# **OPEECHE PARK – NORTH EKALAKA HILLS FUELS REDUCTION**

# **Targeted Implementation Plan**



Figure 1 - Woody draws below the rims in the North Ekalaka Hills

# Fiscal Year 2024

# Carter County, Montana

# USDA-NRCS, Ekalaka Field Office

Rebecca Knapp, District Conservationist with Mackenzie Park, Soil Con. Tech.

# **TIP Proposal – Fiscal Year 2024**

### **Summary**

Grazing land resources and wildfire resilience are local priorities in the Ekalaka NRCS Long Range Plan<sup>1</sup>.



Figure 2 - Overgrown ponderosa pine - Opeeche Park

As of 2023, the Opeeche Park – North Ekalaka Hills area is overgrown with ponderosa pine and to a lesser extent Rocky Mountain juniper. Due to successful fire suppression efforts, conifers are encroaching into sagebrush grasslands (steppe), woody draws, riparian areas. overflow sites. pastureland, hayland, farmstead, and associated ag lands. Native plants that evolved without extensive canopy cover are being shaded out, therefore cool season introduced grasses are invading. Ponderosa pine is so dense that it is difficult for livestock to graze the herbaceous understory. These conditions decrease the stocking capacity of the affected acres and lead to plant decadence. For wildlife, diversity of habitat structure and "edge" habitat is reduced. There is also an immense accumulation of fuel, priming the area for wildfire.

Moving forward, local stakeholders agree the landscape should be treated and shaped to facilitate prescribed fire management. Furthermore, they agree that planning and managing collaboratively across the mix of public and private ownership boundaries is essential. Long term, on a landscape level, managed fire and adaptive grazing management are key, post-management strategies for maintaining productive, fire resilient ponderosa pine savannas and sagebrush steppe.

The Opeeche Park – North Ekalaka Hills Targeted Implementation Plan (TIP) proposal seeks to address the following resource categories: degraded plant condition and fire management, which include the following resource concerns: plant structure and composition and wildfire hazard from biomass accumulation.

<sup>&</sup>lt;sup>1</sup> Ekalaka NRCS Long Range Plan – Section IV

Rangeland, pastureland, perennial cropland (hayland), farmstead and associated ag lands are the land uses impacted by conifer encroachment. The TIP signup periods would be fiscal years 2024, 2025 and 2026. As Environmental Quality Incentives Program (EQIP) applications are submitted, site-specific conservation plans will be developed with the assistance of a Montana Department of Natural Recourses and Conservation (DNRC) Forester, a partner forester or local/area NRCS staff. The plan document will identify treatment areas and provide a record of conservation practices and extents. Brush Management (314) and Woody Residue Treatment (384) will treat stands of encroaching conifers. Herbaceous Weed Control (315) and Critical Area Planting (342) will address post-treatment ground disturbance, noxious weed infestations and pine tree seedling reestablishment, as needed.

Estimated total cost to fully fund this TIP over a three-year period is \$1,500,000. Looking ahead, the Local Work Group (LWG) and the Carter County Conservation District (CCCD) wish to continue rotating conservation planning and funding around Carter County to treat similar resource concerns across the larger landscape.



Figure 3- Mill Iron Valley, looking south into OPeeche Park

## **Geographic Focus**

Throughout Carter County, isolated high areas rise out of the prairie and are delineated from the broader sagebrush steppe landscape. These areas are locally known as the Chalk Buttes, North and South Ekalaka Hills, Hammond, Ridge, Long Pines, Medicine Rocks, Mill Iron, Opeeche Park, and the Sheep Mountains. Management of this landscape interface has been prioritized by the LWG and the CCCD.



Figure 4 - Map of focal areas for fuels reduction TIPs

The described area is expansive in scope with mixed ownership. There is a significant United States Forest Service (USFS) presence, with the agency managing lands within the Chalk Buttes, Ekalaka Hills, and Long Pines. There are also Bureau of Land Management (BLM) and DNRC lands intertwined with private ownership. To focus

conservation, it is necessary to break this landscape into smaller areas where work can be accomplished within specific time frames.

