

Wildlife Restoration MULTI-YEAR GRANT INTERIM PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
Juneau, AK 99811-5526

Alaska Department of Fish and Game Wildlife Restoration Grant

GRANT NUMBER: AKW-5

PROJECT NUMBER:

PROJECT TITLE: Habitat Enhancement for Wildlife

PERIOD OF PERFORMANCE: October 1, 2014 – June 30, 2021 (extended per amendment #2)

PERFORMANCE YEAR: October 1, 2018 – September 30, 2019; year 5 of a 7-year grant

REPORT DUE DATE: Submit to Coordinator November 29, 2019; due to FAC December 3, 2019

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

COOPERATORS: Mary Jo Hill, Wildlife Biologist; Miles Spathelf, GIS Analyst; Jeff Wells, Assistant Area Biologist; and Clint Cooper, Manager Delta Junction Bison Range, ADF&G. Alaska Division of Forestry; BLM Alaska Fire Service and Glennallen Field Office; 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.

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

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

Matanuska & Susitna Valleys

ADF&G continues to review and consider changing fire management options in this region. In 2018, ADF&G joined the interagency effort “Mat-Su All Lands All Hands” to address the new spruce beetle epidemic occurring here. With the anticipated change in fire behavior associated with landscape level spruce mortality, changing fire management options must be carefully considered. In most cases, it is advantageous to reduce the fire suppression level where moose habitat needs enhancement by converting mature forests to early seral cover types such as hardwood. However, increasing potential for fire spread after ignition by changing the management option to limited from full may promote high severity wildland fire situations in beetle killed areas, which could then threaten infrastructure and homes. Conversely, allowing fire to consume this high hazard fuel advances forest succession to a less fire-prone state where hardwood regeneration generally reduces fire behavior, acting as a kind of barrier to adjacent fires. This concept could support the case for advancing prescribed fire in this area, but local sentiment may oppose these proposals. The 2019 fire season demonstrated how fires in beetle killed spruce stands of the Susitna Valley damaged homes and communities; the McKinley and Doshka Landing wildfires forced evacuations and burned homes. ADF&G will continue this dialogue with State Forestry in the coming year to evaluate whether changing fire management options will be of benefit to the surrounding communities.

The 2018 report for this grant expands on the situational forces that we face in addressing habitat enhancement on the various scales; small scale efforts in the form of mechanical treatments (or logging) are beneficial to hunters and wildlife viewers but have little impact on population dynamics of moose across the system. Some communities are better positioned than others to endure prescribed and wildland fires because of the arrangement of communities, fire breaks (natural and man-made), and cover types. The Matanuska and Susitna River valleys have opportunities to support all of these treatment ‘types’ but these communities also have a lot of experience with wildfires and losing homes in recent years.

Kenai Peninsula

The Kenai Peninsula All Lands All Hands partnership maintains a strong network of agencies that cooperate on a variety of subjects including mitigating hazardous fuels from the recent spruce beetle epidemic, enhancing communication on wildland fire management, and coordinating fuel treatments with wildlife habitat enhancement. The Swan Lake fire consumed the planned East Fork prescribed fire; while specific to AKW-16, the moose movement work under both of these grants seeks to improve understanding of movement patterns relative to vegetation cover types before and after fire. This work continues under the leadership of the Moose Research Center staff.

ADF&G continued to serve on the KP Fuel Break Working Group to advance the Sterling Fuel Break. Interagency coordination stalled on this project because all energy was focused on preparing for the East Fork Prescribed Fire (AKW-16). Chugachmiut continued work to extend the Sterling Fuel Break to the west through the work of the Yukon Fire Crew. ADF&G will re-focus its attention on other borough and state lands where habitat treatments may provide small-scale benefits since the Swan Lake Fire burned 165,000 acres in the Kenai National Wildlife Refuge.

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. Additionally, this office is working to develop a spatial geodatabase for habitat enhancement on the Bison Range in coordination with the manager there.

Alphabet Hills

Coordination continues in the planning of the Alphabet Hills prescribed burn between ADF&G, BLM, and DNR. The delay in the Section 106 review has required rescheduling this project to 2021. Outreach to the community has initiated healthy dialogue about the use of fire, smoke impacts, and the slow growing regime of the Alphabet Hills. This project fully expects hardwood regeneration to increase the quality and quantity of moose forage, however the slow growth of plant communities in this area indicate that forage availability in the winter will take several years after the burn and that any population increase of moose will likely be enjoyed by future generations of hunters and viewers.

Summary

With respect to the 2018 report on this grant, the 2019 wildfire season has certainly heightened public sensitivity to wildfires and consequently affects how prescribed fire proposals are accepted across the various communities of the state. While the remaining projects in this grant are of type 2 complexity with low risk for impact to infrastructure, we do not anticipate substantial challenges with public acceptance and smoke management. Shifting the paradigm of using prescribed fires close to communities would require an enormous amount of trust between the residents and fire managers. While this is not insurmountable and generally exists already, applying this cost-effective tool on a high frequency, low acreage basis will require a cultural shift in how the public perceives fire close to communities and how fire managers use the act of suppression to justify their annual budgets. A similar paradox exists in wildlife management when comparing habitat enhancement to predator control. Although these are very different analogies, public perception from the various stakeholders often contradicts one treatment over another. The essence of combining prescribed fire at the wildland urban interface with habitat enhancement addresses multiple issues simultaneously, although it may also compound other challenges. Exploring this concept further may promote multidisciplinary planning akin to how other communities find success with a shift in attitude and tolerance.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

Job/Activity 1: Kenai Peninsula – GMU 15

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, Chugachmiut's Yukon Fire Crew extended the fuel break westward on land owned by the Kenai Natives Association along the Robinson Loop Road. Sites near Bishop Creek are still under consideration for treatment where 'other' public lands can be integrated into the project scope. Field reconnaissance allowed for initial project planning. The Swan Lake Fire consumed all agency capacity on the Kenai Peninsula between June 5 through the end of the season. ADF&G is re-evaluating how to proceed with the use of local contractors and small-scale treatments on Borough, State, and University lands.

The moose movement and utilization study in GMU 15B after the 2014 Funny River Fire will undergo analysis in the coming year. To assess fine scale habitat selection, ADF&G hoped that the updated Kenai Vegetation map (reported under AKW-16) would serve that purpose. However, inaccuracies in the vegetation mapping require a different approach that will be proposed in the AKW-16 amendment.

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

The Little Granite prescribed burn is cancelled; ADF&G hopes that a revision of the Matanuska Valley Moose Range will re-invigorate habitat enhancement in this area.

ADF&G participated in the Mat Su All Lands All Hands interagency partnership to address high risk areas affected by spruce beetle mortality. This first year, the priority was to remove hazard trees where public facilities were most vulnerable.

Job/Activity 3: Susitna River Area – GMU 16

Wildland fires in this area during 2019 burned through vast areas of beetle killed spruce. Planning prescribed natural fires in this area will likely reap the most benefit for use of capacity and resources.

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

The BLM contributed to significant advances in planning for the Alphabet Hills prescribed fire this past year. The initial prescription for implementing the burn was written by Chris Moore at the Alaska Fire Service; this allowed for interagency review and consideration for adjusting the parameters in the coming year as we collectively finish writing the burn plan. Eric Miller supported pre-fire monitoring through development of field protocols with Mary Jo Hill of ADF&G. A team of five completed the pre-fire monitoring plots in July 2019 via helicopter based out of Lake Louise: Kim Jones, ADFG; Sue Rodman, ADFG; Tim Skiba, BLM; Mary Jo Hill, ADFG; and Eric Miller, BLM. Vegetation composition and moose browse architecture were the primary elements measured in addition to downed wood and duff depth. The agreement with the BLM was completed through the efforts of Casey Boespflug, and now serves as the basis for continued cooperation so that BLM staff will have full authority to work on this project. Unfortunately, the BLM did not complete the Section 106 Review on the state lands for this project; they only worked on BLM lands within the project area. This misunderstanding has cost

a year of time and now implementation of the burn cannot occur before 2021. It is unlikely that the burn window will occur before June 30th in any given year, so this project may fall out of the timeline of this grant. However, we continue to work toward implementation. An outreach plan was initiated by Sierra Doherty at ADFG with Sue Rodman attending the July meeting of the Louise Susitna Tyone Community Association and flyers prepared for fall 2019 meetings scheduled with the BLM Copper Basin Managers Meeting.

Several wildland fires occurred in this region in summer 2019 that are likely to enhance habitat. Unfortunately, the smoke impacts to the surrounding communities have been severe all over Alaska this past summer. Developing additional burn plans in this region will likely not occur within the timeline of this grant, and the local tribal efforts through Ahtna have taken on mechanical treatments to develop fuel breaks and enhance moose habitat.

Job/Activity 5: Delta Area - GMU 20D

ADF&G again partnered with State Forestry to conduct prescribed fires on the Delta Junction Bison Range in May 2019 burning 4 acres. The conditions verged on the edge of high fire; the RXB3 on site identified two watch out situations that could ignite the adjacent spruce stands. After we witnessed both the fire whirl and lofted embers without ignitions in the spruce, we agreed to shut down the 2019 operation after one burning period. An expansion on this operation was appended to the article submitted to The Wildlife Society – Alaska, October 2019 issue attached to this report.

Clint Cooper evaluated the 2018 field results to confirm that, after two successive years of burning, prescribed fire does reduce woody cover in the fields, but not by the objective of 50-75%. Additionally, the burn did not increase graminoids and forbs by 25% on the plots measured. There is a lot of variability across each panel within the field complexes, so expanding the plot points will help us quantify change more accurately in addition to continuing the program to test different prescriptions and sites. Prescribed fire provides additional benefits to the bison range that we do not measure: nutrient release into the soil and potential increased use by bison and moose. Cooper's post-fire reports are appended to this IPR.

During the winter 2018/2019, we continued our partnership with State Forestry to roller chop polygons within the DJBR for habitat enhancement. On a separate grant, 105 acres of aspen were treated specific to grouse habitat in proximity of the Gerstle field complex and along the Bison Trail. Although the benefits of roller chopping aspen are also consistent with enhancing moose forage, we did not specify any acreage under this grant for roller chopping this past winter. There is however, planned treatment for the coming winter season with the new ADF&G roller chopper for moose and to benefit the prescribed fire operations.

Job/Activity 5: Tok Area – GMU 12

To complete the Tok River roller chopping project, a kiosk was installed in August 2019 to show a map of the treated units with respect to trails and roads, along with interpretation of how

habitat is enhanced to benefit multiple species including moose and grouse. The area around the kiosk was cleared in 2018 to allow for parking and a turn-around.

In May 2019, Jeff Wells, Tok assistant area biologist, coordinated moose pellet transects in the treated areas. This was the second sampling effort in these plots; the third sample will be taken in spring 2020. The final field sampling for vegetation monitoring in these same roller chopped units is scheduled for fall 2020. These two sampling efforts will be combined to evaluate moose use of these sites.

Job/Activity 6: Acquire Roller Chopper

Local business Universal Welding in North Pole, Alaska competitively bid the manufacture of a roller chopper that met bid specifications for conducting habitat enhancement work. The unit was delivered on June 29, 2019. It measures 12 feet wide and 6 feet tall. The GVW is 24,000 pounds. To weight the unit, glycol is added in winter or water is added in summer to improve the cutting ability of the blades through tree stems. The maximum volume of liquid is 1,763 gallons. When using glycol in winter, this adds 16,361 pounds to the rolling weight of the unit for a total of 40,361 pounds being towed behind the State Forestry D-7 Caterpillar.

The roller chopper was used on the Shovel Creek fire to re-establish a fuel break adjacent to the Old Murphy Dome road outside of Fairbanks. By mowing down vegetation along this fuel break, hardwood regeneration will benefit moose and reduce fire behavior in the future. Further, the fresh line allowed fire crews to burn off of the fuel break to protect homes on the south side, thereby improving wildlife habitat quality by burning mature spruce stands that are expected to regenerate to hardwoods.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

None.

IV. PUBLICATIONS

Attached are selected publications that expand on work completed in this reporting period:

- Delta Junction Bison Range prescribed fire: flyers posted around Delta to notify residents of the prescribed burn operation, news release of the spring burn, article written by Mike Taras for the Delta Wind Online newspaper, and an article published in The Wildlife Society Alaska Chapter newsletter. Internal memos assessing the prescribed fire results

on the DJBR for 2017 and 2018. Fire Effects monitoring reports for DJBR for 2018 and 2019, with 2017 accomplishment map.

- Tok River treatment area kiosk sign and photos
- Roller Chopper photos

V. RECOMMENDATIONS FOR THIS PROJECT

As ADF&G is attempting to implement prescribed fires through interagency coordination integrating 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.

Prepared by: Sue Rodman & Dan Thompson

Date: December 2, 2019





TRAIL-EZE

Prescribed Fire

Burning may start in early April, 2019

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 early to mid April, 2019. Crews plan to burn for up to 10 days but, depending on the weather, will probably not take that long.

The annual use of 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**

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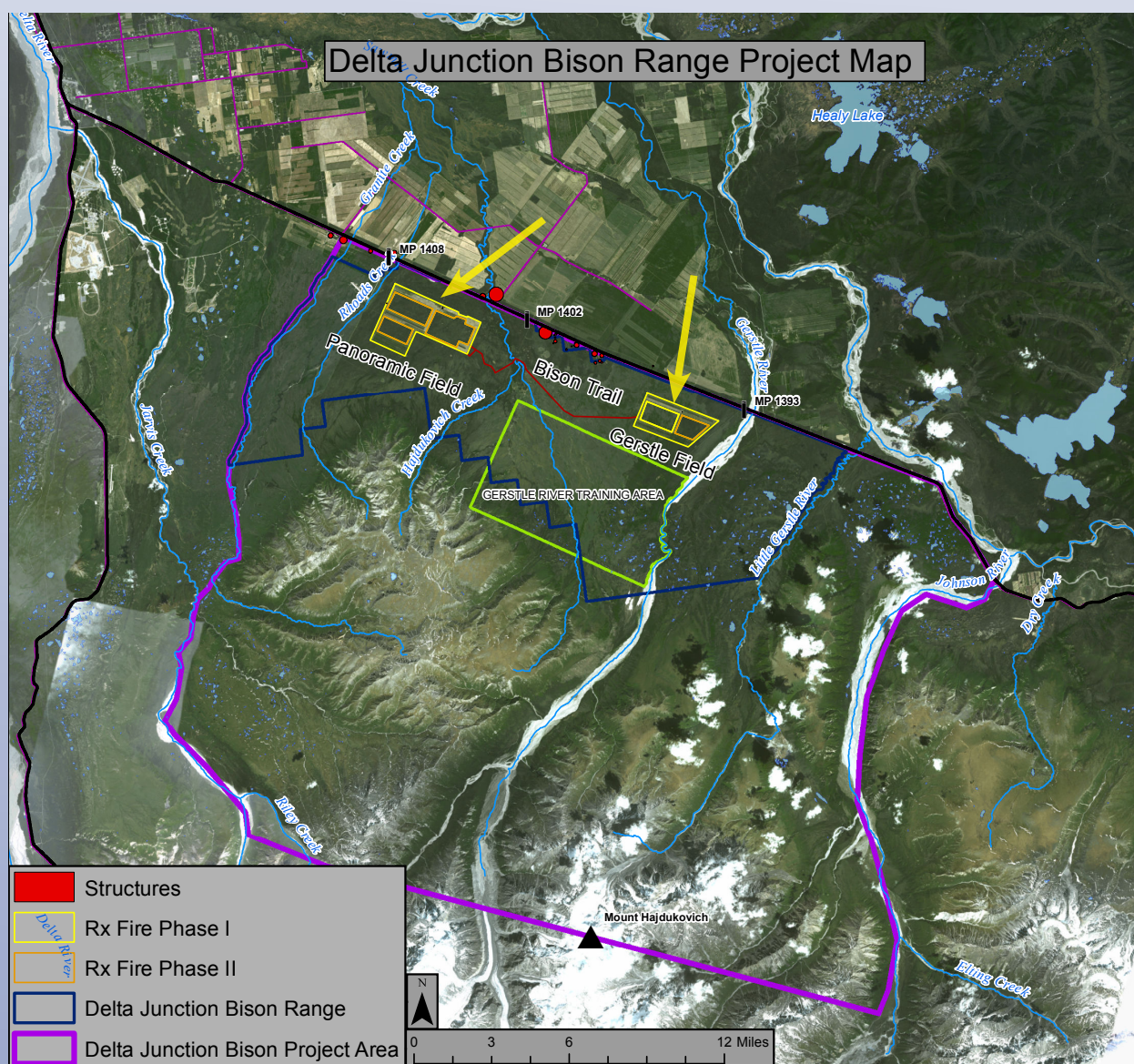
sue.rodman@alaska.gov

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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Fire Monitoring Report

Fire Name: Gerstle Rx
(Delta Junction Bison Range Phase I-
Cleared Margins)
Date: May 10, 2018
Management Unit: Delta Junction Bison
Range, GMU 20D
Location: Gerstle Field

Acres: 138
Fuel Model(s): O-1a (Matted grass), O-1b
(Standing grass), D-1 (Leafless
Aspen/Willow)
Observer(s): M.J. Hill, FEMO (ADFG),
S. Rodman, FEMO-t (ADFG)

On May 10, 2018 resources from the Alaska Division of Forestry and the Alaska Department of Fish & Game completed prescribed fire treatments to the eastern half of Unit J in the Gerstle Field of the Delta Junction Bison Range. All ignitions were done by hand or ATV. The Test fire was initiated at 1140, and operations were complete at 1538.

