Alaska Department of Fish and Game Wildlife Restoration Grant

GRANT NUMBER: AKW-5

PROJECT TITLE: Habitat Enhancement for Wildlife

PERIOD OF PERFORMANCE: October 1, 2014 – September 30, 2019

PERFORMANCE YEAR: October 1, 2017 – September 30, 2018; year 4 of a 5-year grant

REPORT DUE DATE: December 3, 2018

PRINCIPAL INVESTIGATOR: Sue Rodman, Program Coordinator and Dan Thompson, Wildlife Biologist

COOPERATORS: Mary Jo Hill, Wildlife Biologist; Miles Spathelf, GIS Analyst; State Forestry; BLM Alaska Fire Service; Chugachmiut; USFWS Kenai National Wildlife Refuge

Authorities: 2 CFR 200.328 2 CFR 200.301 50 CFR 80.90

I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

OBJECTIVE 1: Develop local or regional plans to moderate environmentally-driven changes in moose populations through habitat enhancement; address both short and long-term options.

ADF&G staff continues to address local and regional interests in enhancing moose habitat with state and federal agency staff.

Matanuska & Susitna Valleys

Future habitat enhancement projects in the Matanuska Valley Moose Range should be paired with improved access to increase the value of these projects to hunters. This 1986 management plan would benefit from an update to provide for the means to conduct these paired projects in a thoughtfully planned manner that supports a long term vision for mechanical treatments and the potential for prescribed fire or wildland fire use. At this time, ADF&G is pausing on any further work to plan or implement projects in this Legislatively Designated Area because of the challenges to access. The Little Granite Prescribed Burn is on hold until a road use agreement is created with the local landowners.

ADF&G has been encouraged to pursue changing fire management options in this region, in addition to developing prescribed fire plans to use with natural ignitions, instead of pursuing more prescribed burns with planned ignitions. State Forestry is limited by capacity to support these operations, and the fire season overlaps so closely with the preferred burn window that implementation is limited by wildfire incidents in the region and the state. These two options allow for expanded use of wildfire when conditions allow for the protecting agencies (State Forestry in this area) to monitor a fire with minimal suppression effort.

The intention to improve forage quality and quantity in specified areas of the game management units in this area is productive and has useful outcomes for moose and hunters if we succeed. The challenges to implementation extend beyond the application of fire. Timber sales yield little useful biomass beyond firewood in this economic climate due to the limited forest products industry in the area, so slash would need to be managed to accommodate hardwood regeneration and wildfire mitigation. Opportunities for this method of treating forested areas are expected to increase with the advance of the recent spruce bark beetle epidemic. However, landscape level treatments to support moose populations at the scale needed for a biological response are still limited to fire; the expenses associated with mechanical treatments outside of timber sales exceed a feasible method to improve habitat. Small scale treatments are still meaningful to provide for improved habitat where access is available; hunting and viewing opportunities at specific locations are often productive for years after treatment.

Kenai Peninsula

The Kenai National Wildlife Refuge continues its support for implementation of the East Fork Prescribed Fire in 2019. That project is specific to AKW-16, but work on the Kenai originated under this grant. Further, agencies have completed the revision of the 5-year Kenai Peninsula All Lands All Hands Action Plan with ADF&G serving in a primary writing role for the past 12 months. That effort combines the interagency coordination and ADF&G work serving AKW-16 and AKW-23 - Project 24.0 Fire Management Planning. Aside from the 5-year approach to mitigating wildland fire and supporting habitat enhancement through the KP ALAH, building a short or long-term plan to implement habitat enhancement in this defined geographic area is very difficult due to the ownership patterns and land management objectives. Similar challenges exist on the Kenai Peninsula as do in the Matanuska and Susitna Valleys concerning implementation of prescribed fire and the overlap with wildfire season. Further, federal land ownership is the primary land base on which habitat enhancement could be conducted in GMUs 7, 15A, and 15B. The Chugach National Forest continues to plan and conduct projects that support habitat enhancement for moose independent of ADF&G. We support their use of mechanical treatments and prescribed fire in GMU 7, and continue to offer assistance if needed for garnering community support in Cooper Landing, Hope, and Moose Pass. ADF&G continues to serve on the KP Fuel Break Working Group to advance the Sterling Fuel Break, and intends to expand outreach to other borough and state lands where habitat treatments may provide small-scale benefits.

Delta

Multiple habitat enhancement projects are coordinated on the Delta Junction Bison Range to support forage and habitat for moose, bison, and grouse. The three programs coordinate

mechanical treatment and prescribed fire planning, implementation, and outreach. ADF&G is working to develop a longer range plan for enhancing habitat over time in selected areas. The goal of creating a mosaic of multiple aged hardwood stands across a unit of land can be accomplished, however the timeline to see these results over a 10-30 year scale exceeds the implementation period for any one project grant or area office. Implementation then occurs over a 3-5 year cycle in hopes that new funding will allow for continued treatments in another 5-10 years. Great potential yet exists for expanding moose habitat in the Delta Junction Bison Range, along with bison and grouse habitat; logistics are being addressed for several components of this plan: Section 106 review of the bison range to allow for a range of treatment options, burn plans approved by State Forestry, long term funding to implement projects, and continued coordination with State Forestry to conduct operations with assistance from their staff and equipment. Defining the management objectives and treatment plans still needs to be completed for species aside from bison.