The *Chalk Buttes* area was prioritized first for conservation planning and funding associated with Montana NRCS Focused Conservation - Targeted Implementation Plans (TIPs). That project was funded in Fiscal Year 2021. The *Sheep Mountains and Lower Long Pines* area was prioritized for a 2<sup>nd</sup> Carter County TIP proposal, which was funded for Fiscal Year 2023. The *Opeeche Park – N. Ekalaka Hills* area has been prioritized for a 3rd Carter County TIP proposal.



Figure 5 - Map of Opeeche-North Ekalaka Hills TIP

Opeeche Park and the North Ekalaka Hills are located east of Ekalaka. They are remnant islands of the Arikaree geologic formation. Opeeche Park was once an Old Civilian Conservation Corp camp and is now used for recreation. Abandoned homesteads left unique apple tree varieties scattered throughout this area, some even with no evidence of a homestead nearby.<sup>2</sup>



Figure 6 - Photo of Opeeche Park - Montana Memory Project



Figure 7 - Photo of a mixed age stand of ponderosa pine

The area is comprised of ponderosa pine savannah and sagebrush steppe interspersed with coulees, woody draws, and riparian areas. Ponderosa pine are the most abundant tree found in this area, along with Rocky Mountain juniper, green ash, boxelder, and quaking aspen. Many other shrub species coexist in treed areas. While most areas are not suited for silviculture, there are distinct pockets of ponderosa pine at higher elevations with more rainfall. These areas were mapped out long ago when the Forest Service was established and are currently managed for timber production by that agency.<sup>3</sup> The area has rare beauty, diverse and unique plant communities, abundant wildlife, and value for livestock grazing and public recreation. Presently, conifer encroachment is reducing the overall quality and productivity of this area.

<sup>&</sup>lt;sup>2</sup> Montana Memory Project – Opeeche Park

<sup>&</sup>lt;sup>3</sup> Kurt Hansen – District Ranger, Sioux Ranger District, Camp Crook SD

### Scope

Land ownership	Acres
Private Lands	97,620 acres
USFS Lands	7,620 acres
BLM Lands	6,614 acres
MT-DNRC	6,788 acres

There are approximately 116,642 acres in the TIP boundary.

Within the TIP area there are 66 private landowners. Geospatially, we are estimating 23,874 acres of conifer encroachment in the TIP area that are suited for treatment based on percent slope and accessibility. Of the 23,874 acres, approximately 15,746 acres are private and DNRC lands that could be treated with TIP funds. Of those acres, we anticipate treating 4700 acres of private and DNRC lands.

The USFS currently has NEPA in place to treat Forest Service lands intertwined with, and adjacent to, the focal area of this TIP proposal. <sup>4</sup> DNRC has received a fuels reduction grant for a larger area that would include Custer and Carter Counties. <sup>5</sup> The BLM is also working on fuels reduction projects in the general area.<sup>6</sup> Carter County is working with BLM to secure additional grant funding for fuels reduction projects in close proximity to existing infrastructure.

### **Resource Concerns**

The Opeeche Park – N. Ekalaka Hills Targeted Implementation Plan (TIP) proposal seeks to address plant structure and composition and wildfire hazard from biomass accumulation. These resource concerns were prioritized for conservation effort by the LWG and are outlined in the Ekalaka NRCS Long Range Plan (Pages 3 and 5 of Section IV).

Ponderosa pine dominates a landscape by developing closed canopies that restrict growth and production of the herbaceous understory. The historic fire regime, elevation, and the lower precipitation zone/s associated with Carter County once limited the tendency of ponderosa pine to



Figure 8 - Ponderosa pine

<sup>&</sup>lt;sup>4</sup>Kurt Hansen. District Ranger. Forest Service. Custer Gallatin National Forest. Sioux Ranger District

<sup>&</sup>lt;sup>5</sup> Andrew Miller. Forester. DNRC – Eastern Lands Office, Miles City, MT.