Weather and Indices Summary

The Gerstle RAWS (GERA2) is located in the center of Unit J, this is the western edge of the area treated on May 10 and a summary of weather during the operation period is show in Table 2. Table 1 is a comparison of predicted weather from the National Weather Service Spot forecast and observations taken by the RAWS.

Table 1.

	Predicted	RAWS observation
High Temperature	63° F.	70° F.
Minimum RH	17%	23%
Average Winds (20')	Southeast 5-7mph, gust to 15mph	South, Avg. 7-8 mph highest gust recorded at 14mph
Sky Weather	Mostly Cloudy	Mostly Cloudy

Table 2. Weather & Fire Weather Indices Data from GERA2 RAWS Station During Operational Period

Date / Hour	Obs. Time	Temp	RH	Wind Speed	Wind Direction	Wind Gust	Solar Radiation	Precip.	Hourly FFMC	Hourly ISI	Hourly GFMC	Hourly GSI
2018-05-10 / 11	11:55	68	27	8	ESE	12	466	0	90.9	9.3	94	14.3
2018-05-10 / 12	12:55	70	26	4	S	10	554	0	91.1	7	95.7	13.2
2018-05-10 / 13	13:55	70	23	8	SE	13	294	0	91.5	10.1	94.9	16.3
2018-05-10 / 14	14:55	68	25	7	SSW	12	198	0	91.6	9.5	93.9	13.2
2018-05-10 / 15	15:55	68	25	8	SSW	14	389	0	91.8	10.5	93.9	14.3
2018-05-10 / 16	16:55	66	26	4	S	11	193	0	91.8	7.7	93.6	9.9

Fire Behavior Summary

As a component of the Phase I – Cleared Margins prescribed burn, Unit J is located in the northeast portion of the Gerstle Field Complex. 138 acres were treated of Unit J's total 588 acres (Figure 1). Unit J is in the northern portion of the Gerstle Field Complex, consists of linear strips of native and domesticated grass with

regenerating willow and aspen saplings, referred to as panels, and tree rows in-between these panels. Tree rows are characterized by overstory & pole sized aspen, with one larger spruce tree row running down the middle of the unit. During this treatment fire was excluded from this spruce dominated row, as well the grass panels that directly abutted this spruce row. The fire was predominantly carried by grass and within the grass/willow panels; though fire did creep in some areas of the aspen rows. The majority of these tree rows were snow-free, but small patches of snow did remain.

The test fire was initiated in a panel directly east of an oat seeded field, on the east side of a trail that splits unit J in half near the RAWS. Fire behavior on the Gerstle Rx was driven by grass (O-1a & O-1b) fuels and predominately southerly winds. Overall topography of the unit is flat, but there is a subtle downslope elevation change from west to east. It was noted that the eastern ends of the panels had more surface moisture, and this appeared to subdue fire behavior here.

Initial fire behavior observations were taken at the test fire site where surface fuels consisted only of standing dead grass. Head fire was observed with a rate of spread (ROS) of 40 ch/hr, flame lengths of 1-2' and a flame zone depth of 2-3'. Backing and Flanking fire were estimated with an ROS of 4 ch/hr. Backing and flanking fire here was observed with flame zone depths of 2-4", and flame lengths of 3-4" and 6-12" respectively. In this western area of the panel it was estimated that between 75-80% of surface area was burned.

Firing operations continued to the southeast through the panels as conditions were not conducive to fire moving independently though the entire unit from perimeter ignitions alone. Firing resources split up conducting ignitions on 2-3 panels at a time. Where grass fuel loadings appeared heaviest, a maximum ROS was recorded on head fire of approx. 120 ch/hr. As fire was carried into the interior of the panels, areas of taller willows and aspen with an increase in leaf litter where encountered resembling more of a D-1 fuel model. Here, flanking fire was observed with a ROS of 2 ch/hr and flame lengths of 2-3" and a flame zone depth of 1-2". A consistent observation throughout the operation was once fire encountered leaf litter it's progression was either slowed or stopped.

At 1415 when firing had been completed in the most northern panel, an observation was taken at the east end of the panel of backing fire moving through the leaf litter at 0.5 ch/hr with flame lengths of 4-5" and a depth of 2-3". On the eastern end of this panel it was estimated that 50% of the surface fuel was burned.

A southerly wind was present throughout the operation, but in the interior of the panels its effects were often subdued to less than 3mph by tree rows. During these times active fire movement significantly slowed or ceased.

Only one observation was taken in an aspen tree row at 1424, it was noted that there was some fire carrying into the stand but with minimal spread. Here the leaf litter was carrying flanking fire at 1 ch/hr with flame lengths of 2-4" and 2-3" flame zone depth. Fire did creep into some log piles located in the aspen tree rows from when panels were first cleared. These continued to smolder but are well within the interior of the unit and caused no containment concerns. Mop-up and monitoring activities by State Forestry and ADF&G staff will attend to mechanically breaking up the piles.

Smoke Observations

Smoke was light and the fire behavior that occurred did not provide for substantial smoke accumulation. Smoke that was generated lifted moderately well and was transported by upper level south winds. Smoke dissipated from the immediate area quickly after ignitions were completed in each panel. There were no reported smoke impacts to the Alaska Highway.

Fire Effects

First order fire effects observations were made during the burn operational period and one day after the burn. In the southeastern corner of the unit once the grass litter was removed by the fire the beginnings of grass green-up were observed.

Where surface fire spread in the panels, willows and aspen root collars contacted by flame showed charring on stems. In areas that carried fire, surface fuels could be described as light to moderately burned and

consumed. The surface grasses and very top leaf & grass litter burned. Fine fuels and soils below this top layer was moist to the touch and not impacted by the fire.

Submitted by Mary Jo Hill and Sue Rodman, Alaska Dept. of Fish & Game on 5/24/2018

Figure 1. Map of Prescribed Fire Treatments on Gerstle Field on May 10, 2018





Fig. 2 Fire behavior at 11:55. Heading, flanking, and backing fire in grass panel with willow and aspen regeneration, dead standing grass as primary surface fuel.



Fig. 3 Fire behavior at 12:18 Head fire (on right) and backing fire (left) in grass panel with willow regeneration, mix of leaf litter and dead grass surface fuels.



Fig. 4 Typical Fire behavior observed in aspen tree rows, creeping with minimal spread. Photo taken at 12:21



Fig . 5 Edge of grass panel with light surface fuels, ignited but failed to carry into interior of panel or aspen row. Photo taken at 13:04



Fig. 6. At 13:57, Standing at the southeast end of a treated grass/willow panel looking northwest.



Fig. 7. Photo taken May 11, showing willow stem charring in the most southern treated panel.

Fire Monitoring Report

Fire Name: Panoramic Rx
(Delta Junction Bison Range Phase I-
Cleared Margins)
Date: May 9, 2019
Management Unit: Delta Junction Bison
Range, GMU 20D

Location: Panoramic Field, Unit I
Acres: 4
Fuel Model(s): O-1a (Matted grass), O-1b
(Standing grass)
Observer(s): M.J. Hill, FEMO (ADFG)

On May 9, 2019 resources from the Alaska Division of Forestry and the Alaska Department of Fish & Game prepared to implement prescribed fire treatment in units I and H on the Panoramic Field of the Delta Junctions Bison Range. The test fire was initiated at 1510 on the south line of unit I, see figure 1. Test fire and then blackline ignitions continued by hand for 1.3 miles to the southeast. Ignitions and fire were contained to a narrow strip of the unit approximately 50 feet wide, creating a blackline that bordered the south disk line. Concerns for spotting potential into the adjacent C-2 fuels, coupled often with difficult light and often variable direction winds during the operation, led to slow progress. Ignitions did not reach the southeast corner until 1800. At this time, it was decided not to proceed with firing the entire unit. Blackline operations continued on the west end of I, for preparation of firing Unit I at a later date. All ignitions were completed by 1900, mop up operations continued until 1930, and all resources were released by 2015.

Weather and Indices Summary

Weather observation were collected on site prior to and during operations (Table 2). Table 1 is a comparison of predicted weather from the National Weather Service spot weather forecast and on site observations.

Table 1. Weather Summary Predicted and Observed

	Predicted	Observed on-site
High Temperature	60° F.	63° F.
Minimum RH	28%	25%
Average Winds	<i>20' winds predicted</i> Light Winds becoming South 5-8 in the afternoon	<i>Eye Level Winds Recorded</i> Avg. 2-5mph, NE Overall winds often light w/variable and inconsistent direction.
Sky Weather	Sunny	Mostly Sunny

Table 2. Weather Data Collected On Site, Using Kestrel Handheld Weather Meter

Time	Location	Dry Bulb (°F)	RH (%)	Wind Speed, gust (mph)	Wind Direction	% Cloud Cover	% Shading
1355	Border of H & I	61	28	4-6 g10	ENE	20	50
1505	Test Fire, W edge of I	60	26	2-4 g5	NE	40	70
1555	SW Corner I	63	25	2-5 g8	NNE	30	60
1657	W edge of I	60	25	Light	Var.	20	50

The Panoramic RAWS is located in the center of the Panoramic Field, located approximately 2 miles northwest of Unit I (Table 3).

Table 3. Weather & Fire Weather Indices Data from PANA2 RAWs Station

Date / Hour	Obs. Time	Temp	RH	Wind Speed	Wind Direction	Wind Gust	Solar Radiation	1 hr precip.	Hourly FFMC	Hourly ISI	Hourly FWI	Hourly GFMC	Hourly GISI
2019-05-09 / 13	13:55	58	28	4	NE	9	790	0	86.5	3.6	9	96.3	14.3
2019-05-09 / 14	14:55	60	24	4	ESE	9	744	0	87.2	4	10.2	96.7	15.1
2019-05-09 / 15	15:55	59	24	6	ENE	14	415	0	87.8	5.1	12.4	95.4	14.9
2019-05-09 / 16	16:55	62	20	5	NE	9	581	0	88.5	5.2	12.6	95.7	14.3
2019-05-09 / 17	17:55	60	21	3	N	6	171	0	89	4.8	11.8	94.7	10.6
2019-05-09 / 18	18:55	60	19	1	NNW	2	136	0	89.5	4.3	10.9	94.4	8.6

Fire Behavior Summary

Fire was carried easily by dead and matted grasses during test fire and proceeding blackline operations. Backing fire was dominant, though short runs of head fire occurred. Backing fire was commonly observed with 6-12" flame lengths, with a rate of spread (ROS) between 0.5-3 ch/hr. with a flame zone depth of less than 6". Head fire was brief but in standing grass produced 3-5' flame lengths and with an estimated ROS of 20 ch/hr. Ignition patterns did not allow for sustained runs. Northerly winds pushed smoke mainly into adjacent C-2 fuels, but no spotting occurred.

Smoke Observations

Smoke generated was very light. Overall there was good smoke dispersal, the small amount of acreage burned and the resulting fire behavior that occurred did not provide for smoke accumulation. No smoke impacts accrued to the Alaska Highway. Delta Area Forestry did not receive calls regarding smoke.

Fire Effects

Charring occurred 4-12" up on stems of willow and aspen regen, which average 2-5' in height. Spruce seedlings (< 3' tall) were observed torching. Consumption of surface fuels on the treated area as a whole was estimated at 85%.



Figure 1. Accomplishment Map for May 9, 2019



Fire Monitoring Report

Fire Name: Panoramic Rx
(Delta Junction Bison Range Phase I-
Cleared Margins)
Date: May 10, 2018
Management Unit: Delta Junction Bison
Range, GMU 20D
Location: Panoramic Field, Unit I

Acres: 10
Fuel Model(s): O-1a (Matted grass), O-1b
(Standing grass), D-1 (Leafless
Aspen/Willow)

On May 10, 2018 resources from the Alaska Division of Forestry and the Alaska Department of Fish & Game completed prescribed fire treatment to 10 acres of Unit I on the Panoramic Field of the Delta Junctions Bison Range (Figure 1). The acres treated in Unit I are in a cleared linear panel of grass and regenerating willows north of the spruce tree row and south of the planted field. All ignitions were done by hand, test fire ignitions occurred at 16:27 and all ignitions were completed at 17:32.

Weather and Indices Summary

The Panoramic RAWS (PANA2) is located in the center of the Panoramic Field, located approximately 2 miles northwest of Unit I. A summary of weather observations taken by this RAWS during the prescribed fire is shown in Table 1.

Table 1. Weather & Fire Weather Indices Data from PANA2 RAWS Station During Operational Period

Date / Hour	Obs. Time	Temp	RH	Wind Speed	Wind Direction	Wind Gust	Solar Radiation	Precip.	Hourly FFMC	Hourly ISI	Hourly GFMC	Hourly GISI
2018-05-10 / 15	15:55	67	25	10	SW	21	245	0	91.9	12.7	94	17.1
2018-05-10 / 16	16:55	65	26	8	WSW	17	173	0	92	10.9	93.1	12.7
2018-05-10 / 17	17:55	61	34	6	W	14	90	0	91.9	9.2	91.5	8.7

Fire Behavior Summary

As a component of the Phase I – Cleared Margins prescribed burn, Unit I is in the southeast portion of the Panoramic Field Complex, covering 125 acres of which 10 were treated.

Ignition of the unit began on the northwest end of the panel and firing operations continued down the southern perimeter of the margin. The fire was carried primarily by dead standing and matted grasses.

During initial ignitions fire moved well through the grass and areas that were ignited consumed well. After 1700 cloud cover began to increase and there was a noticeable decrease in fire behavior and the fuels decreased receptiveness to ignitions. As firing continued to the southeast it became more difficult to get fire to carry within the unit and fire movement of significance only occurred during short durations of increased wind.

Between 16:55 and 17:55 the local RAWS recorded an increase of 8% in relative humidity.

Fire Effects

As noted above, a change in weather conditions occurred during operations reducing the fire's ability to carry. In areas that received more active surface fire willow stems received charring, but overall this effect was inconsistent throughout the treatment area. Consumption on the treated area as a whole was estimated at 60%.

Submitted by Mary Jo Hill and Sue Rodman, Alaska Dept. of Fish & Game on 5/24/2018

Figure 1. Map of Prescribed Fire Treatments on Panoramic Field on May 10, 2018



Fire Monitoring Report

Fire Name: Panoramic Rx
(Delta Junction Bison Range Phase I-
Cleared Margins)
Date: May 09, 2018
Management Unit: Delta Junction Bison
Range, GMU 20D
Location: Panoramic Field

Acres: Total: 290
Unit C:224, Unit B:23, Unit G:43
Fuel Model(s): O-1a (Matted grass), O-1b
(Standing grass), D-1 (Leafless
Aspen/Willow)
Observer(s): M.J. Hill, FEMO (ADFG),
S. Rodman, FEMO-t (ADFG)

On May 9, 2018 resources from the Alaska Division of Forestry and the Alaska Department of Fish & Game completed prescribed fire treatments to portions of the Panoramic Field of the Delta Junction Bison Range. The resources were split up under two RXB3, conducting prescribed fire operations simultaneously on Unit C and on portions of Units B & G (Figure 6).

Two FEMOs were assigned to the group conducting operations on Unit C and much of the following monitoring summary pertains to this unit. All ignitions were done by hand or ATV. Test Fire ignitions began at Unit C test fire at 1215 and operations were completed at 1753.

Weather and Indices Summary

Weather Data was collected on Unit C by Hill throughout the burn, complete observations can be found in observation forms (Table 4). Table 1 is a comparison of predicted weather from the National Weather Service Spot forecast and on the ground observations.

Table 1.

	Predicted	Observed by FEMO
High Temperature	63° F.	67° F.
Minimum RH	17%	15%
Average Winds	20' winds predicted Light Winds becoming South 15- 25 in the afternoon	Eye Level Winds Recorded Avg. 7-9mph Predominant Direction SE highest gust recorded at 16mph.
Sky Weather	Partly Sunny	Partly Sunny

A RAWS was located within the southeast corner of Unit C, was protected from ignitions in the immediate area of the station and not deemed to be influenced by fire behavior.

Table 2. Weather & Fire Weather Indices Data from PANA2 RAWS Station During Operational Period

Date / Hour	Obs. Time	Temp	RH	Wind Speed	Wind Direction	Wind Gust	Precip.	Hourly FFMC	Hourly ISI	Hourly GFMC	Hourly GISI
2018-05-09 / 11	11:55	63	22	10	E	20	0	90.1	9.8	93.3	15.5
2018-05-09 / 12	12:55	65	19	13	SE	22	0	90.7	13.6	93.8	21
2018-05-09 / 13	13:55	66	17	13	ESE	25	0	91.3	14.8	93.9	21.2
2018-05-09 / 14	14:55	67	17	12	SE	19	0	91.8	14.7	94.1	20.4
2018-05-09 / 15	15:55	67	18	8	ESE	15	0	92.2	11.2	94.1	14.7
2018-05-09 / 16	16:55	68	17	10	SE	20	0	92.6	13.9	94.3	17.6
2018-05-09 / 17	17:55	67	17	6	ESE	11	0	92.8	10.4	94.3	12.7
2018-05-09 / 18	18:55	67	18	5	ESE	10	0	93	9.9	94.3	11.7

Fire Behavior Summary – Unit C

As a component of the Phase I – Cleared Margins prescribed burn, Unit C is located in the central portion of the Panoramic Field Complex, covering 350 acres of which 224 were treated. Unit C consists of linear strips of native and domesticated grass with regenerating willow and aspen saplings, referred to as panels. In between these panels, tree rows are dominated by overstory & pole sized aspen or spruce. Fire was excluded from all spruce dominated rows during this treatment. The fire was predominantly carried by grass and within the grass/willow panels; though fire did creep into some areas of the aspen rows. The majority of these tree rows were snow-free, with small patches of snow remaining.

