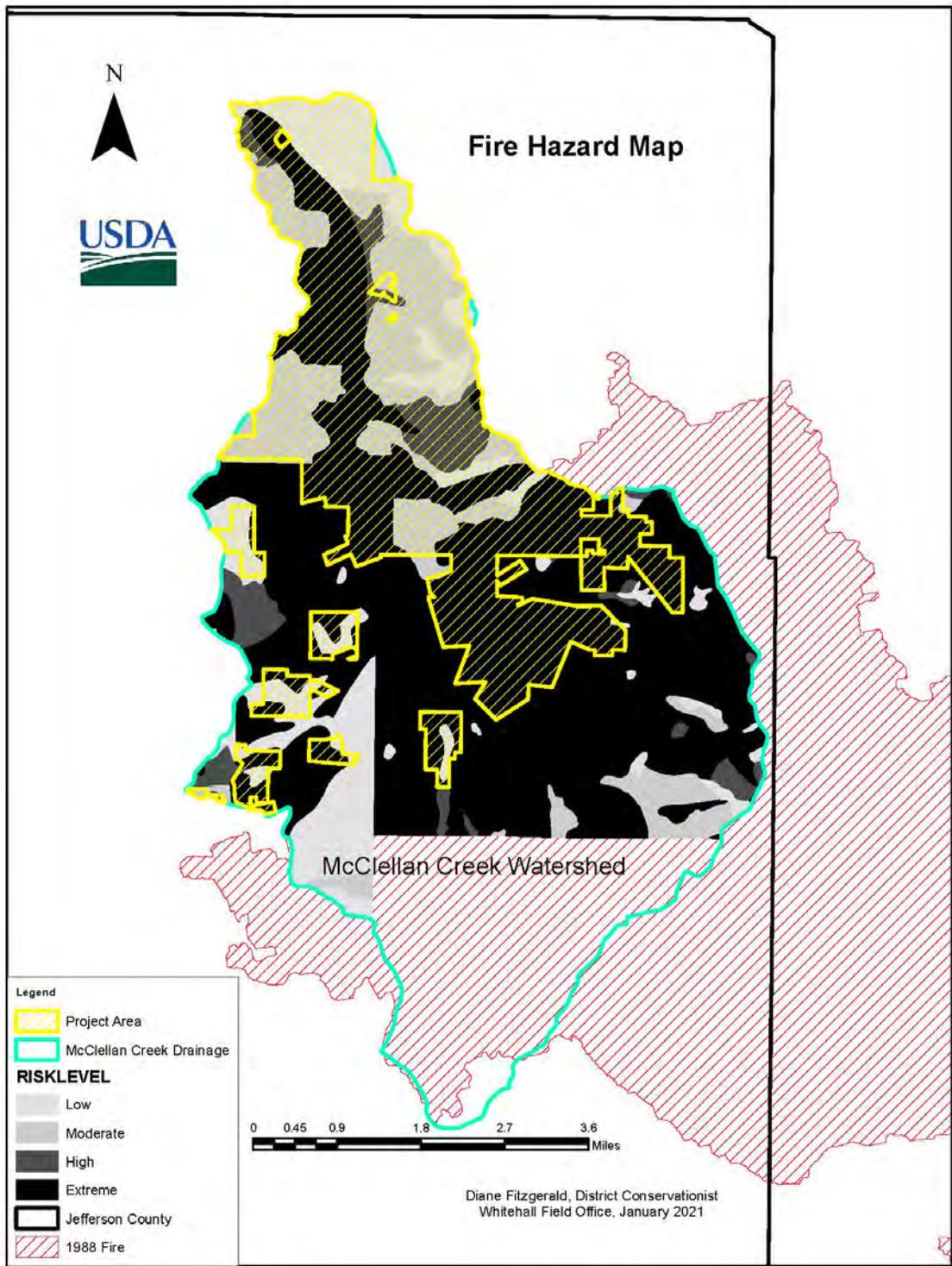
## Appendix

Forest Service project map

Fire Hazard in the McClellan Creek Watershed



Project map provided by Helena Ranger District



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