<sup>&</sup>lt;sup>6</sup> Paul Polley – BLM – Miles City Field Office, Miles City, MT

become a climax species and spread into adjacent sagebrush steppe. However, a local historian associates conifer encroachment with the linear increase in average annual precipitation since 1883. When graphed, the data indicates that average annual precipitation has increased from approximately 13 inches to greater than 15 inches. As 14 inches of precipitation is a minimum for ponderosa pine, it would seem logical



Figure 9 - Young ponderosa pine encroaching into a meadow

that the species is expanding in range.<sup>7</sup>

Following the drought of 1988, Carter County landowners noticed rapid expansion (encroachment) of conifer species, specifically ponderosa pine (*Pinus ponderosa*) and Rocky Mountain juniper (*Juniperus scopulorum*) in historically open meadows and sagebrush steppe.<sup>8</sup>

The rapid conifer encroachment and woody transition is quantified by the Rangeland Analysis Program (see figures 10 - 14). Note the changes between 1986 and present. USFS timber and fuel treatments are evident in 2021 imagery.







Figure 11 - 1996 tree cover in the TIP area

<sup>7</sup> Ned Summers

<sup>8</sup> Charles Parks



Figure 12 - 2006 tree cover in the TIP area



Figure 113 - 2021 tree cover in the TIP area



Figure 14 – Representation of amount of woody Transition 1990



Figure 15 – Representation of amount of woody transition 2020

In 2016, local landowners with operating units in this general area participated in an outreach event geared towards conifer encroachment and fuels reduction. Since that time, private landowners, the USFS, the DNRC and the BLM have expressed interest in managing conifer encroachment in the Opeeche Park – N. Ekalaka Hills. Aside from reduced stocking capacity, all parties are concerned about catastrophic fire.

Due to extensive fire suppression and fuel loading, the Opeeche Park – N. Ekalaka Hills are poised to burn.

Dense seedling and sapling densities threaten the integrity of the herbaceous understory, reduce forage production and forage availability and hamper fire management efforts. Downed timber, remnant of past fire events and storm damage, contributes to increased fuel loading and access issues. Within the TIP area, the largest recent fire was the named Big Sage and burned 56 acres in July of 2017. Two fires occurred in Opeeche Park, one in 2012 that burned both US Forest Service and private land. The other fire burned on private land in 2021.9



Figure 16 - 2021 Opeeche Fire – Kurt Hansen - FS

## **Goal** To shape productive, fire resilient landscapes.



Figure 17 - Ponderosa pine savannah - North Ekalaka Hills

<sup>&</sup>lt;sup>9</sup> Kurt Hansen. District Ranger. Forest Service. Custer Gallatin National Forest. Sioux Ranger District

## **Objectives**

- 1. Remove conifers encroaching into adjacent habitat (sagebrush-steppe, deciduous woody draw, riparian, or overflow sites) to restore the structure and composition of the native vegetation and promote diversity plant communities across the spectrum of the landscape.
- 2. Adequately thin and space ponderosa pine to improve the structure and composition of the native herbaceous understory, improving plant health and vigor, species diversity and forage production.
- 3. Shape the landscape for fire resilience.
  - Create defendable spaces by re-opening historic, interconnected meadows.
  - *Thin and space trees* for the purpose of enhancing fire management. In stands of well-spaced ponderosa, fires are more apt to stay on the ground and burn herbaceous vegetation vs. crowning.
  - Clear back from existing roads to create better access and escape routes.
  - Design survivable space adjacent to existing houses and outbuildings.
  - Manage fuel ladders by treating dog-hair pine thickets and trimming the lower branches on remaining trees.



Figure 18 - Before fuels reduction treatments



Figure 12 - After fuels reduction treatments

## Alternatives

<u>Alternative 1</u> – Comprehensive, RMS level conservating planning and contracting across all operating units in the TIP area. Treat all identified resource concerns.

<u>Alternative 2</u>– Selected Alternative. Targeted planning and contracting to treat 2 resource concerns. Mechanical treatment of ponderosa pine and juniper through NRCS Practice Brush Management (314) and Woody Residue Treatment (384) if prescribed. Herbaceous Weed Control (315) and Critical Area Planting (342) on acres where post-treatment disturbance is expected to be high and might warrant additional action.



Figure 20 - DNRC fuels reduction work in Carter County

<u>Alternative 3</u> – Management of ponderosa pine and Rocky Mountain juniper through NRCS practice 381 Silvopasture. Silvopasture was suggested for consideration for this TIP. After discussing this with our DNRC partner this alternative was not chosen. Practice 381 - Silvopasture requires at that the stand is maintained at 10% stocked. Based on DNRC's experience and the goals of this TIP, silvopasture was determined to not be a suitable alternative. At those treatment densities, the tree regeneration fills the site back in too quickly to easily maintain the treatment and forage production goals often remain unmet. Ponderosa pine stands in Eastern Montana are very dynamic; treatments vary from site to site, silvopasture standards do not currently allow for the flexibility that is needed to create desired future outcome of most sites.