The test fire was initiated in a panel in the northeast corner of Unit C. The area had adequate dead grass to carry the fire and short head fire runs were observed with a rate of spread (ROS) of approximately 40 ch/hr with 3-4' flame lengths and a flame zone depth of 5-6". These runs often slowed or stopped when hitting areas with a greater willow leaf litter component than grass; this observation was found to be consistent throughout the burn window. Fire backed and flanked well during the test fire, moving at a ROS of 2 and 4 ch/hr, respectively. About 75% of the test fire area burned.

Conditions were not conducive to fire moving independently though the entire unit from perimeter ignitions alone, so ignitions were continued northwest throughout the interior of the panels. Within the unit at 1440, fire was observed backing in a mix of grass and leaf litter with flame lengths of 3-6" and a depth of 2-6".

Wind had a significant influence on fire spread: with wind gusting to 15 mph, a head fire was observed moving through an area of heavy standing dead grass at 80-100ch/hr with 2-3' flame lengths. Similar wind influenced observations were made in aspen rows. Here, head fire crept at 1 – 3 ch/hr through leaf litter with 4-12" flame lengths, but overall the fire burned patchy and only on the top surface layer, extinguishing easily as winds diminished or slightly increased surface moisture. It was noted that spruce seedlings and small poles on the edges of aspen rows did experience isolated torching where grass surface fuel was available. Within the aspen rows, old piles of tree debris still exist from the original field clearing in the 1980s and Fire did creep into some of these piles. These continued to smolder at the end of the operational period but are well within the interior of the unit. Mop-up & monitoring activities by State Forestry and ADF&G staff will continue on these piles.

Smoke Observations

Smoke generated throughout the day was generally light, though dissipation was variable and at times not well vented. Overall there was good smoke dispersal above tree tops and the fire behavior that occurred did not provide for substantial smoke accumulation. There were no noted smoke impacts to the Alaska Highway. Delta Area Forestry received no calls regarding smoke from this burn.

Fire Effects

First order fire effects observations were made during the burn operational period and 2 days after the burn. Where surface fire spread in the panels, willows and aspen root collars contacted by flame showed charring on stems. Though variable from panel to panel, it was approximated that between 40-60% of the grass/willow panels were consumed. A much lower portion of the aspen rows were consumed, estimation at less than 10%. Observers noted that willow scorch was easily attained across the panels burned; these stems were estimated to be about ¼ to ½ inch in diameter at the base of the plant. However, aspen bark charring was rare in the tree rows where aspen stems generally had diameters larger than one inch. In a few locations, aspen bark char was noted where surface fuels the burned had a higher dead grass component.

Only the surface grass and the very top leaf litter burned. While grass could carry fire, leaf litter was not as effective. Generally, fire spread slowed in the leaf litter but still allowed for willow stem scorch. Discontinuous fuels also reduced the area burned; past tilling with turned up bare soil in some areas stopped fire spread.

Adjacent Fuels Moistures & Indices

The adjacent fuels to the burn units consisted of closed black spruce forest and in order to assess the receptiveness of adjacent fuels to fire spread, duff plugs were taken from the sampling site PANO#1 prior to ignition, shown in Figure 6. This site is located northwest of the intersection of the field access road from the Alaska Highway and the northeast corner of Unit B. This was the first duff sampling of this site for the 2018 season. Three samples were taken at this site, and averages are in Table 3. The closest RAWS (PANA2) FWI values are also included.

Table 3.

Date	Live Moss Moisture Content %	RAWS (PANA2) FFMC	Dead Moss Moisture Content %	RAWS (PANA2) DMC	Upper Duff Moisture Content %	RAWS (PANA2) DC
2018-05-08	18.5	93	194.4	25.4	56.4	54.2

Submitted by Mary Jo Hill and Sue Rodman, Alaska Dept. of Fish & Game on 5/24/2018



Figure 1. Looking northwest from test fire area at 12:33, shortly after ignitions started. Head fire carried into unit with backing fire continuing to creep.

Figure 2. Fire behavior at 12:34 in a grass panel with willow generation, Backing fire carrying well in dead grass dominated surface fuels.



Figure 3. Fire creeping into aspen tree row. Minimal spread in leaf litter, Spruce seedlings on edge of row just had torched near active fire center of photo.



Figure 4. Fire behavior at 17:38. Patchy burn pattern where a mix of leaf litter and dead grass surface fuels occur within a grass and willow regen. panel.

Figure 5. Fire behavior at 17:38. Heading fire through grass panel with charring visible on bottom of aspen stems.



Figure 6. Map of Prescribed Fire Treatments on Panoramic Field on May 9, 2018

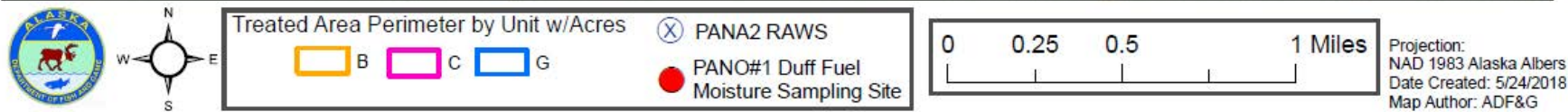


Table 4. FEMO Weather Observation Form

WEATHER OBSERVATIONS

DATE 05/09/18	FIRE NAME: Delta Junction Bison Range Panoramic Field Rx, Unit C	OBSERVERS: M.J. Hill
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TIME	LOCATION	ELEVATION (FEET)	ASPECT	SLOPE (%)	DRY BULB (°F)	WET BULB (°F)	RH	DP	WIND SPEED (GUSTS)	WIND DIR.	% CLOUD COVER	% SHADING	FINE DEAD FUEL MOISTURE	PROB. OF IGNITION	GRASS FUEL MOISTURE	GRASS PROB. OF IGNITION	COMMENTS (PRECIP, FIRE BEHAVIOR, SMOKE, ETC.)
PRESCRIPTION:					32-75		18-40	-	2-11	ANY	-	-	*	*	**	**	
1200	Test Fire	1200	Flat	0	65	47	21	24	8-10 g15	ENE	<5	<5	4	70	8	92	
1300	East end of Unit C	1200	Flat	0	67	48	20	24	9-11 g16	ESE	5	5	4	70	7	93	
1400	East end of Unit C	1200	Flat	0	67	47	16	20	7-9 g13	SSE	40	30	3	80	7	93	
1500	West end of Unit C	1200	Flat	0	67	47	16	20	4-6 g8	SE	10	5	3	80	7	93	
1600	East end of Unit C	1200	Flat	0	66	46	15	17	5-7 g9	SE	60	50	4	70	7	93	
1700	E. of Unit C Planting	1200	Flat	0	67	47	16	20	7-9 g15	SE	50	30	4	70	7	93	

MAX TEMP	67	15	MIN RH
TIME	1300	1600	TIME
MIN TEMP	65	21	MAX RH
TIME	1200	1200	TIME

* Calculated only Unshaded FDFM & PIG values as Rx was conducted pre-leaf out for deciduous trees & shrubs, and units had minimal coniferous components to effect shading.

** Calculated using Grass Fuel Moisture & PIG tables from Miller, E.A.2018. Guide to Fire Behavior Monitoring for Grasslands in Alaska. Internal report to the Bureau of Land Management, Alaska Fire Service, Fort Wainwright, Alaska. 10 pp.

Division of Wildlife Conservation
Eddie Grasser, Director
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NEWS RELEASE

For Immediate Release: April ??, 2019

CONTACT: Sue Rodman
Program Coordinator
Anchorage, (907) 317-7236

New Prescribed Burns are Planned to Improve Delta Junction State Bison Range Wildlife Habitat

(Delta Junction) – The latest in a series of prescribed fires intended to enhance wildlife habitat is planned this spring for the Delta Junction State Bison Range. The burns will be conducted by the Alaska Department of Fish and Game in partnership with the Division of Forestry on up to 900 acres of the Gerstle and Panoramic fields between Alaska Highway Mileposts 1393 and 1408.

Burning is expected to occur between May 1 and May 20, depending upon on weather, burn conditions, and availability of Forestry staff to implement and monitor the fire, according to Sue Rodman with the Division of Wildlife Conservation.

“We plan to burn in the coming weeks pending appropriately dry conditions to support our objectives to top-kill the shrubs and replenish graminoids for bison, and aspen and willow for moose,” said Rodman.

Graminoids are grass-like plants important to bison for food. The prescribed fires will encompass areas consisting of grass, shrubs, and small hardwood trees, and are intended to create multiple successional stages of plant communities. Bison, moose, grouse, snowshoe hare, and many other species depend on various stages of succession for forage and cover.

The Delta Junction Bison Range was created by the Alaska Legislature in 1979 to provide habitat for 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 an effective method for creating and enhancing forage for bison as mandated by statute.

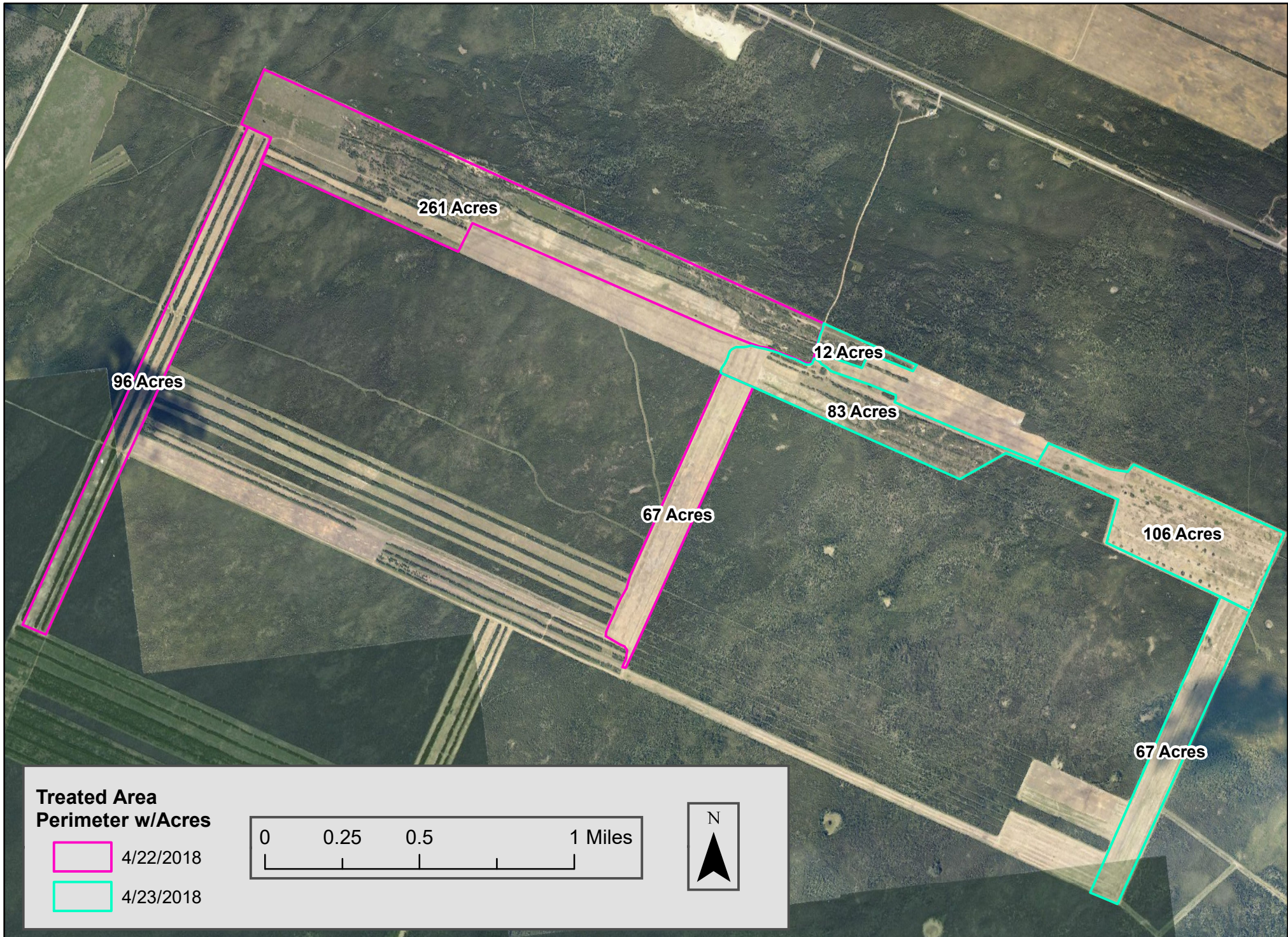
This spring’s burn effort will be the third in a recent annual series that began in 2017, when approximately 800 acres were burned in the northern half of the Panoramic Field Complex. Another 440 acres were burned in 2018. Updates on plans for the prescribed burns will be forthcoming as specific dates are scheduled.

For more information check <http://akfireinfo.com> or contact Sue Rodman at (907) 317-7236, sue.rodman@alaska.gov, or Bison Range Manager Clint Cooper at (907) 895-4484, clint.cooper@alaska.gov.

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Delta Junction Bison Range Rx Treatments - Panoramic Field

April 22-23, 2017



Prescribed fire planned on bison range

Mike Taras By Wildlife Education and Outreach Specialist Alaska Department of Fish and Game Mar 30, 2019



A firefighter walks away from an area that has just been set on fire as part of a previous controlled burn.

[Tim Mowry/Alaska Division of Forestry](#)

It looks like spring is arriving early this year! Once again, the Alaska Department of Fish & Game in partnership with the Division of Forestry is planning to burn the Gerstle and Panoramic fields located between Mile 1393 and 1408 of the Alaska Highway. The intent of using prescribed fire in this area is to enhance habitat for bison on the bison range, although moose and grouse will also benefit.

Because the snow is melting quickly managers will be ready to go into the field in early to mid- April. This year, fire and habitat managers are integrating a Terra Torch into the operation. This is a flame thrower mounted on an ATV trailer that helps put more fire on the ground. This is useful on the Delta Bison Range because very little ground fuels exist to carry the fire. Having more fuel in the form of gel is likely to make the operation more efficient than solely using standard drip torches.

The area that is being burned consists of grassland habitat intermixed with forested wind rows. Burning the fields will increase the quality and quantity of plant growth. With improved grass production in the fields, bison may be more attracted to the area during fall and winter, yielding a benefit to both hunters and farmers. Burning the forested wind rows within the field panels will encourage regeneration of hardwoods. The prescribed fire is expected to produce an uneven burn across both the fields and the

forested areas resulting in a patchy, vegetative mixture to include grass, herbs, shrubs, and high-density aspen stands. Bison and moose will benefit from improved forage availability, while grouse will benefit from the regeneration of varying aged aspen stands.

ADF&G biologists are measuring the different effects of prescribed fires on the bison range. One of those effects is the maintenance of the fields. Without the use of fire, mowing and tilling the fields is the only way to keep woody vegetation in check. These methods are both costly and time consuming. After measuring vegetative regrowth over the last few years, the Delta Bison Range Manager, Clint Cooper, concluded that prescribed fire is a useful tool to maintain the fields in the bison range from the constant encroachment of woody vegetation.

ADF&G intends to continue to use prescribed fire in the Delta Junction Bison Range. In several years, ADF&G plans to burn the large forested islands; at that point, they will be easier to maintain with a mechanical roller-chopper. This will also provide a degree of hazardous fuel reduction for the safety of residents to the north of the Gerstle and Panoramic fields.

For a more in-depth story about prescribed fire on the Delta Bison Range see the article at http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=867.

Consistent with the Delta Bison Interim Management plan, this project serves to balance conservation of bison and hunting interest with local agricultural land use. It is funded in part by the Delta Junction Bison Range management budget with primary funding from the Federal Pittman-Robertson Act, matched by state hunting license and permit fees.