Alphabet Hills

Coordination continues in the planning of the Alphabet Hills prescribed burn between ADF&G, BLM, and DNR. Involvement from the State Office of History and Archeology has expanded the opportunity to conduct cultural review reconnaissance to take advantage of the visibility of the land forms immediately after the burn. The BLM Glennallen Field Office staff has been involved in the helicopter reconnaissance and resource review of this project in advance of their support of the Environmental Assessment for the federal lands within the Project Area. The BLM Alaska Fire Service staff has supported the development of an agreement between our agencies so that ADF&G can exchange funds in return for specific expertise regarding the burn prescription, fire effects monitoring, and capacity to conduct the operation.

Summary

This program is challenging the way we think about using fire to enhance habitat. Since landscape level change to improve moose habitat involves the risk associated with fire, agency staff and management must agree on the level of acceptable risk, costs to implement these projects, and the expected benefits to ecological processes, wildlife populations, and hunting and viewing opportunities. We are collectively challenged with the amount of effort and money required to conduct large scale projects as it creates the paradox associated with allowing fire to burn on the landscape without suppression. One potential solution is to use the concept of prescribed natural fire: plan a prescribed fire with its associated delineation of the project area, thresholds for managing risk and escape, and weather conditions. In this way, a natural ignition can be managed with parameters defined in an agency-approved prescribed fire plan. Costs for implementation are substantially reduced, but fire suppression agencies continue to monitor and plan for suppression, as needed. Applying this concept to areas in the Limited and Full fire management options still leaves protecting agencies vulnerable, and they do not always have the opportunity to allow fire to burn. Other fire activity in the state must be balanced with seasonal climatic forecasts to limit the late-season spread of a seemingly quiet or remote fire. Ubiquitous across all agencies involved in fire management is that capacity in Alaska is very limited. Personnel in fire suppression and management has declined in recent years, and maintaining appropriate qualifications to implement these types of operations is often very difficult to achieve.

Further complicating our ability to manage for quality habitat and forage is the current expansion of the spruce bark beetle epidemic across Southcentral Alaska. With a new wave of dead trees radiating across the Matanuska and Susitna Valleys, with beetles reaching again into the Kenai Peninsula, attention toward fire management has gained watchful eyes as the lessons from recent decades are not forgotten. Optimistically, partnering habitat enhancement with wildfire mitigation in the newly affected mortality from spruce beetles may be an opportunity for multiple scales of forest management to harvest biomass while encouraging hardwood regeneration. With the advent of the Mat-Su All Lands All Hands group addressing this epidemic, coordination among existing programs may serve these multiple objectives. This group convened in November 2018 and is scheduled to continue meeting this winter.

OBJECTIVE 2: Improve habitat quality for moose populations by increasing quality and quantity of forage, especially during winter.

2018 was the second year of prescribed burning on the Delta Junction Bison Range and the first year of roller chopping. While these were the only treatments on the ground for this grant's period of performance, substantial planning and interagency communication has occurred to prepare for the Alphabet Hills (AKW-5) and East Fork (AKW-16) prescribed fires. Bison range and Tok projects have more monitoring now than in past years with respect to fire effects and biological response, respectively. Final monitoring needs to be done on the Tok treatment sites in the next year.

Through efforts funded by AKW-27 24.0 Fire Management Planning, ADF&G is trying to gain more connectivity with fire management to also accomplish this objective. In the coming years, ADF&G seeks to strengthen our partnership with fire planners from both DNR and BLM to increase the use of fire in areas where habitat is limiting when natural ignitions occur.

OBJECTIVE 3: Develop partnerships with local, state and federal entities to leverage treatment prescriptions with other land management objectives and actions.

State Forestry's Stewardship program is fully integrating wildlife habitat into its forest management plans on the Kenai Peninsula. Reducing fuels is also a component to these plans that support private forest management. As planning continues for the Alphabet Hills prescribed fire, wildlife habitat is certainly the primary objective for that project. However, the research potential for fire behavior in this location will benefit the National Park Service, DNR, and the BLM with respect to vegetation response, smoke management, and fuel mitigation in this cover type. Further, the US Forest Service is working to complete a Quantitative Wildfire Risk Assessment in this area that extends from the Kenai Peninsula and Mat-Su Valleys where the spruce beetle epidemic is rapidly expanding east and north.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

This report represents the Year 4 of a 5-year project that is designated to end June 30, 2019.