<u>Alternative 4</u> – No Action. Forage production goals will remain unmet as conifers continue to expand and tree cover becomes denser. If no action is taken, the risk for catastrophic wildfire will continue to increase as fuels remain untreated.



Figure 21 - Dugan Fire aftermath – 10 years post fire - South Ekalaka Hills

**Selected Alternative:** Alternative 2: Specific resource concerns can be addressed in a cost-effective manner over a shorter period. The 314 base practice complements the work other agencies are performing in this area to address fuels reduction and conifer encroachment. <u>Compliance considerations</u> – Cultural resource assessments and NRCS-CPA-52's will be initiated prior to finalizing plans and contracts on private and DNRC lands. USFS will work through the NEPA process and its respective compliance considerations.

## Implementation

Outreach and Timeline: No formal outreach is necessary, as there is already welldocumented interest. The field office will reach out to the producer group in person, followed by a mailing. The batching periods will be in fiscal years 2024, 2025 and 2026. Implementation would begin in the fall of 2024. The most significant barrier to implementation seems to be weather. For example, fire danger in 2021 prevented crews from starting work in the Chalk Buttes.

**Conservation Planning:** After EQIP applications are submitted, applicants will work with DNRC staff to develop a conservation plans specific to their operating unit. The plans identify resource concerns, treatment areas, conservation practices and practice

extents. When the plan is complete, it is submitted along with a plan map to the local NRCS office. Note that planning work can also be completed prior to the TIP application period. DNRC can commence planning activities early if producers request assistance.

**Evaluation/Ranking:** Applications will be assessed and ranked within the TIP fund pool. Ranking questions have been developed to prioritize applications in the ranking process. Priority will be given to proposed projects...

- Adjacent to existing infrastructure
- Adjacent to USFS and/or DNRC priority treatment areas
- Adjacent to other private acres proposed for treatment

The Wildfire Hazard Potential Model developed by USFS will also be used to prioritize applications<sup>10</sup>.

Figure 22 - Wildfire Hazard Potential Model of the TIP area

Planning Staff: To this date, the DNRC Forester, Andrew Miller, has developed most of the conservation plans for Carter County producers. National Wild Turkey Federation (NWFT) has placed additional forestry/fuels staff positions in the Miles City Area Office. Field and Area NRCS staff will complete pre-treatment inventory, develop, and manage conservation contracts and follow up with monitoring.



<sup>&</sup>lt;sup>10</sup> USDA-USFS, Wildfire Risk to Communities website. https://wildfirerisk.org/explore/

**Funding/Contracting:** Through an EQIP contract, financial assistance will be available to help local producers implement the conservation practice extents identified in the conservation plans. The DNRC has received a grant for this treatment area and funds will be used in conjunction with NRCS funds to lessen the financial burden on the individual landowners. DNRC and NRCS have paired funding in other TIP areas, so there is an established funding format in place. If the producer utilizes DNRC funding, there are additional contract documents for them to sign specific to that agency's requirements. There are also funds available from Carter County that may be used to establish fire breaks and reduce fuels near existing infrastructure, for example, existing roads, buildings, radio towers, etc. The DNRC Forester will work with Carter County to effectively stamp out these areas, which would not be included in NRCS practice polygons.

### **TIP Practices:**

314 – Brush Management
384 – Woody Residue Treatment
315 – Herbaceous Weed Treatment
342 – Critical Area Planting

### Budget - Total Requested: \$1,500,000

**Examples:** This budget assumes that DNRC grant funding will be available to cover 384 (Woody Residue Treatment)

Practice	Practice Name	Cost per	Units	Estimated
Code		Unit	(Acres)	Cost
314	Brush Management	\$405.99	1000	\$405 <i>,</i> 990
384	Woody Residue Treatment	\$452.54	300	\$135,762
315	Herbaceous Weed Treatment	\$113.94	50	\$5,697.00
342	Critical Area Planting	\$145.44	5	\$727.20
			Total	\$548,176.20