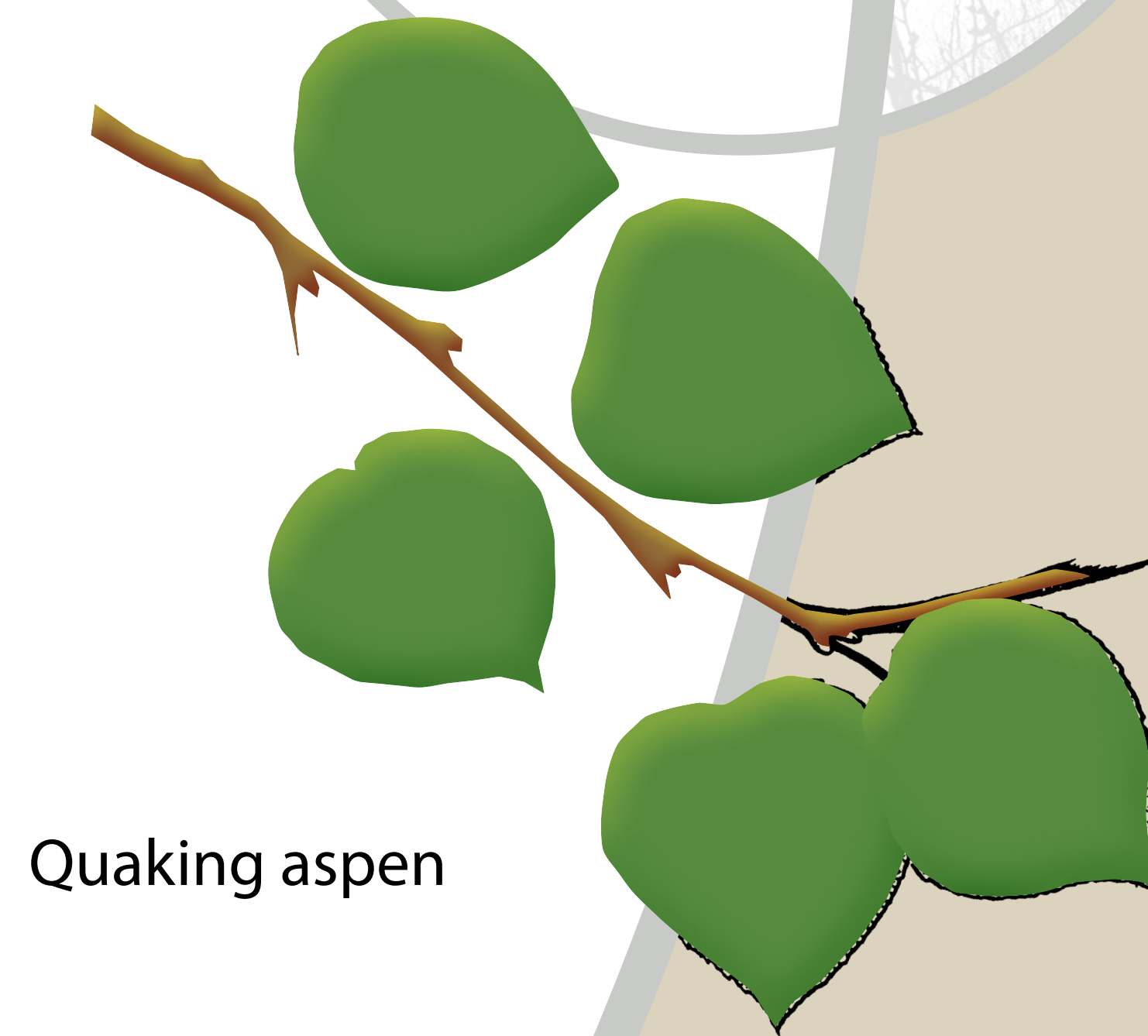
If you have questions you can contact the project coordinator, Sue Rodman, at (907) 267-2274 sue.rodman@alaska.gov.

Welcome to the Tok habitat enhancement project

...we're restoring habitat in these plots



In 1990 a wildfire burned the area southeast of Tok. After the fire, aspen and willow thrived. As a result, moose density increased 5-fold. We are working to recreate this quality wildlife habitat near Tok!



Forest succession

This habitat enhancement project initiates the natural process called succession. Succession is the predictable, gradual, and sequential process by which plant communities change after a disturbance, like fire or mechanical crushing. Each succession stage supports different wildlife. As habitat conditions change, an area becomes less suited for some wildlife, and more suited for others.



A wildfire that created better moose habitat

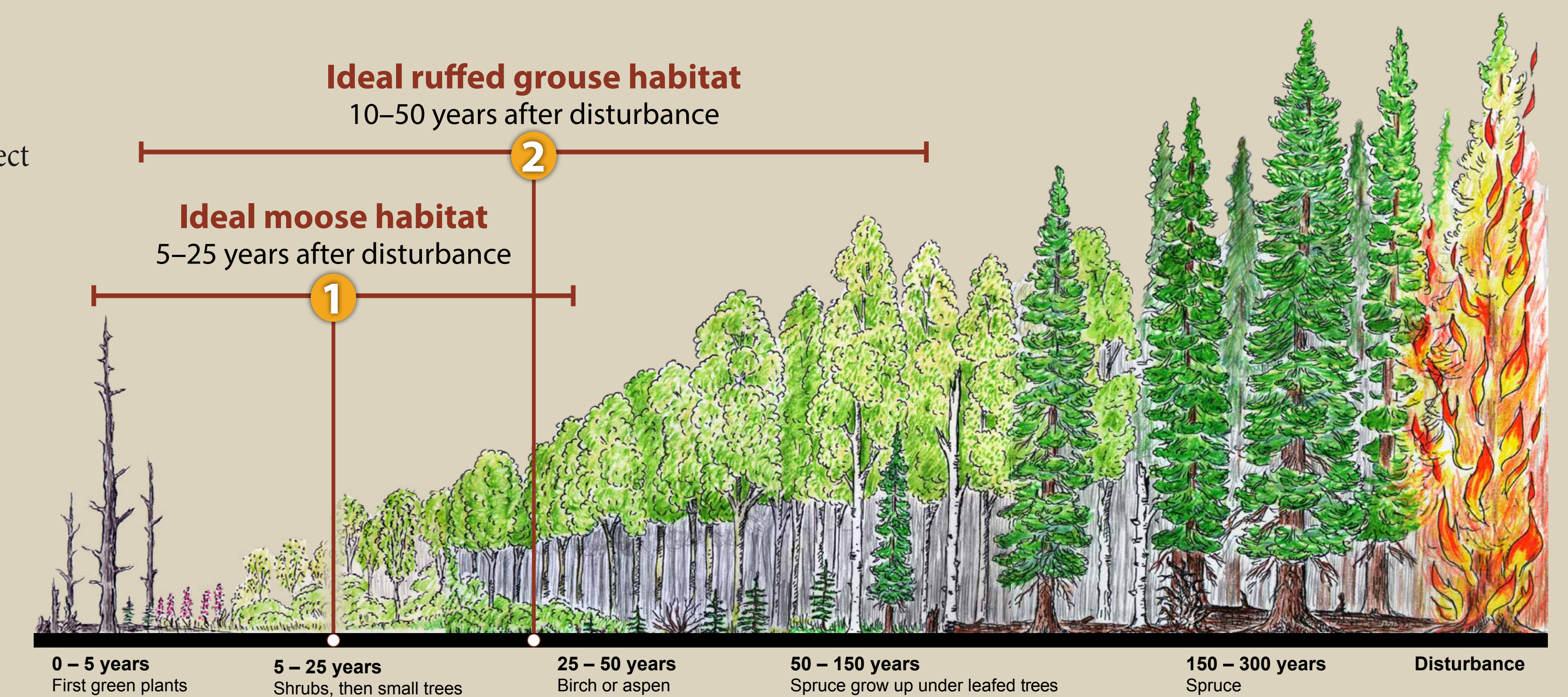
In 1990 the Tok River fire burned 155 square miles of black spruce forest. Once the embers died down, the ecological benefits of the fire began to show. Much of the burned area transitioned from spruce to aspen. This transition improved moose browse quality and availability. As a result moose density in the burned area increased from about 0.19 moose per square mile (1989) to 1.0 moose per square mile (1997). This habitat shift also benefited ruffed grouse and other wildlife, providing greater opportunity for Game Management Unit 12 hunters.

Aspen in the Tok River burn have aged and there is now less quality habitat available to moose and ruffed grouse. New disturbances are needed to regenerate new, young aspen. In 2015 the Alaska Department of Fish and Game in collaboration with the Alaska Division of Forestry and the Ruffed Grouse Society began a habitat enhancement project to do just that.

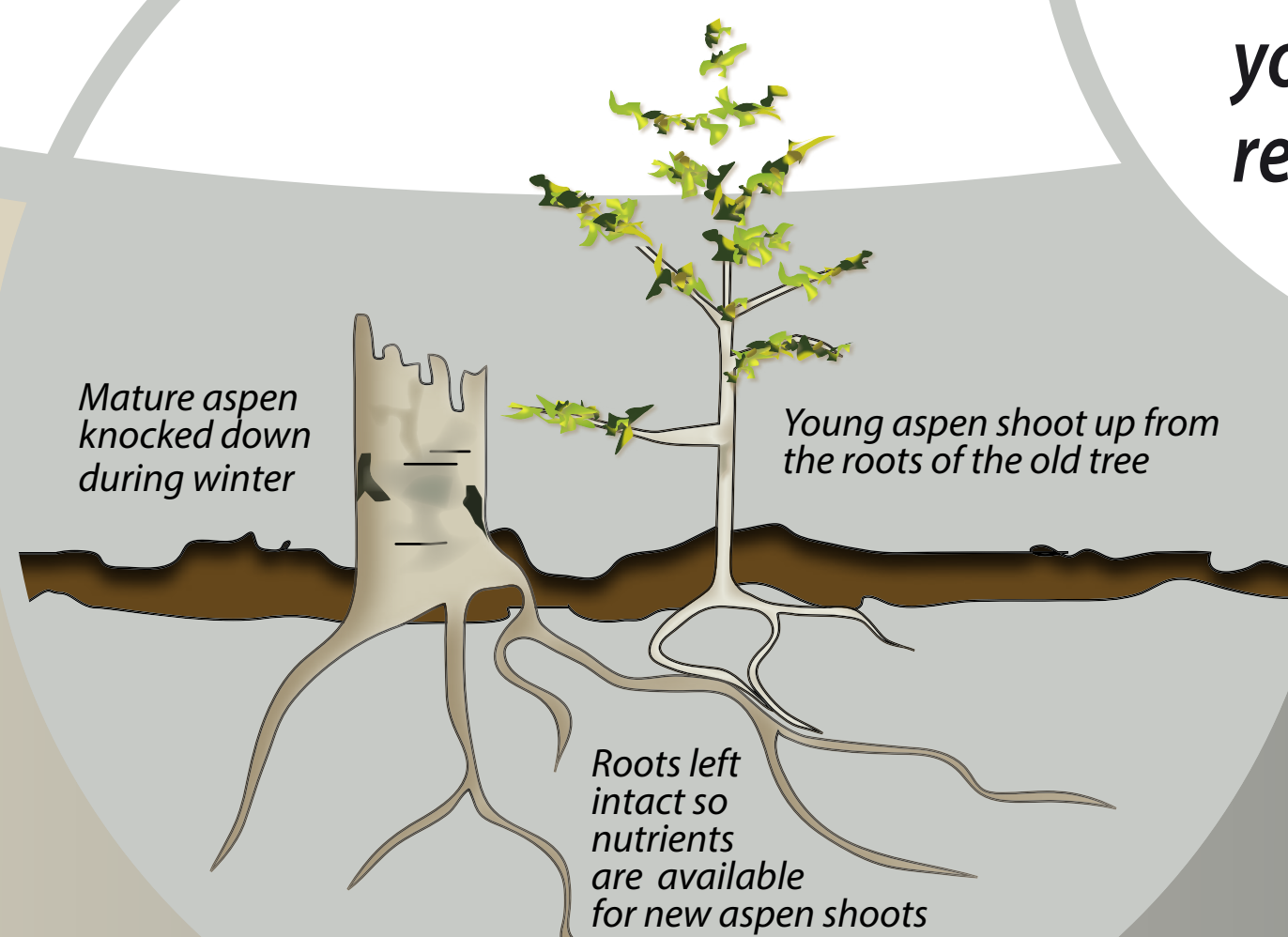
Recreating habitat that benefits wildlife

There are several ways to artificially mimic the 1990 wildfire and ensure that the area continues to provide quality moose and ruffed grouse habitat. Mechanical crushing is a technique where heavy machinery is used to knock over, and crush trees. This leaves a lot of slash that is difficult to walk through however, so the trees are then roller chopped to break them up into smaller pieces. The roller chopping is key to making the area accessible to hunters. Just like in a wildfire, the dead trees are left on the ground so that their nutrients will return to the forest. This is the technique used in the Tok habitat enhancement project. How does it work?

1. Biologists select aspen-dominated areas where trees are taller than 20 feet.
 - These trees are no longer available to moose for food.
2. The selected aspen stands are knocked over and crushed into smaller pieces.
 - This happens in winter when aspen store their nutrients in their roots.
 - The root systems remain intact even after the trees above ground are destroyed.
3. Young aspen "shoots" grow from the roots of the crushed mature trees.
 - A new, young aspen forest takes the place of the mature aspen forest.
 - Quality habitat is once again available to moose and ruffed grouse.



Aspen regeneration



Aspen can regenerate themselves by growing new "shoots" off roots of trees damaged by a disturbance. In this way, young aspen can quickly replace a forest.

Moose

During the fall and winter, moose consume large quantities of willow, birch, and aspen twigs.



Ruffed Grouse

Ruffed grouse use variable-aged aspen stands. Younger, dense aspen provide excellent cover for broods (young family groups) in the summer. Older aspen provide breeding and winter habitat.



Habitat enhancement plot

Tok habitat enhancement plots (outlined in orange) are irregularly shaped to mimic natural disturbance.



Mimicking a forest mosaic

Fires burn erratically, depending on wind, moisture, and vegetation. Some areas burn completely while others remain untouched. The result is a patchwork of habitats, called a mosaic, that is key to wildlife diversity. Habitat enhancement plots are distributed across the landscape to mimic this mosaic.



Roller chopping

Overgrown aspen stands in plots are knocked over with a roller chopper. Stumps and crushed vegetation are left on the ground to increase new plant growth. Almost 500 acres of aspen were roller chopped from 2015-2017.



Stay on trails

Do your part to help maintain this area for wildlife. Stay on trails when using trucks and off road vehicles.



Habitat enhancement - more moose and ruffed grouse for the future!



2018

2017 Prescribed Fire Assessment Results on the Delta Junction Bison Range

Clint Cooper, Bison Range Manager (November 16, 2017)

Background:

The purpose of the prescribed fire is to enhance forage quantity and quality for bison and moose and to enhance habitat quality for grouse within the cleared fields of the DJBR. The draft burn plan laid out the following resource objectives; however these objectives didn't make it into the final burn plan:

- Reduce live spruce, deciduous tree, and shrub cover by 50-75% in the cleared field margins with a low-severity burn of varying intensities that removes thatch but minimizes consumption of organic soil that holds moisture during the growing season.
- Increase graminoid and forb cover in the cleared margins at least 25% within the following growing season

This assessment was designed to describe the pre-fire and post-fire vegetative canopy cover by cover class. Cover classes were bare ground, grass, forbs, and woody plants (predominantly willow species and quaking aspen). ArcGIS was used to select points uniformly spaced in formerly cleared or planted margins of the fields in 2015. 30 points were selected in the Panoramic field, 35 in the Gerstle field. Percent cover by each class within a 2 meter radius around the plot stake was estimated by the group of staff present (thus pooling observer variability into a mutually agreeable number), with the sum of the 5 classes composing 100% cover. Digital images showing the stake location were taken for each plot.

Pre-burn data were collected on 20-21 July 2015 in both Panoramic and Gerstle fields by Darren Bruning, Tom Paragi, and Bob Schmidt. The Panoramic fields were burned on 22 and 23 April 2017. Post-burn data was collected on the Panoramic fields on 22 August 2017 by Clint Cooper, Tom Paragi, Bob Schmidt, and Sue Rodman.

Results:

Of the 30 points on the Panoramic field, 5 were located in tilled oat or turnip fields. These fields were not burned and no data was collected on them in 2017.

Data collected from the field plots were used to estimate the overall percent of each field that burned and the mean percent change by cover class in burned and unburned plots.

10 points were burned, totaling 33%. Further work could be done to estimate the acreage and percent of the Panoramic field complex that was burned. I drove the fields soon after the burn and sketched the lines roughly on a map. I have not yet digitized this map. Miles Spathelf is working on a burn map based on the aerial images captured by the Division of Forestry drone.

Change in cover class has been calculated both as Absolute Change and as Proportional Change. Both categories are present in the spreadsheet. The following tables present the change in percent in absolute cover between 2015 and 2017. Table 1 includes only the 10 burned plots. Table 2 includes the

unburned plots but excludes the plots in tilled fields, for a total of 15 plots. Positive numbers indicate an increase in cover from 2015 to 2017, negative numbers indicate a decrease.

Table 1. Burned Plots

Change in Percent Absolute Cover					
Burned Plots					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
9	0	29	-34	-5	5
11	10	0	-15	-15	5
17	24	10	-29	-19	-5
18	1	22	-38	-16	15
19	0	50	-50	0	0
20	0	70	-70	0	0
22	0	-5	-10	-15	15
23	10	5	5	10	-25
27	19	-15	-4	-19	0
29	2	15	-25	-10	-2
Average	6.6	18.1	-27	-8.9	0.8

Table 2. Unburned Plots

Change in Percent Absolute Cover					
Unburned Plots- Excluding Tilled Fields					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
1	0	-15	-14	-29	29
2	5	-1	-29	-30	25
3	5	12	-2	10	-15
4	5	-10	-5	-15	10
5	0	0	-8	-8	8
6	7	-15	-35	-50	43
7	-10	-5	-10	-15	25
8	6	1	0	1	-7
12	5	-20	-14	-34	29
13	10	0	-10	-10	0
14	-2	-5	-19	-24	27
15	5	-10	-23	-33	28
16	-2	-14	-24	-38	40
21	20	-6	-9	-15	-5
28	26	-2	-19	-21	-5
Average	5.3	-6	-14.7	-20.7	15.5

Discussion/Observations:

The pre-burn objectives of reducing tree and shrub cover by 50-75% and increasing graminoid and forb cover by at least 25% were not met in any of the burned plots. In the burned plots the woody vegetation held steady, with an average 0.8% increase. The combined grass/forb cover decreased by an average of 8.9%. A few plots showed large (50%, 70%) increases in grass cover coupled with the same percent decrease in forb cover. It's possible that in some cases grasses were promoted over forbs by the burn. Another explanation is that our 2017 survey was conducted in late August, and many of the forbs had already senesced. We attempted to "use our imagination" to estimate forb cover, but our estimates may have been biased low considering the 2015 survey was done in July. The notes for plots 19 and 20 (where the 50% and 70% swings were documented) stated that fireweed was dominant in 2015. Those plots are located in the northeast corner of Panoramic. An additional factor in variability in change among plots is that different sites have had different disturbance history (mowing, disking) not reflected in our simple dichotomy of burned and unburned. We will construct a geodatabase of the various field panels to record management treatments that will help us control for different disturbance histories in future treatment evaluations.