Job/Activity 1: Kenai Peninsula – GMU 15

Proposed Actions

- Develop prescribed burn plans in 15A to support the use of wildland fire and prescribed fire in cooperation with the Refuge and State Forestry. Expand and update existing burn plans where applicable.
- Use existing Community Wildfire Protection Plans to plan additional shaded fuel breaks and fire breaks that could support expanded use of fire.
- Identify treatment prescriptions that support fire mitigation and habitat enhancement.
- Continue to coordinate with State Forestry to incorporate habitat enhancement tactics into timber sales.

Accomplishments

Activities and planning conducted for the Kenai Peninsula is reported under the AKW-16 federal aid project. This section provides a brief summary to connect the two projects, since GMU 15 projects originated under AKW-5.

Regarding the Sterling fuel break, work continued on behalf of the Kenai National Wildlife Refuge and Chugachmiut. KNWR masticated additional acreage on Refuge lands east of the Swanson River Road, while Chugachmiut's Yukon Fire Crew treated 17 acres (updated as of 10/26/18) of land owned by the Kenai Natives Association on the west side of the Swanson River Road.

The proposed sites for extending this fuel break west and north are still under consideration. However, the KP Fuel Break Working Group will be deciding on an action plan in December 2018. Concepts that are likely to evolve as action items include Chugachmiut working with Salamatof Native Village Corporation, and securing a continuous fuel break with an anchor at Marathon Road. ADF&G supports these concepts to ensure that the objective of building the fuel break has the greatest likelihood of supporting the use of fire in the case of a natural ignition.

ADF&G staff continue to coordinate with KNWR fire staff in planning for monitoring and implementation of the East Fork prescribed fire, which could be executed as soon as 2019.

ADF&G supported the KP All Lands All Hands group in revising the 5-year action plan. The Kenai Peninsula Borough received a grant and will initiate revisions for the Community Wildfire Protection Plans across the Kenai Peninsula in winter 2018/2019.

After the 2014 Funny River Fire, ADF&G initiated a research project to assess how moose respond to a large-scale fire on the Kenai Peninsula. A short term, 4-year fine scale movement project was initiated in collaboration with the Kenai National Wildlife Refuge. The objective of this project was to compare adult female moose attributes between early and late seral habitats, specifically: 1) fine scale habitat selection; 2) home range size and activity level; 3) body

condition; and 4) productivity. We deployed 50 GPS collars on adult female moose between November 2014 and March 2016 in GMU 15B (Funny River Fire footprint) and GMU 15A (old growth boreal forest). GPS collars collected moose locations every 30 minutes. Additionally, most collared moose were repeatedly captured every autumn and spring to assess body condition and collect blood samples for pregnancy status. All moose were surveyed in May/June to determine parturition and twinning status. All GPS collars were recovered as of March 2018 and data is currently being processed to address objectives #1 and #2. Furthermore, an updated Kenai Vegetation Map (reported under AKW-16) is in the final stages and will be used to complete objective #1. We used rump fat thickness as a metric for body condition to assess objective #3. We did not detect a difference in body condition between moose in the fire footprint versus old seral habitat from autumn of 2014 through autumn of 2018 (t > -1.85, P >0.080); however, mean rump fat thickness in March 2018 was lower ($t_{18} = -3.24$, P = 0.004) in GMU 15A (1.0 cm \pm 0.5 SD) than GMU 15B (1.8 cm \pm 0.5 SD). Further analysis using mixed model regression accounting for differences in individuals (i.e. lactation status during the prior summer) may reveal differences between GMUs 15A and B that were not detected with a simple t-test. We used three metrics to evaluate productivity for objective #4: pregnancy rate, parturition rate, and twinning rate. 4-year mean pregnancy rates were higher, but not statistically different $(t_6 = -1.8162, P = 0.119)$ in GMU 15B (86% ± 6.1%) than GMU 15A (79% ± 6.1%). Likewise, 4-year mean twinning rates were higher, but not statistically different ($t_6 = -2.24$, P = 0.066) in GMU 15B (53% \pm 5.3%) than GMU 15A (42% \pm 8.3%). 4-year mean parturition rates were the same between each unit (73%; $t_6 = -0.22$, P = 0.835). Body condition and productivity metrics will also be used when analyzing the GPS location data to determine if animal attributes influence their habitat selection.

State Forestry timber sales sometimes support habitat enhancement where forest cover types can be converted to hardwood such as firewood cuts. Hazardous fuel reduction treatments can also contribute to improved habitat quality for birds and small game. Contracts specify site preparation in some harvest units to ensure compliance with reforestation regulations; this work simultaneously supports hardwood regeneration that benefits moose and grouse.