#### 1000 acres

#### 500 acres

Practice	Practice Name	Cost per	Units	Estimated
Code		Unit	(Acres)	Cost
314	Brush Management	\$405.99	500	\$202,995.00
384	Woody Residue Treatment	\$452.54	150	\$67,881.00
315	Herbaceous Weed Treatment	\$113.94	50	\$5697.00
342	Critical Area Planting	\$145.44	20	\$2,908.80
			Total	\$279,481.80

#### 250 acres

Practice	Practice Name	Cost per	Units	Estimated Cost
Code		Unit	(Acres)	
314	Brush Management	\$405.99	200	\$81,198.00
384	Woody Residue Treatment	\$452.54	60	\$27,152.40
315	Herbaceous Weed Treatment	\$113.94	5	\$569.70
342	Critical Area Planting	\$145.44	1	\$145.44
			Total	\$109,065.54

### 50 acres

50 40.05				
Practice	Practice Name	Cost per	Units	Estimated Cost
Code		Unit	(Acres)	
314	Brush Management	\$405.99	50	\$20,299.50
315	Herbaceous Weed Treatment	\$113.94	1	\$113.94
342	Critical Area Planting	\$145.44	1	\$145.44
			Total	\$20,558.88

### **Budget Timeline (Scheduled Obligations):**

2024 – 2 contracts	2024 – 3contracts	2025–2 contracts	2026	2027
\$300,000	\$600 <i>,</i> 000	\$600,000		
			Total	\$1,500,000

### Partners

In 2019, the Carter County Conservation District and Ekalaka Field Office staff met with the Montana Department of Natural Resources and Conservation (DNRC) Forester, stationed at the Eastern Land Office - Miles City, MT, to discuss ponderosa pine management and potential state funding sources. DNRC's management and planning philosophies were communicated, example plans presented, and potential fund sources explained.

On July 22, 2020, there was a joint meeting between the CCCD, USFS, DNRC and NRCS. We discussed the Chalk Buttes TIP proposal and deliberated the future course of conifer encroachment management in Carter County. Since that time, the DNRC has received 2 grants for hazardous fuels reduction in the Chalk Buttes. With the first grant monies, the DNRC Forester established an area in the Chalk Buttes which will be used to demonstrate fuels mitigation and management of conifers to a larger audience. The second grant is being used in conjunction with NRCS funds to cost share brush

management in the Chalk Buttes TIP area. In 2023, DNRC secured an additional grant to fund fuels reduction projects in Custer and Carter Counties.<sup>11</sup>

To this date, the DNRC Forester has developed all management plans for producers in the current TIP areas. The Forester also provides technical assistance for implementation. NRCS is responsible for producer outreach, facilitating the release and sharing of base information for planning purposes, EQIP contracting and contract maintenance (payments, modifications, etc.).



Figure 23 - Quaking aspen in woody draws

The USFS continues to lend strong technical support to the TIP process. The agency is interested in partnering with this project, the idea being that NRCS could assist landowners with management of private acres and the Forest could Service then prioritize management on neighboring public acres, creating a greater, contiguous landscape level impact. The USFS is currently working on present and proposed tree thinning projects on USFA lands within the proposed TIP area. То this date, the following treatments have been completed in the TIP area: Timber Sales -1,711 acres, Thinning -282 acres, Mastication -

211 acres, Slash pile burning

– approx. 150 acres. Broadcast burning has been planned for a unit west of McNab pond but not implemented yet.<sup>12</sup>

<sup>&</sup>lt;sup>11</sup> Andrew Miller. Forester. DNRC – Eastern Lands Office, Miles City, MT.

<sup>&</sup>lt;sup>12</sup>Kurt Hansen. District Ranger. Forest Service. Custer Gallatin National Forest. Sioux Ranger District

In September of 2021 the Custer Gallatin Forest Announced the Ecotonal Habitat Restoration Project Decision, which is an opportunity for the agency to propose ecotonal work specific to woody draw regeneration and meadow restoration. This would facilitate fuels mitigation while simultaneously promoting the restoration of ecotonal habitats. The Forest Service is also working with DNRC and BLM. The District Ranger – Custer Gallatin National Forest - Sioux Ranger District - Camp Crook, SD, is the primary contact.<sup>13</sup>

National Wild Turkey Federation (NWTF) would consider partnering with USFS, DNRC, BLM to enhance deciduous draws. NWTF has also provided a partner forester that has been assigned to the Miles City NRCS Area Office.<sup>14</sup>

Presently there is tremendous local interest in the project. Landowners from other areas in the county are supportive as well and have inquired about beginning work on similar proposals.