Initially it is discouraging that the prescribed fire failed to promote the grass/forb community or reduce woody vegetation in the burned plots. However, by comparing the burned plots to the unburned plots, we see that the woody vegetation increased by much more (15.5%) and the grass/forb community decreased by much more (-20.7) in the unburned plots than in the burn. Changes in cover within the unburned plots suggest that succession toward shrub and forest cover continues to occur with lack of disturbance (the bison range was cleared from spruce-dominated forest in the late 1970's and early 1980's). I think the data support the idea that fire may be a useful tool to help maintain the grass/forb component and retard encroaching brush on the bison range.

In burned fields it appeared that most of the shrubs and saplings were top-killed by the fire, but most re-sprouted this summer and had significant growth in the first year post-fire. We had an Alaskan Aspen Workshop visit the bison range and that generated some meaningful discussion. It was suggested that by burning the same site for several years in a row we might be able to actually kill some of the aspen/willow and reduce woody vegetation cover. But there wasn't a consensus on that topic. Dan Rees stated that for Army drop zones they use a combination of burning, herbicide treatment, and mowing in rotation to maintain and promote herbaceous plants over woody.

We are planning to burn again in the spring of 2018. The 2017 burn was conducted early and we didn't get fire in areas with high cover of woody vegetation. We plan to attempt to wait a little longer in 2018 to let the panels of aspen regen dry out and to see if we can get those to burn. We are planning to burn several of the same fields in 2018 as were burned in 2017. We should plan to follow up with data collection again next summer/fall. I would also like to establish some plots for conducting herbicide trials. Trial plots would give us data to help inform decisions on using herbicides as a tool to control brush on the bison range.

We have a new mower deck that I put to good use in the summer and fall of 2017. I don't think we will be able to completely get away from mowing, but by using fire and potentially herbicide we may be able to stretch out the time required between treatments. Now that we have a year under our belts we are hoping to scale back on the personnel and equipment required for the burn. Our overall objective continues to be to manage for the most high quality bison habitat possible in the most cost effective manner.

2018 Prescribed Fire Assessment Results on the Delta Junction Bison Range

Clint Cooper, Bison Range Manager (November 16, 2018)

Background:

The purpose of the prescribed fire is to enhance forage quantity and quality for bison and moose and to enhance habitat quality for grouse within the cleared fields of the DJBR. Also, to improve horizontal visibility for bison to see predators: reduce vegetation height below 1.5 meters in the previously cleared fields of the bison range.

The draft burn plan laid out the following resource objectives; however these objectives were not incorporated into the final burn plan:

- Reduce live spruce, deciduous tree, and shrub cover by 50-75% in the cleared field margins with a low-severity burn of varying intensities that removes thatch but minimizes consumption of organic soil that holds moisture during the growing season.
- Increase graminoid and forb cover in the cleared margins at least 25% within the following growing season

The burn plan is a document that is geared toward implementation of the prescribed burn. The objectives contained in the plan are intentionally broad, allowing firefighters to execute the burn. Having these broad objectives also gives managers flexibility in their evaluation of burn success. Therefore we should not base too much of our evaluation on the wording or content of the burn plan. It may be wise to develop a monitoring plan which better defines our objectives and allows us to evaluate whether those objectives were met or not. This assessment was not designed to evaluate the burn plan objectives. We did not incorporate any measurements of vegetation height to determine if that height was reduced to below 1.5 meters.

This assessment was designed to describe the pre-fire and post-fire vegetative canopy cover by cover class. Cover classes were bare ground, grass, forbs, and woody plants (predominantly willow species and quaking aspen). By evaluating plots in this way, we can determine whether we are succeeding in reducing cover of woody species and increasing cover of grasses and forbs. ArcGIS was used to select points uniformly spaced in formerly cleared or planted margins of the fields in 2015. 30 points were selected in the Panoramic fields, 35 in the Gerstle fields. Percent cover by each class within a 2-meter radius around the plot stake was estimated by the group of staff present (thus pooling observer variability into a mutually agreeable number), with the sum of the 5 classes composing 100% cover. Digital images showing the stake location were taken for each plot.

Pre-burn data were collected on 20-21 July 2015 in both Panoramic and Gerstle fields by Darren Bruning, Tom Paragi, and Bob Schmidt. The Panoramic fields were burned on 22 and 23 April 2017. Post-burn data was collected on the Panoramic fields on 22 August 2017 by Clint Cooper, Tom Paragi, Bob Schmidt, and Sue Rodman. The 2018 burn was conducted on 9 and 10 May 2018 in both the Panoramic

and Gerstle fields. There was a little overlap of area burned in both 2017 and 2018; the 2018 burn primarily focused on panels not burned in 2017. Last winter we saw a higher than normal snowfall and a cold spring, so it was necessary to push the burn back to allow the fields to dry sufficiently to carry fire. Post burn data was collected on both the Panoramic and Gerstle fields on 28, 29, and 30 August 2018 by Clint Cooper, Mary Jo Hill, and Miles Spathelf. 23 new data points were added in the Panoramic fields, in order to increase the amount of reference points for future assessments. Certain panels or fields were identified for placement of new points. These were fields that had a mix of grass and low brush; this vegetation type is where we want to focus our efforts to evaluate the effects of the burn. Within selected fields points were placed randomly using GIS. We also began collecting grass species composition at all points on the Panoramic and Gerstle fields.

Results:

Approximately 302 acres were burned on the Panoramic fields this year. Of the 30 plots on the Panoramic fields, 5 were located in tilled oat or turnip fields. These fields were not burned and no data was collected on them in 2017 or 2018. 8 plots were burned on the Panoramic fields this year (27%).

Approximately 138 acres were burned on the Gerstle fields this year. The Gerstle contained 35 plots in 2015, but most of these plots were located in fields that have been tilled and planted, or that were just mowed this year. 9 plots were evaluated on the Gerstle fields this year, 3 plots were burned (9%).

Results are less straightforward than they were in 2017. Now that we have another year of data, there are many more comparisons we can make. For example, we can look at change in percent cover from 2015 to 2018 for plots burned either year (Table 1), change in percent cover from 2015 to 2018 for plots burned in 2018 only, or 2017 only, change in percent cover from 2017 to 2018 for plots burned in 2018 only (Table 2) , or 2017 only (Table 3), change in percent cover from 2015 to 2018 for unburned plots (Table 4), change in percent cover from 2017 to 2018 for unburned plots (Table 5), etc.

Table 1. Change in Percent Absolute Cover 2015-2018 for Plots Burned in Either 2017 or 2018

Change in Percent Absolute Cover 2015-2018					
Burned Plots: Either Year 2017 or 2018					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
9	5	30	-30	0	-5
11	20	-15	-10	-25	5
12	20	-30	-10	-40	20
13	20	0	-10	-10	-10
14	35	-5	-10	-15	-20
15	35	-25	-15	-40	5
16	15	-10	-15	-25	10
17	30	5	-20	-15	-15
18	15	15	-35	-20	5
19	10	35	-45	-10	0
20	10	50	-60	-10	0
22	5	5	-5	0	-5
23	10	0	20	20	-35
27	15	0	5	5	-20
29	10	20	-15	5	-25
Average	17	5	-17	-12	-6

Table 2. Change in Percent Absolute Cover 2017-2018 for Plots Burned in 2018

Change in Percent Absolute Cover 2017-2018					
Plots burned in 2018					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
11	10	-15	5	-10	0
12	15	-10	4	-6	-9
13	10	0	0	0	-10
14	37	0	9	9	-47
15	30	-15	8	-7	-23
16	17	4	9	13	-30
22	5	10	5	15	-20
23	0	-5	15	10	-10
Average	15.5	-3.9	6.9	3	-18.6

Table 3. Change in Percent Absolute Cover 2017-2018 for Plots Burned in 2017

Change in Percent Absolute Cover 2017-2018					
Plots burned in 2017					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
9	5	1	4	5	-10
17	6	-5	9	4	-10
18	14	-7	3	-4	-10
19	10	-15	5	-10	0
20	10	-20	10	-10	0
27	-4	15	9	24	-20
29	8	5	10	15	-23
Average	7	-3.7	7.1	3.4	-10.4

Table 4. Change in Percent Absolute Cover 2015-2018 for Unburned Plots

Change in Percent Absolute Cover 2015-2018					
Unburned Plots					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
1	0	-7	-13	-20	20
2	10	-5	-20	-25	15
3	5	0	5	5	-10
4	10	-15	0	-15	5
5	10	-20	-5	-25	15
6	22	-15	-37	-52	30
7	1	-7	-9	-16	15
8	17	3	5	8	-25
21	14	10	-9	1	-25
28	20	5	0	5	-25
Average	10.9	-5.1	-8.3	-13.4	1.5

Table 5. Change in Percent Absolute Cover 2017-2018 for Unburned Plots

Change in Percent Absolute Cover 2017-2018					
Unburned Plots					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
1	0	8	1	9	-9
2	5	-4	9	5	-10
3	0	-12	7	-5	5
4	5	-5	5	0	-5
5	10	-20	3	-17	7
6	15	0	-2	-2	-13
7	11	-2	1	-1	-10
8	11	2	5	7	-18
21	4	16	0	16	-20
28	-6	7	19	26	-20
Average	5.5	-1	4.8	3.8	-9.3

Discussion:

We saw an across the board reduction in average woody cover from 2017 to 2018, even in unburned plots. Unburned plots had a 9.3% reduction in woody cover, and burned plots had an average 18.6% reduction. An 18.6% average reduction seems significant, but the question is raised: what is significant?

We know that we will get an uneven burn across the landscape. Some vegetation types will burn hotter and carry fire better than others. Therefore, results are variable. Taking an average across plots with different vegetation types may not be a good approach. Plots in mature aspen tree rows are not useful in woody cover comparisons, since fire did not carry through the understory in our low intensity spring burns. When looking at the numbers it seems there are large swings in woody cover estimations within mature stands of trees. This suggests variability among observers, since we would not expect mature tree rows that aren't being burned to change drastically from year to year. Also, across the board was an increase in bare ground. This makes sense for burned plots because the fire has removed the biomass that had been covering the ground. But it does not make sense for unburned plots. This also suggests some variability among observers, possibly in the neighborhood of 10% (percent bare ground increased by an average of 10.9 in unburned plots from 2015-2018, percent woody decreased by an average of 9.3 in unburned plots from 2017-2018). If we assume a 10% variability, then 18.6% is significant, while changes of 10% or less are not.

Fields that were completely or primarily grass that are now being encroached on by brush (willow and aspen saplings) give the most useful data regarding vegetation trends. How did the fire do in these? How much will woody cover increase without fire, or decrease with fire? Will it behave that way at all? Do the bison prefer grazing these fields after fire?

When we look at points 10 and 12 on the Gerstle fields we can see a field that was primarily grass in 2015 that has since become overgrown with willows. These plots provide good examples of just how quickly woody species can invade grass fields in the absence of treatments. In just three growing seasons these two plots' woody cover went from 5% to 40% and 15% to 30% respectively. See Figure 1 (2015) and Figure 2 (2018) at the end for comparison.

We lost most of our relevant control plots, since they were burned in 2018. Looking at the remaining unburned plots on the Panoramic fields, four of them were in mature tree rows. Four others were on the far south end which has shallow soil, hasn't been planted to grass in years, and is grown up to short aspens which are browsed by moose, as well as spruce saplings becoming re-established. Only ten plots total remained unburned, therefore it appears that the remaining unburned plots are not providing useful data for comparison.

We may examine effects at individual plots and plots grouped according to vegetation (Table 6), rather than just looking at the average across all vegetation types. By picking through the data we do find some interesting numbers.

Initially it appears that plots burned in 2017 only did not continue to decrease in woody cover in the second-year post-fire (Table 3 vs. Table 5). But if we decide not to compare to Table 5 (unburned plots) we see that this actually may not be the case. Plots 19 and 20 showed no change, which is due to the fact that they contained 0% woody cover in all years. Woody cover in the remaining plots decreased by an average of 12%, which is significant, although not by much.

Plots 11-16 did not burn in 2017 but did burn in 2018. Two plots (11 and 13) had little change between 2015 and 2017. But 4 plots (12, 14, 15, 16) had significantly higher woody cover in 2017 (31% avg. increase) and 3 of these were significantly reduced between 2017 and 2018 (33% avg. decrease). These plots occurred in panels which contain the vegetation type we are interested in: fields that were grass at one time that have been taken over by brush (willow and aspen saplings).

By keeping these types of swings in mind, it begins to make more sense why we aren't seeing a large change in average woody cover between 2015 and 2018 (-6% for plots burned either year). In plots not burned in 2017 average percent woody cover was up by 15% in the fall of 2017. Those that burned in 2018 were reduced by 18% from 2017 to 2018, so we see a small (3.75%) overall reduction from 2015-2018.

Table 6. Change in Percent Absolute Cover 2015-2018 for plots burned in either 2017 or 2018 within the grass-brush vegetation type

Change in Percent Absolute Cover 2015-2018					
Burned either year; grass-brush vegetation					
Plot No.	Bare	Grass	Forb	Combined Grass/Forb	Woody
9	5	30	-30	0	-5
11	20	-15	-10	-25	5
12	20	-30	-10	-40	20
13	20	0	-10	-10	-10
14	35	-5	-10	-15	-20
15	35	-25	-15	-40	5
17	30	5	-20	-15	-15
18	15	15	-35	-20	5
22	5	5	-5	0	-5
27	15	0	5	5	-20
29	10	20	-15	5	-25
Average	19.1	0	-14.1	-14.1	-5.9

Conclusions:

Are we gaining on the woody plants or are we just holding steady? The burn did not achieve our objectives of reducing woody cover by 50-75%, or of increasing graminoids and forbs by 25%. We have not shown significantly reduced woody cover in burned panels over time. We are seeing that woody encroachment can be quite rapid, so it appears that we are just holding steady over the 4-year average from 2015 to 2018. Grass-brush panels that burned either year had similar woody cover in 2015 and 2018 (Table 6). This is consistent with the 2017 results which showed that woody vegetation had increased in unburned plots, whereas burned plots held at about the same as pre-burn levels.

From this data I conclude that prescribed fire is useful as a tool for maintenance of the range. It is one method which is useful for keeping encroaching brush in check. We should continue to use prescribed fire as a management tool, incorporated with other tools such as mowing, tilling, and possibly herbicide for management of the bison range. Fire may provide additional benefits to the bison range besides the control of woody species, such as nutrient release into the soil, increased graminoid production, and increased use by bison and moose. We are continuing to improve efficiency in the burn process, so that costs will continue to fall.

Further Monitoring and Research:

There are a number of questions about the burn, its effectiveness, bison response, and bison range management which may be studied in the future. Do bison respond to the burn by spending more time in burned fields? Does the addition of fire into management activities delay movement of bison from the bison range to private ag land? Does fire improve soil nutrients and forage quality? Is it cost effective compared to mowing? Compared to herbicide? What is the optimal return interval for fire on the bison range? Will repeated burning lead to greater reduction of woody species? Will fire affect the species composition of grasses, such as bluegrass and *Calamagrostis canadensis*?

We are currently working on answering some of these questions through our monitoring of vegetation at the bison range. We have identified grasses in each plot and estimated their relative abundance within the plot. Continuing to collect this data will allow us to determine how fire affects the grass species composition. We also have established new plots in grass-brush field panels, which in combination with previously established plots, will help us monitor woody species encroachment. The effects of fire on grass species composition and woody species cover will aid in determining the appropriate return interval for fire on the bison range. Forage and soil analyses were both conducted on the bison range in 2018. Data from these analyses should be compared for burned and non-burned sites, and these analyses may be better linked to fire activities in the future. We have recorded observations of bison patties and grazing pressure at our plots, but this data isn't really quantifiable. A study of bison response to burning and field treatments would be very informative to management activities on the bison range. Future plans include implementing a small scale (approximately 1 acre) herbicide trial to determine the potential for herbicide use on the bison range.



Figure 1. Image of Gerstle Plot 10, 2015, Looking North



Fig. 2. Image of Gerstle Plot 10, 2018, Looking North



Welcome to the Tuk habitat enhancement project
we're restoring habitat in these places

Habitat enhancement - more moose and ruffed grouse for the future!



The Alaskan Wildlifer

Newsletter of the Alaska Chapter of the Wildlife Society

Fall Issue - October 2019



Message from Past-President Scott Brainerd

My six-year tenure as president-elect, president, and now past-president, is drawing to a close. After almost two decades living in Alaska, and nearly 14 years working for the state, I am moving on. I am retiring this month from my position with the Division of Wildlife Conservation and moving on to a new position in Norway starting in November. It has been a hectic time, preparing for an overseas move, wrapping up things at work, and preparing for the new position. Although I am moving overseas, I plan to maintain my membership in the Chapter. I will always be an Alaskan at heart, and am keen to follow Chapter activities from afar, and perhaps contribute where I still can.