Job/Activity 2: Matanuska – Susitna Drainages – GMU 14 (subunits A and B)

Proposed actions:

- Develop prescribed burn plans in 14A, defining 100 to 500 acre units across the Matanuska Valley Moose Range and other areas. Accompanying timber sales or mechanical manipulation may be an option where residual stands of aspen occur.
- Consider opportunities to combine habitat enhancement with wildland urban interface fire mitigation where appropriate conditions exist.
- Continue to coordinate with State Forestry to incorporate habitat enhancement tactics into timber sales. Site scarification and thinning treatments can often be adjusted to further support regeneration or germination of hardwood species.

Accomplishments:

ADF&G coordinated again with State Forestry to implement the Little Granite Creek prescribed burn in May 2018. The landowners who provide access to this site prohibited the operation until we establish a road use agreement with repair costs attributable to ADF&G. While this project is still under consideration, ADF&G recognizes that the management plan for the Matanuska Valley Moose Range is overdue for a revision. Further, access into the Moose Range is limited with respect to the arrangement of private lands and the roads and trails that connect the Glenn Highway to this state conservation area. It may better serve the public lands of the Moose Range and the residents in this area to update the management plan so that access is integrated into any future development which would increase the value of habitat enhancement projects conducted here. While DNR Division of Mining, Land, and Water is the lead for initiating and completing this management plan, they have confirmed their limited capacity to take action at this time. In the interim, ADF&G will seek to reconcile the effort made on this project to date by coordinating with the local landowners with respect to their road and vision of the habitat enhancement that they have supported for many years.

ADF&G will be working in the coming year to evaluate fire management options across the Game Management Units in the Matanuska and Susitna Valleys to encourage the use of fire where appropriate, and stimulate hardwood regeneration to expand moose habitat. Additionally, ADF&G staff is looking into Special Areas and their respective management plans that might better accommodate fire.

With the expansion of the spruce beetle epidemic in the Mat Su Borough, ADF&G is communicating with State Forestry and other agencies to determine whether increased harvest of trees will benefit specific areas, and if the treatments are feasible. A common concern with spruce mortality in this context is the invasion of Calamagrostis spp. grass which severely outcompetes any regeneration of trees and shrubs that might otherwise return the site to a forest; this phase is generally temporary, lasting approximately 5-10 years. Without scarification in these canopy openings, hardwoods have very little chance of establishment. ADF&G is participating in interagency meetings to encourage tactics that may benefit wildlife during forest and fire management activities.

Job/Activity 3: Susitna River Area – GMU 16

Proposed Actions

- Expand prescribed burn plans in 16A. The 1994 Trapper Lake prescribed burn plan did experience a wildland fire in 2007, consuming approximately 10,000 of the planned 18,000 acres. Additional burn plans in this area can be prepared in cooperation with State Forestry to support more management of fire for habitat in 16A. We also will review opportunities for fire use in 16B.
- Change fire management options in 16B to "limited" protection to allow more wildland fire to burn when it does ignite. Where fuel types and terrain features are appropriate with respect to land ownerships and merchantable timber, much of the "full" protection area can be converted to "modified" or "limited."

• Continue to coordinate with State Forestry to incorporate habitat enhancement tactics into timber sales. Site scarification and thinning treatments can often be adjusted to further support regeneration or germination of hardwood species.

Accomplishments

As noted in the 2017 report, the South Trapper Lake prescribed burn is still planned for the future, but is still on hold. State Forestry is supportive of changing fire management options in this area to support further use of natural ignitions; they did complete one change for state land to limited. Limited timber sales have been available in this area through State Forestry, and Borough sales went on hold last summer due to embargos on timber exports to China. Using timber management to support habitat enhancement has limited applicability until new opportunities become available, which may occur with the response to the spruce bark beetle epidemic mentioned above.

Job/Activity 4: Nelchina & Upper Susitna – GMU 13

Proposed Actions

- Update the Alphabet Hills prescribed burn plan and prepare for implementation when conditions again provide for ignition.
- Develop additional burn plans as appropriate in 13B and 13A in coordination with State Forestry.
- Explore opportunities to apply mechanical vegetation treatments in moose wintering areas along the highway corridor, south of Glennallen.

Accomplishments

DNR updated the Alphabet Hills burn plan and ADF&G staff are completing revisions to the new NWCG template. We conducted field reconnaissance in July 2018 in cooperation with BLM and DNR staff to assess resources and implementation opportunities. BLM began the cultural resource review for the Gulkana Wild and Scenic River corridor; DNR OHA is also partner to this review as most of the lands in the burn units are state owned. ADF&G is working with BLM staff to develop a cooperative agreement to use federal resources to support the project. The fire ecologist and fire behavior analyst from BLM's Alaska Fire Service are assisting with vegetation and fire effects monitoring before, during and after the burn, in addition to writing the prescription for the burn, respectively.

Field work for the accompanying moose nutritional study began in summer 2018. Vegetation and prefire effects monitoring will occur in summer 2019.