PARTNER	CONTRIBUTIONS
CARTER COUNTY CONSERVATION DISTRICT (CCCD)	<ul> <li>Local Work Group</li> <li>Long Range Plan</li> <li>Project prioritization</li> <li>Local support</li> <li>Possible grant administration</li> </ul>
CARTER COUNTY	Fuels mitigation grant monies
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)	<ul> <li>Grant monies</li> <li>Boots on the ground for NRCS and possibly BLM and USFS</li> <li>Fuels mitigation expertise</li> <li>Conservation plans</li> </ul>
UNITED STATES FOREST SERVICE	<ul> <li>Ecotonal proposals on adjacent lands</li> <li>Existing NEPA, Existing projects on neighboring lands.</li> <li>Plan, treat and fund similar treatments on adjacent USFS acres.</li> </ul>
BUREAU OF LAND MANAGEMENT	<ul> <li>Fuels mitigation grants</li> <li>Plan, treat and fund similar treatments on contiguous BLM acreages.</li> </ul>
NATIONAL WILD TURKEY FEDERATION	<ul> <li>Potential fundraising, Partner Forester position in the Miles City Area NRCS Office.</li> </ul>

<sup>&</sup>lt;sup>13</sup>Kurt Hansen. District Ranger. Forest Service. Custer Gallatin National Forest. Sioux Ranger District

<sup>&</sup>lt;sup>14</sup> Collin Smith. Certified Wildlife Biologist, District Biologist. National Wild Turkey Federation. Livingston, MT

## Outcomes

Annually, catastrophic wildfire takes an incredible toll on Montana's resources. With that in mind, Carter County wishes to plan and manage the landscape comprehensively and collaboratively to improve plant structure and composition while managing fuels to reduce wildfire hazard.

Working together, we believe we can achieve the following....

- 1. Ponderosa pine savannahs comprised of healthy trees spaced at appropriate distance to create canopies conducive to the plant communities that evolved in this region.
- 2. Protection of biologically important segments of the landscape, threatened by conifer encroachment. For example, sagebrush-steppe, overflow sites, riparian areas, and woody draws.
- Productive and resilient herbaceous understories. Plant community structure, composition and production will closely resemble that described in the ecological site descriptions for MLRA 58A.
- 4. Fire resilient landscape. The Carter County landscape evolved with a frequent fire interval. However, fire suppression has created a landscape primed for catastrophic fire. Fuel treatment analysis platforms, such as STANDFIRE, demonstrate how fuels mitigation projects shape the landscape, reducing fuel loads and diminishing ladder fuels. We hope to use landscape level modeling in the future to assist with planning and analyzing fuel treatments.



Figure 24 - Panorama of the North Ekalaka Hills

**Evaluation of outcomes** - Monitoring plots will be established as needed to measure and evaluate outcomes. At a minimum, on each conservation management unit, monitoring transects will be established in key areas to measure the response of the herbaceous understory to ponderosa pine canopy reduction. The transects will measure ground cover, coniferous canopy cover, deciduous tree and shrub canopy cover, species composition of the herbaceous understory and forage production. The monitoring transects will serve to track the establishment of new ponderosa pine seedlings and aid decisions regarding further treatments that may be necessary to maintain meadows and fuel breaks long term.



Figure 13 - Inventory transect - Chalk Buttes - Photo by Angel Vega, Soil Conservationist, Ekalaka Field Office

Is the treatment area adjacent to existing infrastructure (residences, outbuildings, radio towers, roads, etc.)?

Yes

No

Are the offered acres adjacent to USFS or DNRC lands that are prioritized for treatment?

Yes

No

Are the offered acres adjacent to private acres also being considered for treatment?

Yes

No

What is the highest Wildfire Hazard Potential rating within the treatment area(s)?

High

Moderate

Low

Very Low