I have had a long, albeit fragmented, association with Alaska. From the time I was ten years old, I dreamt of coming here and becoming a wildlife biologist. That dream came true when I arrived at UAF in the fall of 1976 to begin my undergraduate studies. I was lucky enough to land my first job with Fish and Game as a seasonal employee in 1977 when I was just 19 on a salmon research project on the lower Susitna, and even luckier to work as a wildlife technician on various projects during 1978-1985 throughout Alaska. After over twenty years living and working in Norway and Sweden, I returned in 2008 to become research supervisor with the Division of Wildlife Conservation in Fairbanks. It's been a wonderful experience, made richer by my association with the Chapter. Thanks to Grant Hilderbrand for reaching out to me and encouraging (coaxing?) me to run for president!

When I started as president-elect, we were scraping bottom financially. Annual meetings are the focus of our activities, they can be expensive endeavors, and are dependent upon registration fees meeting a



certain goal to break even. Austerity measures by both state and federal agencies have limited attendance to our annual meetings to some degree, but luckily this has not been catastrophic. Primarily because travel bans were not synchronous, so years when state employee attendance was very limited, federal attendance was not (as much), and vice versa. The board was able to pull in a sizeable grant from ADF&G during my tenure and was able to grow our coffers through increased

registration fees. Frankly, we were lucky. It could have all gone south so easily. The board is on the right course in being cautious about expenditures going forward, as new 'rainy' days will no doubt occur when we may not be able to cover the cost of the annual meeting through registration fees and sponsorships. I am confident that the board, with guidance from our new president, Kim Jochum, will be in good hands going forward. I also wish to thank Nate Svoboda for his leadership during his tenure as well. This has been a team effort with the board and membership, and I think we have been very successful, if the annual meetings are any measure.

Going forward, however, we must brace ourselves for reduced attendance due to government travel restrictions. It is imperative that we revisit our strategic plan and have a clear vision for the future given the challenges associated with meeting attendance and our financial vulnerability based primarily on proceeds from conferences. This may require some adjustments to our bylaws and will require some extra effort. Having been an officer, I know full well how difficult it is to balance the responsibilities towards the Chapter with work and family. We need to ensure that the Chapter is serving member needs and expectations as realistically as possible. Personally, I feel that we need to focus on



Past President's Message - Continued

promoting activities that are relevant to students, as they are the future of the profession. I know Kim, Nate, and the board have been working hard to include more members in our Chapter activities, including a working group focused on just this aspect (see pgs. 15-17). I applaud efforts to increase engagement by Chapter members in committees. The board cannot do it all alone.

We all assume that TWS members will adhere to the TWS [Code of Ethics](#) (COE), particularly Certified Wildlife Biologists and/or board members. Unfortunately, this has not always been the case. All members of TWS should read the TWS COE and take it to heart. The TWS COE standards of professional conduct state that wildlife professionals at all times must: "Uphold the dignity and integrity of the wildlife profession. They shall endeavor to avoid even the suspicion of dishonesty, fraud, deceit, misrepresentation, or unprofessional demeanor." It takes years to build a good professional reputation, and it can be quickly damaged through inappropriate or unethical actions. It can also tarnish our organization, particularly when such behaviors are witnessed and reported as occurring at TWS functions. It seems like a commonsense issue, doesn't it? Frankly, our COE should be ingrained in professionals and not have to be brought up. TWS has mechanisms for censuring Associate or Certified Wildlife Biologists, but this is a draconian litigation-type process and a path no one really wants to pursue. The board is addressing this issue by adding a section in the bylaw revision to provide a mechanism and process to remove officers that behave unprofessionally while representing the Chapter at meetings or in other contexts. Bylaw amendments will be presented and discussed at the business meeting in February during the Annual Meeting, in consultation with the TWS parent organization.

While I am confident that the Chapter will continue to flourish with new energy and blood, there will be significant challenges ahead. During my tenure, we were able to establish a Conservation Affairs Committee, in line with the TWS model. I applaud the work of the committee members. This is really

important as we are at a crossroads in this country, this state, and in the profession, I believe. In these challenging times it is important that our Chapter engage on behalf of wildlife and their habitats in our unique, largely wilderness state. With climate change, increased development and the roll back of environmental safeguards at the state and national level, we will have our work cut out for us.

A project near to my heart has been the Celebrating Our Wildlife Conservation Heritage (COWCH) program. While we were able to interview some important 'old-timers' in the history of Alaskan wildlife biology, we have not been able to be as active as I had hoped. I do hope that the COWCH program will survive going forward here in Alaska, as it has languished at the national level. There are so many interesting careers and stories to document. And the old guard that was here at or before statehood are leaving us all too quickly. I do hope that this work will be carried forward. We cannot really understand where we are today, and where we are headed, if we do not learn from the past. I encourage everyone to view these videos, which are posted on our Alaska Chapter COWCH [YouTube channel](#) (the recent autobiography of Dr. David Klein draws, in part, on video interviews made through our COWCH program). I look forward to viewing more of these interviews in the future. Who knows, maybe I will even start a similar program in Scandinavia!

I wish I could attend the meeting in Anchorage this February, but I will be busy in my new job teaching undergraduate classes and advising graduate students in my position as Associate Professor of Wildlife Management at the Inland Norway University of Applied Sciences at Evenstad. I start that position on the 1st of November. My new email address at that time will be scott.brainerd@inn.no. If you ever plan a visit to Norway, or have an interest in studying or working in Norway, please feel free to contact me. Thank you for your trust in me as a board member, and for all your efforts on behalf of our precious Alaskan wildlife and habitats!

So long and best wishes,

Scott





Join us February 10-14, 2020 for the
Alaska Chapter of the Wildlife Society
Annual Meeting



Theme: Wildlife and Advancing Technologies

Location: Anchorage, Alaska

Alaska Pacific University

Atwood Center Rasmuson Hall

Website: twsalaskameeting.com

1st Call for Abstracts! Abstract Submission is now open for the Alaska Chapter of the Wildlife Society Annual Meeting, to be held in Anchorage, at the Alaska Pacific University, from 10-14 February 2020. Follow this link to submit your abstract by 15 November: twsalaskameeting.com. Our theme this year is **Wildlife and Advancing Technologies**.

As always, submissions of all fields relevant to wildlife are welcome and encouraged. Submit your abstract for an oral or poster presentation to either the **General Session** or one of our two special sessions: **Wildlife and Advancing Technologies** or the **Spark Session**, a fast-paced session featuring 5 minute presentations in a unique way of connecting ideas, engaging the audience and eliciting discussion about anything and everything we're passionate about in the wildlife profession.

Two workshops will be offered on February 10, including **"Google Earth Engine"** (full-day workshop) and **"Scientific Writing for Journals/ Career Opportunities Roundtable"** (each half day), followed by three days of poster and oral presentations. We are also going to have a **"Technology Show and Tell"** during the poster session to complement our theme. Two field trips, the **"Matanuska Experiment Farm Moose Pens and Lab Tour"** and a weather dependent **"Outdoor Excursion"** will be offered on Friday 14 February. To sign up for workshops, field trips or the show and tell, you need to register for the conference at twsalaskameeting.com. Our annual banquet will be held the evening of Wednesday 12 February. **Registration** will open in mid-October and additional conference details will be posted on the website. Email questions and suggestion to twsalaska@gmail.com.

Additionally, we will offer **Remote Participation** this year. There will be registration costs for both, online and in-person participation. This will be a trial year to test the feasibility of remote participation to our meeting. Remote participation will be limited to listening to sessions and presenting during sessions 11 February through 13 February. You will be able to choose remote participation as an option when registering on the website.

If you are interested in scheduling a **Side-Meeting** for a Working Group or any other group during our conference, email us as soon as possible to ensure room availability: twsalaska@gmail.com. Further, if you are looking for **special accommodation** (such as a comfortable space to pump; we have multiple moms on our team, we understand!) please let us know and we will help to accommodate your needs.

****Abstracts are due midnight, 15 November 2019****



Regional News

Northern

Kerry Nicholson, Northern Representative

Opportunities

New source of funds for wildlife research in Alaska!

It should be easy to give away money, right? Not necessarily. It's proven much more difficult than I ever imagined. One year ago, a trusted advisor recommended, "Just do it. Don't worry about all the details. Just get started and it will work out." I took that advice to heart and want to find projects I want to support.

This program has been under development for several years and I hope to provide a grant every year; something in the range of \$10,000 - \$20,000. The funds are not limited to students or faculty at institutions of higher learning. I am more than willing to consider applications from state employees, federal agencies, non-profit organizations and even independent biologists.

I was an avid hunter when I came to Alaska. I learned how to trap after I arrived. I've had years of enjoyment from both activities, and would now like to support research which will benefit other consumptive users. The project should focus on a species of mammal that is actively hunted or trapped in Alaska. Projects which have an obvious benefit for hunters or trappers will be given preference.

I don't have an established application form. I don't want 25 pages of footnotes and literature. Send me a two page description of the project and how it might impact consumers and/or management of the species. Add a basic budget, a list of project personnel and a brief description of past research on this topic. Entire application should not be more than 5 pages. Send it to me by March 1, 2020. I will attempt to make a decision by April 1.

Send to:

Randy Zarnke

219 Slater Drive

Fairbanks, AK 99701

Feel free to contact me [itrap2@gci.net or (907) 452-6857] for more details.



TWS-Alaska Chapter Regions: Northern, Southcentral, and Southeast.

Research and Publications

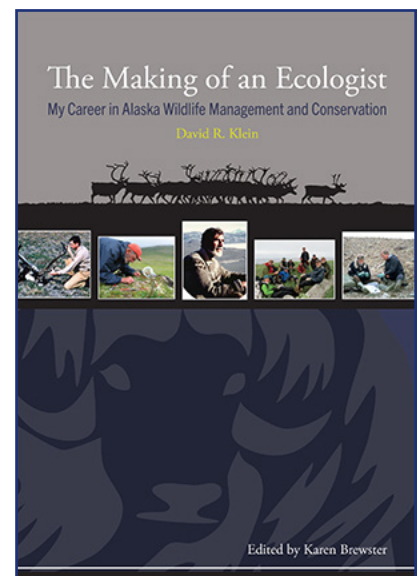
UAPress releases book on David Klein's career

The University of Alaska Press has released "The Making of an Ecologist: My Career in Alaska Wildlife Management and Conservation," by **David Klein** and edited by Karen Brewster.

David R. Klein is a leader in promoting the role of habitat in effective management of large hoofed mammals (ungulates), including deer, moose, caribou, mountain sheep, muskoxen, and mountain goats; animals that are vital to Alaska subsistence, hunting, and wildlife tourism.

"The Making of an Ecologist" tells the stories of Klein's work and the inspiration behind the science. The book follows the evolution of Alaska's wildlife management from territorial days to statehood, and the era of big oil.

Klein's lifetime of work touches a myriad of people and places. Many of his 67 graduate students have gone on to become successful wildlife managers and conservationists in Alaska and around



Regional News - Continued

the globe. Beyond Alaska, Klein worked in all of the Arctic countries, resulting in long-term collaborations with international colleagues.

The final section of the book emphasizes Klein's philosophy, ethical approach to wildlife management and conservation, and the importance of cross-cultural understanding in an ever-changing global society.

David R. Klein is professor emeritus at the University of Alaska Fairbanks. He was leader of the Alaska Cooperative Fish and Wildlife Research Unit at the University of Alaska, Fairbanks from 1962 until 1991, and then a senior scientist with the unit until his retirement in 1997. He is the author of more than 125 published articles, papers, and book chapters.

Karen Brewster is a research associate with the oral history program at the Rasmuson Library. Her books include "The Whales, They Give Themselves: Conversations with Harry Brower, Sr." and "Boots, Bikes and Bombers: Adventures of Alaska Conservationist, Ginny Hill Wood," both from the University of Alaska Press.

For more information about this title and many more please visit www.uapress.alaska.edu or call 800-621-2736.

Alaska researchers will apply hibernation insights to human health

A new five-year, \$11.8 million National Institutes of Health (NIH) grant will help University of Alaska scientists translate their knowledge of hibernating animals into treatments that advance human health. The University of Alaska Fairbanks Institute of Arctic Biology (IAB) will lead the newly formed Center of Transformative Research in Metabolism. University of Alaska Anchorage researchers will also participate.

Hibernating animals, such as arctic ground squirrels and black bears, undergo unique changes in their metabolism — the processes that build and break down materials in living cells and provide them with energy. These changes allow the animals to survive long periods of reduced activity and body temperature with no health problems.

Understanding these adaptations could reveal ways to treat certain human health problems, such as atrophy in unused and aging muscles, obesity, type 2 diabetes and cardiovascular diseases. The center will build on the university's long history of research into northern animals that hibernate through Alaska's winters.

"We're going to understand the novel insights that they provide and be able to translate that into human applications," said UAF professor Kelly Drew, who led the effort to obtain funding. Knowing more about hibernating animals may point to new treatments for metabolic diseases in humans, according to IAB Director Brian Barnes, a UAF professor who has studied arctic ground squirrels for more than three decades.

"This is a big deal since it shows NIH's recognition of hibernation as a deserving model for investment in biomedical research and UAF as a national and international center of expertise in hibernation and medical applications," he said.

At UAF, the money initially will upgrade and maintain magnetic resonance imaging machines in the Murie and Reichardt buildings. It will also renovate part of the Robert G. White Large Animal Research Station on Yankovich Road to create a breeding colony of arctic ground squirrels.

Professor Trey Coker, who will lead the UAF research, already runs a lab that specializes in the study of problems related to human metabolism, such as



Jeanette Moore, a UAF Institute of Arctic Biology research professional, holds an arctic ground squirrel in 2016. UAF photo by Todd Paris.



Regional News - Continued

obesity and muscle loss in aging adults. Hibernation research will enhance that work, Drew said.

At UAA, the grant will pay for equipment and technicians to advance research into microbial communities. Professor Khrys Duddleston, the UAA project leader, has been studying how gut microbes in arctic ground squirrels might help them maintain muscle mass during eight months in hibernation.

In total, the grant will support about 10 researchers, Drew said. The UA effort is funded by the NIH's Institutional Development Award (IDeA) program as a Center of Biomedical Research Excellence. The IDeA program's COBRE grants support three five-year research phases. They are intended to build facilities and expertise in states that are working to grow their biomedical research infrastructure.

Additional contact: Kelly Drew, 907-474-7190, kdrew@alaska.edu

Southcentral

Kim King Jones, Southcentral Representative

Personnel Changes

John Severson recently joined the USGS Alaska Science Center as a wildlife biologist primarily assessing caribou space use on the North Slope. Before coming to Anchorage, he spent two years with the USGS Western Ecological Research Center in Reno researching sage-grouse habitat selection and demographics. Originally from Wisconsin, John completed his undergraduate degree at the University of Wisconsin at Stevens Point. He then completed a master's degree at Southern Illinois University on a wetland restoration project, and a PhD at the University of Idaho on habitat restoration for sage-grouse. Recently, John has chiefly worked with game birds such as ducks, geese, grouse, and turkeys across the U.S. but he has also conducted field work on wolves, bears, and multiple big game species in Wisconsin and Alaska. John can be reached at jpseverson@usgs.gov.

Karlin Itchoak is the new Alaska State Director for The Wilderness Society, based in Anchorage. Karlin was born in Nome and has undergraduate degrees from University of Alaska Fairbanks in Native Studies and Political Science, and a law degree from Gonzaga University. Before coming to The Wilderness Society, Karlin worked as chief Administrative and Legal Officer for the Ukpeagvik Inupiat Native Corporation. Other professional experiences include directing Alaska rural and indigenous programs at Institute of the North, clerking for the AK Supreme Court Chief Justice, conducting economic development plans for the Bering Strait region with Kawerak Inc, and co-founding a consulting company focused on Arctic business relations, partnerships, and diplomacy. Karlin is passionate about defending native subsistence rights, climate adaptation issues in the Arctic, circumpolar policy making, and preserving Alaska Native cultures. He teaches a segment of the Alaska National Interest Lands Conservation Act (ANILCA) to federal, state and tribal employees. He can be reached at Karlin_Itchoak@tw.s.org.

Neil Barten Retired from ADF&G in June after over 30 years of service to Alaska's wildlife resources.

Lauren Watine is the new ADF&G Dillingham Area Wildlife Biologist. Lauren, who just completed her doctoral dissertation investigating jaguar movements and predation on livestock in Belize, completed her graduate work examining the effects of coyote predation on White-tailed deer at the University of Tennessee. In addition, Lauren brings considerable experience in bear management from Yosemite National Park, wolf work in Idaho, as well as a broad range of nongame, modelling, and analytical experience. Lauren is a team player with incredible enthusiasm which will serve her and the region well. Lauren is replacing Neil Barten.

Heidi Hatcher is the new ADF&G Glennallen Area Wildlife Biologist. Heidi, who has been in



Regional News - Continued

Glennallen since 2015, completed her undergraduate work in Ecology & Environmental Biology from Appalachian State and graduate studies in Natural Resource Management at UAF examining local trapping as a predator control tool in rural Alaska. Over the years, Heidi has worked at the Alaska Sealife Center, on the Alaska LNG planning process, and for multiple regions within the Division of Wildlife. She has demonstrated a strong understanding of the complexities wildlife managers face (particularly in the Nelchina Basin) as well as a commitment to the successful management of Alaska's wildlife resources. Heidi is on the Board of Directors for the Wrangell Institute for Science and Management, is an accomplished photographer, and dermestid beetle farmer. Her personable nature and team approach will serve her and the region well in this position and we are excited to see her vision for the future of wildlife management in Glennallen unfold.