Job/Activity 5: Delta Area - GMU 20D

Proposed Action

• Explore opportunities to apply mechanical vegetation treatments near the Delta Junction Bison Range to expand forage opportunities for moose, dispersing them

away from bison late summer range in and near the two field complexes. Treatments are intended to stimulate regeneration of aspen and other hardwood species preferred by moose.

Accomplishments

ADF&G again partnered with State Forestry to conduct prescribed fires on the Delta Junction Bison Range in May 2018 burning 372 acres: 138 acres in the Gerstle field complex and 234 acres in the Panoramic field complex. These burns effectively re-set the successional trajectory of hardwood regeneration in the fields, stimulating root suckering of willow and aspen.

Vegetation sampling was done in these fields in August 2018 to compare composition of grass and shrubs from pre-fire conditions in 2015 and 2017. Panels burned in the spring regenerated to aspen, birch, fireweed, willow, and grass: a nutritious mix of moose forage species.

The grouse habitat enhancement project began in fall 2017. Approximately 80 acres of aspen were roller chopped between the two field complexes and along the Bison Trail. This operation was continued in the Gerstle Field to enhance moose habitat on 70 acres around Unit 4 to initiate type conversion from spruce to hardwood. This treatment is a test area and will likely be burned in 2019 or 2020 to consume the biomass and duff layer in support of hardwood regeneration. Bison habitat was enhanced at the southeast corner of the Gerstle complex in Unit K, where aspen wind rows and aspen regeneration filled in the cleared margins.

Clarification is needed for the proposed action in this area. There is no notable conflict between moose and bison on the Bison Range, nor is there a conflict between hunters for those two species as the seasons do not overlap. Habitat enhancement for bison and moose conducted through prescribed burning occurs in the field complexes and encourages plant regeneration that supports both species.

Job/Activity 5: Tok Area – GMU 12

Proposed Actions

- Coordinate with State Division of Forestry to apply mechanical vegetation treatments (e.g. roller-chopping) on state land within the 1990 Tok River burn near Tok to promote regeneration of quaking aspen. These treatments will supplement work being funded by the Ruffed Grouse Society of South Central Alaska.
- Mechanically crush riparian areas dominated by willow within the lower Tok River valley to stimulate sprouting of new leaders.

Accomplishments

In previously treated areas, State Forestry used a small dozer to clear trails in and between the roller chopped units to provide for improved hunter access. The kiosk with poster and map were completed for this project and will be installed in spring 2019. After consideration to treat

additional acreage along the Tok River, we concurred with the Tok Area biologist that access was poor and would not increase hunt opportunities in that area.

To complete the vegetation monitoring component, we plan to conduct one more field session to evaluate the vegetative response of aspen after the three seasons of roller chopping. These metrics will be compiled with the moose pellet transects completed by the Tok area staff to evaluate moose use of these sites.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

As noted above, ADF&G is considering best practices that will fulfill this project's objectives in the Matanuska and Susitna Valleys where challenges have occurred with land owners and State Forestry capacity.

IV. PUBLICATIONS

Attached are copies of press releases issued by ADF&G and BLM as our projects were running simultaneously in Delta. Additionally, ADF&G posted a flyer around Delta to notify residents of the prescribed burn operation. An article in the Alaska Fish & Wildlife News tells the story of the burn operations as they relate to management of the bison range for all wildlife. Also attached is the 2017 article in the Delta Wind that we located for this report; the 2018 article is not available at this time.

V. RECOMMENDATIONS FOR THIS PROJECT

As ADF&G is attempting to implement prescribed fires through interagency coordination involving all of the requirements for skilled capacity, agency support, community support, weather conditions aligning with the current fire situation, and appropriate risk analysis and acceptance, we are addressing the challenges associated with these projects in each of the respective geographic areas and levels of complexity. Considering progress to date, and plans outstanding for implementation, ADF&G expects to submit an extension request in the coming months that will extend the expiration date to September 30, 2021. The defined time table and operational plan will be submitted as well.

Prepared by: Sue Rodman & Dan Thompson

Date: December 6, 2018

Prescribed Fire Burning to occur in late April through May 2018 on the Delta Junction Bison Range

The Alaska Department of Fish and Game in partnership with State Forestry is planning to burn the Gerstle and Panoramic fields in late April through May 2018. Crews may burn in 2-4 day periods during the spring.

The intent of using prescribed fire is to enhance habitat for bison, moose and grouse. With improved grass production in the fields, bison may be more attracted to this area in fall and winter, yielding a benefit to both hunters and farmers.



For more information contact:

Project coordinator Sue Rodman 907-317-7236 sue.rodman@alaska.gov

Or Delta State Forestry: 907-895-2107

There may be smoke in the area between mile posts 1393 and 1408. Signs will be posted on the highway at the location of the burn.





Prescribed fire was designated as a management tool for the Delta Junction Bison Range in the 1979 legislation establishing the range and in the 2012 Interim Management Plan. Burning has been conducted in the fields over the past decades and used infrequently in recent years.



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PRESS RELEASE For Immediate Release: April 17, 2018

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Prescribed Burns Scheduled to Improve Delta Junction State Bison Range Wildlife Habitat

(Delta Junction) – A series of prescribed burns is scheduled for portions of the Delta Junction State Bison Range this spring to enhance habitat for wildlife ranging from birds to bison. Planned for the Gerstle and Panoramic fields after they are snow-free – likely between April 30, and mid-May – burn timing will be based on weather and availability of Forestry staff to monitor the fire.

The burns will comprise approximately 1,200 acres and include a variety of vegetation types. To provide multiple successional stages of plants and maximize benefits to wildlife, plans include an uneven burn over previously cleared areas ranging from grasses to mature hardwoods. Bison, moose, grouse, snowshoe hare, and many other species depend on various stages of succession for food and cover.

The Delta Junction Bison Range was created by the Alaska Legislature in 1979 to perpetuate free-ranging bison. It encompasses nearly 90,000 acres north of the Granite Mountains between Granite Creek and the Little Gerstle River. Prescribed fire has been used for habitat management throughout the history of the Delta Bison Range and is the most effective method for creating and enhancing forage for bison as mandated by statute.

The Department of Fish and Game and Division of Forestry last spring burned approximately 800 acres in the northern half of the Panoramic Field Complex. Updates on plans for the prescribed burns will be forthcoming as specific dates are scheduled.

For more information check <u>http://akfireinfo.com</u> or contact Sue Rodman at (907) 317-7236, <u>sue.rodman@alaska.gov</u>, or Bob Schmidt at (907) 895-7491, <u>bob.schmidt@alaska.gov</u>.

Prescribed Burn on the Delta Junction Bison Range

By Sue Rodman



Author Sue Rodman with a drip torch. Flame length is an important consideration with prescribed burning. Photo by Tim Mowry

Hats turned on backwards and sunglasses on, Mary Jo Hill, Gabe

Pease-Madore and Sue Rodman drove their ATV's into the Panoramic Fields of the Delta Junction Bison Range in early May to evaluate fuel moisture and site conditions for the upcoming planned prescribed fire. Taking place about two and a half weeks later than the 2017 burn, staff from ADF&G and State Forestry hoped that the recent winds and warm temperatures would have dried out the fields enough to ignite portions of the DJBR for continued habitat enhancement.

On April 22-23, 2017, staff from both state agencies and the BLM burned about 800 acres in the northern portion of the Panoramic Field Complex. Winter left early that year and the grasses readily carried fire. The result was good consumption of the grass mat which stimulated fresh regeneration of grass for bison. Additionally, crews burned several brush fields where aspen and willow had taken over places where grasses had grown in the past. This natural succession of the vegetation is common in many of the 'panels' across both the Panoramic and Gerstle field complexes.

Since the fields were originally cleared in the mid-1980s, managers of the bison range have had the continued challenge to maintain grasses for bison grazing. Mowing, tilling, planting, and prescribed fire are all tools employed then and now to promote grasses as the primary vegetative cover. Over time, some panels, or acreages of tilled land between tree rows, have grown in faster than range managers could keep up. In some of these panels, aspen trees have grown up to heights of 8-30 feet. Where the saplings are still of small diameter, Clint Cooper, wildlife biologist and manager of the bison range, has used a mower or brush hog to cut these trees back to short stobs.

As these panels within the field complexes have matured over time, bison range managers acknowledged that not all panels would serve the grazing needs of bison. Rather, moose and grouse also benefit from this mosaic cover type. While spruce forests dominate the landscape, past fires and range management activities have given way to variable aged aspen stands with substantial willow ingrowth. In order to maintain age diversity of the aspen, in past years, and again over the last winter of 2017-2018, staff from State Forestry have roller chopped aspen stands where trees are 25-30 feet tall with 3-5 inch diameters. With this mechanical operation, the trees are sheared off at the base by the bulldozer blade, and then cut into 18-inch segments when the glycol-weighted roller chopper drum rolls over the downed stems. Killing the aspen in this way sends a message to the common root system of this tree organism that new shoots should be sent up. By the following summer, hundreds of aspen stems cover the ground where their predecessors lay providing nutrients back to the soil. Resetting the successional advancement of these aspen stands in this way provides fresh new shoots of aspen for moose to browse where the older trees had grown out of their reach.



The White Mountain crew briefing. The participation of the crew vastly improved the scope of the burn. Photo by Tim Mowry.

Walking through these panels of grass, mowed brush, and tall brush, we find many willow and aspen have been browsed by moose. The variety of plants here provide a nutritious and plentiful palette of food that is browsed only moderately by the moose. Hare browse is very common across this area. We can see many plants that have been sheared diagonally by their sharp front teeth about 16 inches from the ground. And we are surprised by a few sharptailed grouse that hastily flee as we approach.