Renea Sattler is the new ADF&G Caribou Research Biologist in Palmer. Renae received her BSc and MSc from Central Michigan University, where she investigated genetic diversity in the moose population on Isle Royale. Renae has worked on an impressive array of wildlife research and management efforts, including Channel fox in California, sharp-tailed grouse and black bears in Wisconsin, and snowshoe hares in Colorado. During the last six years, Renae has been a researcher at the Alaska SeaLife Center, where she worked with Steller sea lions, walrus, and beluga whales among others. Renae's strong field and analytical skills make her a valuable addition to the Region IV team.

Ben Weitzman is the new Ecologist at the NOAA Kasitsna Bay Laboratory in Homer.

Opportunities

Alaska Beluga Monitoring Partnership offers opportunities for volunteer citizen scientists to contribute to endangered beluga monitoring efforts in Alaska's Cook Inlet. The Alaska Wildlife Alliance is collaborating with Defenders of Wildlife, Beluga Whale Alliance, National Marine Fisheries Service,

and Cook Inlet Photo ID to form this program. Together we design standardized scientific monitoring protocols, train volunteers to support monitoring efforts, and coordinate shore-based beluga monitoring activities at various sites throughout Cook Inlet. We need volunteers to be citizen scientist observers for the August-November monitoring season at Anchorage, Girdwood, Kenai, and Kasilof sites. Learn more at <https://akbmp.org/data-collection>.

The Alaska Wildlife Alliance (AWA) will be accepting applications for new board members in September and October for two-year term positions. If you are interested in learning more, please email nicole@akwildlife.org.

Upcoming Events

USGS Science Seminars

October - May – The USGS Alaska Science Center has a monthly seminar series that runs from October through May. This series highlights the multiple research programs that are taking place across all disciplines at the center. Email ygillies@usgs.gov for more information or [visit](#).

Date	Presenter	Topic
October 15	Vanessa von Biela	Yukon Chinook salmon and heat stress
November 20	Dave Houseknecht	Energy assessments on Alaska's North Slope
December	Karyn Rode and Todd Atwood	Polar bear-human interactions
January	TBD	TBD
February	Christina Ahistrom	Antibiotic resistant bacteria in gulls and environments of Alaska
March	TBD	TBD
April	Jeff Falke (USGS CRU)	An overview of the USGS Cooperative Research Unit at UAF
May	TBD	TBD

ADF&G Education Events – Check out the ADF&G Education [Calendar of Events](#) for upcoming Community Events, Educator Workshops, Camps, Skills Clinics, and Hunter Education Events!



Regional News - Continued

Wildlife Wednesdays across the state cover a variety of different topics focused on wildlife of Alaska. They are all free and open to the public.

- **Mat-Su Wildlife Wednesdays**
First Wednesday of each month Oct - Apr
7-8 pm Matanuska Experiment Farm
1509 S Georgeson Road in Palmer
- **Anchorage Wildlife Wednesdays at the Alaska Zoo**
Second Wednesday of each month Oct - Apr
7-8pm Alaska Zoo Gateway Hall
- **Anchorage Wildlife Wednesdays at the BP Center**
Third Wednesday of every month 7-8pm
BP Energy Center, 1014 Energy Court
- **Juneau Wildlife Wednesdays**
First Wednesday of each month Oct - Mar
7-8pm, University of Alaska Southeast's Egan Lecture Hall, 11066 Auke Lake Way
- **Soldotna Wildlife Wednesdays**
Second Thursday of the month Oct - Mar
Soldotna Public Library

Awards

USGS Scientist Receives Prestigious Isleib Award at Alaska Bird Conference: The Isleib Award for "outstanding contributions to bird conservation in Alaska" was presented to USGS Alaska Science Center Research Wildlife Biologist **Dr. Colleen Handel** on March 7th at the 2019 Alaska Bird Conference in Fairbanks, Alaska. Dr. Handel has authored more than 80 scientific papers that chronicle her interdisciplinary research on the ecology of poorly studied shorebirds and landbirds throughout Alaska. Dr. Handel highlighted the global importance of Alaska's coastal habitats to shorebirds, pioneered the use of satellite telemetry to track the migrations of Alaska's shorebirds across the globe, documented and then unraveled the elusive mystery of the world's largest concentration of avian beak deformities (Avian Keratin Disorder),

and designed and analyzed surveys to inventory or monitor birds across nearly all of Alaska's vast federal lands. Dr. Handel was an Associate Editor for *The Auk* (2003-2014), is a current Editor for *The Condor: Ornithological Applications* (2014), and was made a fellow of the American Ornithologists' Union in 2013. She has tirelessly offered her time and expertise to requests by government agencies, university researchers, and bird conservationists for her considerable scientific acumen, which has also made her highly sought as a mentor by young professionals, undergraduate, and graduate students

Kenai National Wildlife Refuge Ecologist **Mark Laker** received the USFWS Regional Director's 2018 Excellence Award for Innovation in Conservation. This award recognized Mark's leadership in developing the use of Unmanned Aircraft Systems (aka drones) to survey fish and wildlife resources, and create maps and digital elevation models using Structure-from-Motion software.



Research and Management Updates

Mulchatna Caribou Herd Update - by Lauren Watine (ADF&G, Dillingham Area Biologist)
On August 26, 2019, ADF&G issued a news release and emergency order reducing the Mulchatna caribou herd bag limit from 2 animals to 1 animal. This comes on the heels of a population estimate significantly below population objectives which has now become a conservation concern (i.e., our current estimate is 13,500 animals; previous years had the herd at above 23,000, with an objective of 30,000-80,000).

Moose and Their Flying Antagonists - by Riley Woodford (ADF&G, Wildlife Information Officer)
Throughout the summer, a moose will be fed upon by tens of thousands of biting, blood-drinking insects, from tiny mosquitoes and gnats to chunky



Regional News - Continued



Bridgett Downs Benedict netting insects

flies with stabbing, cutting mouthparts. This summer, Bridgett Downs Benedict lived with moose and their insect hordes at the Kenai Moose Research Center near Sterling. A Ph.D. student from Texas A&M University, she's learning about the insects that harass moose and how moose cope. Learn more about this research [here](#).

Refuge notebook: A new way of thinking about climate adaptation - by John Morton (USFWS, Kenai NWR Supervisory Biologist)

Recently, I was in Madison, Wisconsin, at the National Adaptation Forum. This is an invigorating conference, powered by almost 1,000 passionate people who seek and offer solutions to address rapidly changing climate. The session I helped facilitate was about a new decision framework for responding to the ecological effects of a warming climate. This framework puts the burden on the land manager to make a RAD choice: resist, accept or direct that change.

To resist change means to try to maintain historic conditions despite changing conditions. To direct change means to try to influence the system's trajectory toward a desirable future condition. To accept change is to accept the outcome, perhaps because it's infeasible to manage the change (glaciers melting) or because nobody really cares (migratory birds arriving earlier in the spring).

I have already found the RAD framework useful in thinking about changes on the Kenai National Wildlife Refuge. Here, we have documented dramatic rates of tree line and shrub line rising into alpine tundra, wetlands drying in the Kenai

Lowlands, the Harding Icefield receding, nonglacial streams warming, and spruce trees dying in response to bark beetle attacks. Read more at: <https://www.peninsulaclarion.com/sports/refuge-notebook-a-new-way-of-thinking-about-climate-adaptation/>

Publications and Products

New Publication on Maternal Penning as a Management Tool to Improve Calf Survival in Small, Declining Caribou Populations:

USGS Alaska Science Center's Layne Adams led a team of American and Canadian biologists that conducted an experimental maternal penning program on the Chisana Caribou Herd, a transboundary population of Alaska and the Yukon. Small caribou populations across the southern extent of the species range have exhibited persistent declines over the last 2 decades, constituting a major conservation challenge. The goal of the experimental penning was to increase initial calf survival. Maternal penning entailed holding pregnant females on their native range in a large pen secure from predators from late March through initial calf rearing in mid-June. The research demonstrated maternal penning requires a high proportion of offspring are born within the treatment and is most effective at improving trends of populations that are stable or declining slowly (Contact: Layne Adams, 907-786-7159, Anchorage, AK).

Citation: Adams, L.G., R. Farnell, M.P. Oakley, T.S. Jung, L.L. Larocque, G.M. Lortie, J. McLelland, M.E. Reid, G.H. Roffler, and D.E. Russell. 2019. Evaluation of maternal penning to improve calf survival in the Chisana Caribou Herd. *Wildlife Monographs* 204:1-46. <https://wildlife.onlinelibrary.wiley.com/doi/epdf/10.1002/wmon.1044>

New USGS Publication on Migratory Movements of a Poorly Known Shorebird:

Marbled Godwits in Alaska constitute a unique subspecies that are believed to number only about 2,000 individuals. A recent published study documented the annual movements of this poorly studied shorebird using solar-powered satellite transmitters. Marbled Godwits returned to breeding, nonbreeding, and migratory stopover sites across years. Notably, all



Regional News - Continued

godwits staged at Controller Bay, Alaska, on the Copper River Delta during spring migration, a site whose importance to the species was previously unknown.

Citation: Ruthrauff, D.R., T.L. Tibbitts, and R.E. Gill, Jr. 2019. Flexible timing of annual movements across consistently used sites by Marbled Godwits breeding in Alaska. *The Auk: Ornithological Advances* 136: <https://doi.org/10.1093/auk/uky007>

New USGS - USFWS Publication on Spatial and Temporal Population Change of Waterbirds on Alaska's North Slope: Alaska Science Center researchers and collaborators at USFWS Migratory Bird Management Office in Anchorage, Alaska, recently published a paper describing the distribution, abundance, population trends, and important areas for 20 waterbird species breeding on the Arctic Coastal Plain, Alaska including portions of the NPR-A and the ANWR 1002 area. The authors reanalyzed USFWS aerial survey data collected from 1992 to 2016 to estimate and map population metrics across the North Slope. Maps will assist managers tasked with leasing land for oil and gas exploration and researchers looking to explore mechanisms underlying areas of population change.

Citation: Amundson, C. L., P. L. Flint, R. M. Stehn, H. M. Wilson, W. W. Larned, and J. B. Fischer. 2019. Spatio-temporal population change of Arctic-breeding waterbirds on the Arctic Coastal Plain of Alaska. *Avian Conservation and Ecology* <https://doi.org/10.5751/ACE-01383-140118>

New USGS – USFWS Publication Refines Population Estimates for breeding Spectacled Eiders in Western Alaska: USGS Alaska Science Center and USFWS Alaska Migratory Bird Management Office scientists, developed new visibility correction factors for the main Alaska breeding area of the threatened Spectacled Eider. The authors determined that population estimates (determined by aerial surveys) of eiders using unverified correction factors are biased high by

about 60% compared to the newly revised approach that accounts for low, medium, and high density areas of nesting eiders. However, all

data from ground and aerial surveys indicate that the breeding population in western Alaska is increasing.

Citation: Lewis TL, Swaim MA, Schmutz JA, Fischer JB (2019) Improving population estimates of threatened spectacled eiders: correcting aerial counts for visibility bias. *Endangered Species Research* 39:191-206. <https://doi.org/10.3354/esr00959>

Publication on Shorebird Subsistence Harvest and Indigenous Knowledge in Alaska: Researchers from the Alaska Department of Fish and Game and USGS Alaska Science Center analyzed the results of harvest surveys conducted in rural communities from 1990-2015. Additionally, researchers conducted indigenous knowledge surveys to assess the cultural relevance of shorebirds in western Alaska. The study determined that annual harvest of shorebird eggs and birds was relatively small compared to other subsistence resources but that shorebirds remain an important cultural component. The study allowed community members and researchers to share stories and information on shorebird use and cultural significance, information on population declines and migratory patterns of different species, and threats facing shorebirds during their long-distance migrations to and from Alaska.

Citation: Naves, L.C., J.M. Keating, T.L. Tibbitts, and D.R. Ruthrauff. 2019. Shorebird subsistence harvest and indigenous knowledge in Alaska: Informing harvest management and engaging users in shorebird conservation. *The Condor: Ornithological Applications* 121, <https://doi.org/10.1093/condor/duz023>



Photo - Ryan Askren, USGS. Public domain.



Regional News - Continued

Publication on Carbapenem-resistant Bacteria in Southcentral Alaska Gulls: Scientists from USGS Alaska Science Center and medical professionals in Sweden report the first detection of carbapenem-resistant *Escherichia coli*, an emerging public health pathogen, in Alaska and the United States. Carbapenem antibiotics are usually reserved to treat serious infections caused by multidrug resistant bacteria. This information can be used to compare samples from other hosts and geographic locations to investigate possible dispersal of antimicrobial resistance.



Photo - Andrew Reeves, USGS. Public domain

Citation: Ahlstrom CA, Woksepp H, Ramey AM, Bonnedahl J. Repeated Detection of Carbapenemase-Producing *Escherichia coli* in Gulls Inhabiting Alaska. *Antimicrobial Agents and Chemotherapy*, <https://doi.org/10.1128/AAC.00758-19>

Publication on variation in moose body

temperatures: Variation in core body temperature of mammals is a result of endogenous regulation of heat from metabolism and the environment, which is affected by body size and life history. We studied moose (*Alces alces*) in Alaska to examine the effects of endogenous and exogenous factors on core body temperature at seasonal and daily time scales. We used a modified vaginal implant transmitter to record core body temperature in adult female moose at 5-min intervals for up to 1 year.

Citation: Thompson, D. P., P. S. Barboza, J. A. Crouse, T. J. McDonough, O. H. Badajos, and A. M. Herberg. 2019. Body temperature patterns vary with day, season,

and body condition of moose (*Alces alces*). *Journal of Mammalogy* In Press. doi: 10.1093/jmammal/gyz119

An Assessment of Ecological Value and Vulnerability in the Bering, Chukchi, and Beaufort seas:

Audubon Alaska's recently completed report explores hundreds of data sets across dozens of taxa to describe the distribution of ecological values in the Western Arctic seas, as well as the anthropogenic uses that influence them. Available this fall at AK.Audubon.org, or call (907) 276-7034 for a hardcopy.

BLM Special Status Species List - The Bureau of Land Management (BLM) in Alaska has recently completed an updated Special Status Species list with input from many partners, including Alaska Department of Fish and Game, Alaska Center for Conservation Science, US Fish and Wildlife Service, and numerous species experts. The list includes species that BLM has significant management authority to affect the conservation status and is primarily used to apply special management considerations to prevent the need to list species under the Endangered Species Act. Criteria used to identify species included the NatureServe conservation status rankings, expert input, population trend, and partner lists. The list is available at: <https://www.blm.gov/programs/fish-and-wildlife/threatened-and-endangered/state-te-data/alaska>. Please contact Casey Burns, BLM Alaska Wildlife and Threatened & Endangered Species Program Lead at cturns@blm.gov or (907) 271-3128.

Life in the Heart of the Arctic: Our ongoing report series is now available at AK.Audubon.org/life-heart-arctic. This 6-part series uses science to share the stories of the Refuge and highlight the value of its Coastal Plain not just for wildlife, but for all of us.

Alaska's Wild Wonders Issue 9: Fur, fluff, and other stuff – The Alaska Department of Fish and Game Wildlife Education team just completed



Regional News - Continued



the [ninth issue](#) of their annual kid's magazine, Wild Wonders. This year's theme was "Fur, fluff and other stuff", and focuses on mammals, the structure and functions of fur, current research and science that is using fur or hair to learn about mammals, and how people are connected to fur in

the state of Alaska. It was designed to complement a fur teaching curriculum and fur kits available to teachers at regional offices.