The bison range manager spends many hours every year tilling, planting, fertilizing and mowing at the bison range, in order to produce as much high quality bison forage as possible. Annual crops such as oats and turnips are planted each year, and high quality perennial forage grasses such as Kentucky bluegrass are planted, fertilized, and maintained. This work is done in support of the 2012 Delta Bison Range Interim Management Plan. The plan directs ADF&G to 'reduce bison conflicts with agriculture primarily by managing DJBR to attract bison away from agricultural lands...' With one range manager and a set budget, Cooper's time must be carefully scheduled to till, plant, and fertilize enough acres to keep the bison occupied before and during the barley harvest in the private agricultural fields to the north.

In the past, as willow and aspen saplings encroached into the cleared panels, prescribed fire was used to set back the invading woody species. However, times changed and new requirements were implemented for fire managers to conduct these operations. The use of fire was abandoned for a number of years on the bison range, and it was difficult for the range manager to keep up with the invading brush. When time allows, Cooper does mow regenerating aspen and willow. However, we are learning that the cost of mowing may be offset by prescribed fire. Determining factors include acreage burned per year, number of firefighters used to run the operation, and the extent of 'mop-up' needed to ensure that any smoldering piles of wood are extinguished before fire season starts in Delta Junction.



Sue Rodman strategizing with White Mountain crew cheif Owen Smith. Photo by Tim Mowry

To comply with the standards set at the national level by the National Wildfire Coordinating Group, State Forestry and the Alaska Department of Fish & Game set out to reinstitute fire on the Delta Junction Bison Range in 2017. A prescribed fire burn plan was written and technically reviewed per these national standards. This effort also included compliance with the Department of Environmental Conservation's Open Burn Approval permit. ADF&G must follow the State's Air Quality Control Regulations and Enhanced Smoke Management Plan to implement prescribed fire. State Forestry is the agency lead for conducting the burns and provides qualified staff to run the operation.

Burning the Fields

Back in the fields on May 8th, 2018, Gabe, Mary Jo, and Sue spent several hours testing the fuel moisture of the fire's carrier: grass. Between the tree rows, the wind swept up the silty soil into our teeth. The dryness of the site was only surface deep though, just under the leaves and dead grass, the soil was wet and stuck to our fingers as the snow had just melted a week prior. With leaves yet to unfurl from the trees, and this year's fresh grass only a centimeter tall hiding under last year's dead matt, the small herd of bison ahead of us were interested in finding fresh food. They looked back at us with mild curiosity, but then trotted away with their red calves and seemingly happy attitude this beautiful spring day.

With the weather forecast for the next few days promising warm temperatures, moderate humidity, and wind, the three agreed that ignition should be successful for Wednesday, May 9th. Logistic preparations were in full swing

as we filled drip torches with fuel and prepared the briefing packet for the crew.

With the staff from the Delta Junction State Forestry office leading the operation, Gabe Pease-Madore served as the burn boss. Borrowed from Fairbanks, the White Mountain Type 2 Initial Attack Fire Crew provided 20 firefighters to put fire on the ground with drip torches in the Panoramic Field. From ADF&G, Sue Rodman and Mary Jo Hill also lit the burn and monitored fire effects to ensure that fire severity was sufficient to 'top kill' the aspen and willow.



The aftermath of the prescribed burn. Tim Mowry photo.

At 67 degrees F, 15% RH, and SE winds at 7-9 mph with gusts to 16, the ignition began. The first panel consisted of 3-6 foot tall aspen and willow with patches of grass. The winds were necessary to help fire move through the leaf litter under the saplings. With little grass to carry the fire, it would not burn independently without repeated ignitions in strips throughout the panel. This meant that a perimeter ignition was insufficient to burn the unit. Only with the help of the White Mountain crew was this operation successful. We needed to apply fire to the ground every 20-40 yards in strips across each panel to create enough heat for fire to continue burning. With two burn bosses at the helm, six firefighters 'holding' at the far end of the unit, and 16 firefighters igniting multiple panels at once, we were able to burn 224 acres in the first afternoon.

An additional 66 acres were burned that first day by the local fire departments from Rural Deltana and Ft. Greely as they participated in a wildfire scenario hosted by Mike Goyette, Fire Management Officer for State Forestry in Delta Junction.

As a milestone event, these same firefighters brought fire to the Gerstle Field Complex on Thursday, May 10th. The last use of prescribed fire in this field is unknown as moisture is high and running fire here takes so much effort. Once again, the White Mountain crew and ADF&G staff assessed conditions and determined that weather and fuel conditions were within the burn plan's set prescription.

At 70 degrees F and 23% relative humidity, the fire was ignited with a 7 mph wind from the south. Initially, this fire behaved similar to the previous day's burn in the Panoramic field: fire carried well in the grass and slowed in the leaf litter where aspen and willow regeneration dominated the site. Shortly after ignition however, the winds diminished and crews had to work harder to put more fire on the ground. The high moisture common to this site dampened active fire. Only the very top of the litter layer burned, but we observed substantial scorch on the willow. Fall post-fire evaluation of the burn will confirm whether we killed sufficient willow and aspen in all of the fields to achieve the burn's objectives.

In writing the prescribed fire burn plan objectives, ADF&G program coordinator Sue Rodman consulted with Wildlife Biologist and bison range manager Clint Cooper and Area Biologist Bob Schmidt along with State Forestry's Mike Goyette. The primary objective is to enhance forage quantity and quality for bison and moose, and habitat quality for grouse. To provide security for bison, we had to improve their horizontal visibility to see predators. This meant that we had to top kill aspen and willow to reduce vegetation height below 1.5 meters. This action requires that the base of these saplings are scorched sufficiently to penetrate the cambium layer and effectively kill the tree. As noted above, the benefit of top killing aspen and willow is that both species regenerate from the base after fire and provide forage for moose. Burning only the top of the litter layer seems to be providing adequate results in terms of regenerating aspen and willow while also allowing native grasses to fill back into these panels. Sharp-tailed and ruffed grouse use all life stages of aspen along with native grasses for their nutritional and brood needs as well. The low and moderate severity burns we have witnessed in the last two years create a mosaic of vegetation response that correlates well to the burn plan objectives to retain adequate organic soil for moisture holding capacity and release of nutrients.



A White Mountain Type 2 Initial Attack Fire Crewmember uses a drip torch to apply fire to the bison range. Tim Mowry photo.

So far, we deem the reintroduction of fire onto the Delta Junction Bison Range a successful endeavor that benefits wildlife and supports the Delta Bison Interim Management Plan. The partnerships that have evolved through this process also create solid relationships at the interagency level for implementing prescribed fire, conducting additional research for wildlife and vegetation response, and build firefighter capacity and expertise for State Forestry. This project is managed through ADF&G's Wildlife Habitat Enhancement & Spatial Analysis Program in concert with Region III staff from the Delta area office within the Division of Wildlife Conservation.

This year's operation was paid for through a federal aid grant to enhance wildlife habitat statewide. Once we determine an operational cost to annually run fire in the bison range, we anticipate that prescribed fire can again become a regular part of the bison range management regime.

Sue Rodman is a Program Coordinator and Forester with the Wildlife Habitat Enhancement & Spatial Analysis Program, with the Division of Wildlife Conservation. https://www.deltawindonline.com/news/local/prescribed-burns-to-take-place-on-military-land-and-bison/article_150b8302-43eb-11e8-8b73-b32c1f9e2e42.html

Prescribed burns to take place on military land and bison range

Staff Report Apr 20, 2018



The Bureau of Land Management Alaska Fire Service (BLM AFS), in cooperation with the U.S. Army Alaska (USARAK), will implement prescribed fires in the Donnelly Training Area (DTA) and the Gerstle River Training Area (GRTA) near Delta Junction starting this week. As weather conditions allow, prescribed burning may continue through May 31 in the DTA, five miles south of Delta Junction, and in the GRTA, 30 miles southeast of town. Trained personnel will monitor the burn areas throughout the prescribed fire period until declaring the fires out.

The prescribed fire operation will remove dead grass and woody debris piles. Removing the dead grass now will decrease fire danger around military training targets used during the summer. Some of the debris piles slated for burning are within GRTA. Debris piles made up of hardwood and spruce trees were created by hand crews to maintain forest health, to improve access within the training areas, and to reduce fire danger on military lands. All usable wood was salvaged.

A series of prescribed burns is scheduled for portions of the Delta Junction Bison Range this spring to enhance habitat for wildlife ranging from birds to bison. Planned for the Gerstle and Panoramic fields after they are snow-free – likely between April 30, and mid-May – burn timing will be based on weather and availability of forestry staff to monitor the fire.

The burns will comprise approximately 1,200 acres and include a variety of vegetation types. To provide multiple successional stages of plants and maximize benefits to wildlife, plans include an uneven burn over previously cleared areas ranging from grasses to mature hardwoods. Bison, moose, grouse, snowshoe hare, and many other species depend on various stages of succession for food and cover.



The Delta Junction Bison Range was created by the Alaska Legislature in 1979 to perpetuate freeranging bison. It encompasses nearly 90,000 acres north of the Granite Mountains between Granite Creek and the Little Gerstle River. Prescribed fire has been used for habitat management throughout the history of the Delta Bison Range and is the most effective method for creating and enhancing forage for bison as mandated by statute.

Fires in both areas will be ignited only when favorable weather conditions are present. An approved burn plan is in place and includes authorization from the Alaska Department of Environmental Conservation (ADEC). Smoke may be visible during burning operations from Delta Junction and the Richardson Highway, Alaska Highway, and from within the Donnelly Training Area.