Alaska Wildlife Alliance (AWA) is producing a documentary film on trapping in the Wolf Townships outside Denali National Park. For more information on the film (and a sneak peek of the footage) visit AWA's website. <https://www.akwildlife.org/film-fund>

Other recent publications

Becker, E., and A. Christ. 2019. Rejection of Schmidt et al.'s estimators for bear population size. *Ecology and Evolution*

Elbroch, M., & McFarland, C. (2019). Mammal tracks & sign: a guide to North American species. Contains Photographs by ADF&G Biologists Nick Demma, Lincoln Parrett, and Mike Taras

Moran, C.C. 2019. Effectiveness of mitigation measures on moose vehicle collisions. MS Thesis, UAF

Southeast

Susannah Woodruff, Southeast Representative

Personnel Changes

Susannah Woodruff left ADF&G and joined USFWS' Polar Bear Program

Research Updates

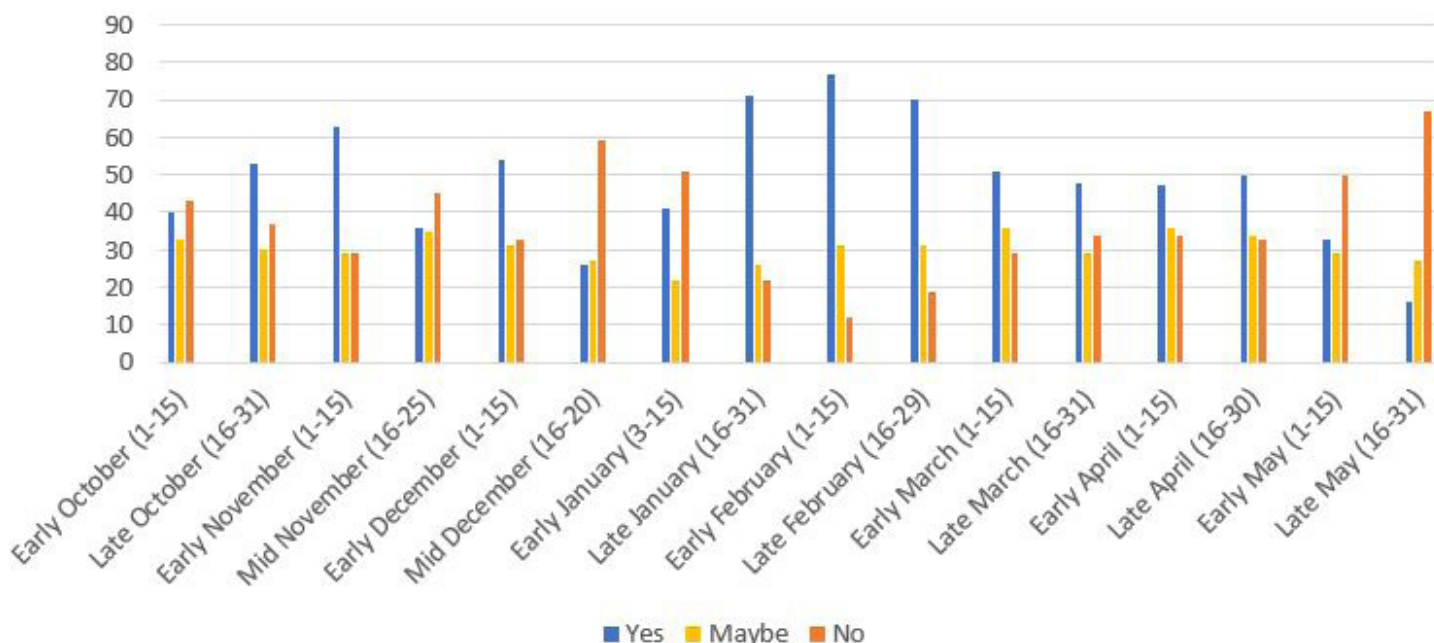
The Tongass National Forest has helped implement a number of wildlife monitoring projects in 2019:

- Development of eDNA qPCR markers for 6 native amphibians, 2 introduced amphibians, and 2 diseases (Ranavirus and Chytrid) with RMRS eDNA Lab, USFWS, ADF&G and others.
- Aleutian tern colony and movement monitoring with ADF&G, OSU, USFWS, and National Fish and Wildlife Foundation.
- Arctic tern colony monitoring at the Mendenhall and Baird glaciers.
- Queen Charlotte Goshawk surveys on 5 ranger districts.
- Breeding bird surveys along 7 routes on 5 ranger districts with the USGS BBS program.
- Beaver dam and fish passage mapping and monitoring on the Juneau Ranger District with the Beaver Patrol.
- Deer pellet surveys on 4 ranger districts with ADF&G.
- Pilot test of using cameras to assess young-growth thinning effects on deer use and snow levels on Zarembo Island with ADF&G.
- Study of deer use of small gaps in young-growth forest on Prince of Wales Island by Dr. Sophie Gilbert, University of Idaho.
- Mountain goat monitoring on the Yakutat Ranger District.
- Fall mountain goat survey on the Juneau Ranger District with ADF&G.
- Wolf hair-board and camera monitoring on Prince of Wales Island with ADF&G, TNC, and Hydaburg Cooperative Association.
- Citizen science bat monitoring programs on 4 ranger districts with ADF&G.
- Forest-wide NABat surveys with ADF&G.



TWS AK Chapter Annual Meeting Survey Results

Are you, in general, able to attend the Alaska Chapter Meeting in:



Thank you very much to all 126 members and non-members who participated in our survey during spring 2019! We appreciate your input and the results of this survey will help us shape our Annual Meeting and improve the meeting experiences over the next 5-10 years. Timing-wise, it looks like early February is the best time for most to attend our Annual Meeting, with most Yes's (77) and least No's (12), followed by late January and late February. Therefore, we plan to schedule our Annual Meeting around that time frame for the next 5 years. In 2020, our meeting will be between the 10th and 14th of February, held in Anchorage.

what participants perceived as relevant, or not, in that regard. 65% of participants indicated that remote access would definitely or possibly increase their probability of attendance; thus we will continue to investigate this opportunity.

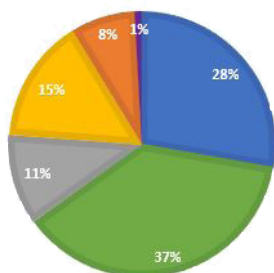
While conducting this survey we were also curious how many of you are current members of the Alaska Chapter and National Chapter, and wanted to understand why some of you are currently not members. About three quarters of participants indicated they are current members of both the National and the Alaska Chapters.

ARE YOU A CURRENT TWS NATIONAL MEMBER?

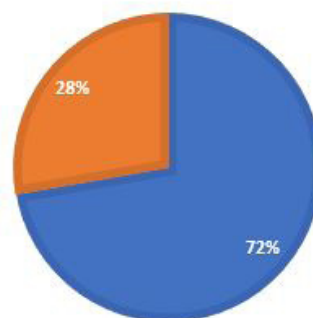
As we are considering remote participation options, we were further interested to learn about

WOULD REMOTE ACCESS TO PRESENT AND LISTEN TO/VIEW PRESENTATIONS INCREASE YOUR PROBABILITY OF ATTENDANCE?

■ Yes, definitely ■ Possibly ■ Unsure ■ Not likely ■ No ■ I don't like this idea

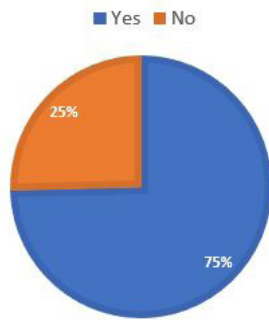


■ Yes ■ No



AK Chapter Survey Updates - Cont.

ARE YOU A CURRENT TWS ALASKA CHAPTER MEMBER?



Suggested incentives and reasons for not being a current member identified by participants who indicated they are not current members included:

"If becoming a member is cheaper or the same price as reduced member rate. Otherwise, I cannot charge member fee as a business expense and I'm not willing to pay for it out of pocket."

"A more neutral TWS position on politicized issues."

"Structured time at meetings for prospective graduate students to network with university faculty."

"Nothing really. There are many professional societies my job overlaps with, so it is difficult to focus in on one."

"I don't know much about membership."

"Probably a reminder to renew my membership :)"

"I only recently joined because there is no direct incentive for doing so. Reduced meeting costs (factoring in the cost of both national and AK membership) would be a big motivation."

"A t-shirt."

"Change meeting time/date."

"None needed."

"Planning on becoming one."

"Better understanding of potential benefits."

"I have been in the past. I just need to renew."

"Benefit/incentive for being hired to professional positions."

We appreciate your honesty and we are working on addressing identified shortcomings to increase our value to and support of membership.



Mat-Su Moose-Vehicle Collisions

by Luke McDonald, Utah State University

Since the summer of 2016, the Jack H. Berryman Institute and Region IV of the Alaska Department of Fish and Game



have investigated Photo - Kim Jones, ADF&G

the factors contributing to moose-vehicle collisions (MVCs) and moose movement patterns in the Matanuska and Susitna valleys (Mat-Su) of Alaska. In Alaska, the rate of MVC occurrence tends to increase during the winter months when snow pushes moose into the valleys where humans are more likely to live. This phenomenon is especially obvious during the dark commuter rush hours in winter. Overall, this trend has been increasing in the Mat-Su, likely due to its high human population growth rate (~3.4%) in relation to the rest of the state (~1.2%).

Using data we collected from 2016 to 2018 at MVC sites in the Mat-Su, we formulated a risk model that indicated road curvature, roadside vegetation, and roadside depth were correlated with increased risk of MVCs. Using data we collected from 2017 to 2018 from radio-tracked urban moose in the Mat-Su, we formulated a risk model that indicated urbanness, number of corridors, and proportion of certain land cover types were correlated with sites where our radio-collared moose crossed roads. Overall, our moose exhibited diverse movement patterns from 50 km+ migrations between seasons to year-round home ranges within 5 km of the original capture location.

I am continuing to process the vast amount of movement data we collected (60 transmitters/ 77 different moose/ over 1 million relocations) throughout my master's research, and I have begun my PhD program at Utah State University based on an extension of the project, which will include a human dimensions component and further analysis of the MVC and moose movement data.

Get Involved in Your Alaska Chapter!

There are many opportunities to get involved with the Alaska Chapter! We have many active members helping out across various Working Groups and Committees. However, we are always looking for enthusiastic people that would like to help shape the future of the Alaska TWS Chapter. Let us know what you are interested in any time, by sending an email to President-elect Kim Jochum, kim.jochum@colostate.edu, or to our Alaska TWS Chapter email twسالaska@gmail.com.

Working Groups (WGs)

Each WG within the Chapter focuses on achieving specific tasks and goals. Participating in a WG is a short-term time commitment (regular ~ bi-monthly conference calls with occasional emails and specific tasks assigned, maximum one to two-year).

- **Student Development WG**
Current identified objectives include: Join chapter across UA (UAA-UAS-UAF), identify interests and possible activities to be taken on by students in chapter.
- **Chapter Development WG**
Current identified objectives include: Develop financial strategy, review and revise bylaws in conjunction with strategic plan, member recruitment.
- **Conference Planning WG (Anchorage 2020 Meeting)**
Current identified objectives include: Identify dates and venue; identify theme, side meetings, social events; Implement remote participation at future meetings; increase participation of various groups (e.g. fed, remote).

Committees

The Chapter has currently two Committees, the Awards Committee and the Conservation Affairs Committee.

- **Awards Committee**
The Award committee advertises and evaluates award submissions for our various Chapter awards available to wildlife professionals and students. The Awards Committee is currently looking for 2 new recruits. We are looking to diversify our member base. Please consider to join.

- **Conservation Affairs Committee (CAC)**
This committee is involved in identifying needs and drafting letters regarding conservation affairs that are relevant to the Alaska TWS Chapter.

Executive Board (EB)

Executive Board positions will need to be filled again this winter. Think about getting involved in our Chapter in a leadership position. Positions up for re-election by fall/winter 2019 are President-Elect, Secretary-Treasurer, Northern Representative, Southcentral Representative, and Southeast Representative.

If you think you could be interested in taking on one of these roles in the future, consider getting involved in another capacity, like a WG, so we can get to know you and you can get to know us.

Find us on Facebook!

You can “like” us on Facebook! On our [Facebook page](#), we are posting information on scientific publications relevant to Alaska’s wildlife, announcements of upcoming meetings, and job openings.

If you have ideas on how we can most effectively use our Facebook page, contact the Executive Board through the Chapter email: twسالaska@gmail.com.



Working Group and Committee Updates

Student Development Working Group Update:

We have met (via phone) 3 times since our inaugural meeting in April of this year. Our first meeting was used to identify co-chairs, and layout the following goals and objectives:

Expanding the University of Alaska-Fairbanks Student Chapter to the UA system.

- Updated the student chapter bylaws to incorporate this change from UAF to UA.
- Identified faculty from UAA and UAS to help connect students from their respective campuses to the student chapter.
- Worked with the student chapter and UAA and UAS contacts to have remote participation for students not at UAF.

Getting students more involved with the state chapter

- Working with a student to manage the websites for the state and student chapters.
- Identifying grant opportunities (travel grants, research grants, etc.) for students.

Alaska Chapter Development Working Group Update:

We held a couple meetings in early summer and will pick up again in October. Email kim.jochum@colostate.edu if you want to get involved! Current working group members: Kim Jochum and Susannah Woodruff (co-chairs), Kim King Jones, Scott Brainerd, Grant Hilderbrand, Anthony Crupi, Garrett Savory, Todd Rinaldi, Molly Garner, Paul Schuette, Howard Golden.

Main Goals:

- Revise Bylaws
- Review Strategic Plan
- Develop Guiding Document of Financial Strategy based on Strategic Plan and Bylaws. All three documents are tightly linked to each other and need to be considered together when approaching individual tasks.
- Develop Member Recruitment Strategy

What we have accomplished so far:

- Reviewed how identified goals were approached in the past
- Identified items to be included in revised bylaws:
 1. Add Conservation Affairs Committee (CAC) to become a Standing Committee. We only see the importance of the CAC increase in the future. As part of this process, add the chair of the CAC to be non-voting member of the Executive Board (EB).
 2. Add a code of ethics to have a process in place to possibly remove officers and/or address issues if needed.
 3. Suggested to keep wording generic rather than specific and use the bylaws as a framework.
- Discussed various options for financial strategy
- Initiated review and discussion on bylaws in conjunction with strategic plan
- Identified options to increase member recruitment

2020 Conference Planning Working Group Update:

Current working group members: Kim Jones, Dan Jenkins, Amanda Droghini, Tim Fullman, Kim Jochum, Heather Johnson, Timm Nawrocki, Kerry Nicholson, Kaiti Ott, Paul Schuette, Jeff Stetz, Nate Svoboda, Jeff Wagner, Susannah Woodruff

We got an early start and our Working Group is making good progress on planning the annual meeting! Email kim.jones@alaska.gov if you want to get involved!

Here is what we have so far:

When: Feb 10-14, 2020

Where: Alaska Pacific University, Rasmusson Hall

Theme: Wildlife and Advancing Technologies

Workshops:

- Google Earth Engine
- Scientific Writing for Journals
- Career Opportunity Roundtable
- Technology Show and Tell - New this year

Fieldtrip Options:

- Matanuska Experiment Farm Moose Pens and Lab Tour
- Outdoor Excursion – weather dependent

By Nov 15, please submit requests for:

- Special Sessions



WG and Committee Updates - Cont.

- Side meeting space
- Business meeting topics

Coming soon at <http://twsalaskameeting.com/>

- Student Travel Grant Applications
- Award Nominations
- Registration and Abstract Submission

Group rate reservations: SpringHill Suites

Univeristy Lake. Book your group-rate room at [this link](#) through January 19, 2020.

Conservation Affairs Committee (CAC) Update:

During the Chapter's annual meeting last spring, an effort was made to recruit new members to our Conservation Affairs Committee. A few attendees expressed interest, and our members now include Tim Fullman, Kim King Jones, Matt Kirchoff, Garrett Savory, John Schoen, Mike Spindler, and Dave Yokel. During the Chapter's Executive Board meeting on April 25, it was decided it would be good to add a few more members with varying backgrounds. As you can see below, we are busy and can use your help. Any volunteers please contact Dave Yokel (akyokel@gmail.com) or Kim Jochum (Kim.Jochum@colostate.edu). The EB also decided the CAC could enlist other Chapter members from time to time as needed for their expertise in specific areas.

In mid-March, the CAC completed a comment letter on the Draft Environmental Impact Statement (DEIS) for the Arctic Refuge Coastal Plain Oil and Gas Leasing Program and sent it to Interior Secretary Bernhardt. Projects the CAC has recently been working on include a response to the proposed exemption for the Tongass National Forest to the roadless rule, and a draft amendment to the Chapter's bylaws to make the CAC a standing committee to replace the existing (but currently inactive) Conservation Review Committee. Two projects the CAC is just beginning are comment letters on the DEISs for the Willow Master Development Plan (northeastern National Petroleum Reserve in Alaska; NPR-A) and a new road through wilderness to the Ambler Mining District. In the near future, the CAC may also address a new Integrated Activity Plan/Environmental Impact Statement for all of the NPR-A.



ADF&G Wins TWS National Award

The Alaska Department of Fish and Game, Division of Wildlife Conservation, received the first ever Wildlife Restoration Award in the Wildlife Research and Surveys category for their project entitled "Factors Limiting Moose at High Densities in Interior Alaska." This study is unique in that it monitored a large sample of moose near Fairbanks, Alaska, from birth to death over a 22-year period, documenting lifetime reproduction and sources of mortality of juveniles and adults. It provided essential information and knowledge crucial for managing moderate to high density moose populations with healthy populations of grizzly bears, black bears and wolves. The study area has high hunter demand in an area of low habitat productivity as is typical for interior Alaska. It provided recommendations to managers and public stakeholders that included controversial antlerless hunts that were necessary to reduce unsustainably high moose numbers and prevent a dramatic population decline.

No other long-term study of moose in Alaska has had such consequential and important impacts on moose and predator management, which has benefited hunters and others that appreciate the values these species represent. This research produced 16 peer-reviewed publications and three graduate theses that have added to our general knowledge on moose-predator-harvest dynamics

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Small Game Summary - 2018/2019 Weather and Brood Production

By Rick Merizon, ADF&G Small Game Program Coordinator

For Southcentral, Interior, and portions of Western Alaska, spring and summer 2018 experienced near normal temperatures and precipitation. However, much like the summer of 2016 and 2017, Southwestern Alaska (including Dillingham, Bethel, and the Yukon-Kuskokwim delta) experienced cool and wet conditions throughout much of the 2018 summer that likely contributed

to poor chick survival. Also, portions of the Alaska Range and the Chugach and Talkeetna mountains experienced cool, wet, and snowy conditions during late June and early July that strongly affected rock, white-tailed, and willow ptarmigan chick survival.

Record warm fall temperatures and overall lack of snow were experienced from Utqiagvik to Homer through October 2018. Warm temperatures also contributed to an unusually late sea ice freeze-up in the Bering and Chukchi seas. Some snow was experienced in Anchorage and Fairbanks in late October and November, however continued mild temperatures remained until mid-December for much of the state. This likely contributed to higher mortality for many grouse and ptarmigan populations across Alaska that were unable to take advantage of snow roosting for thermal protection and predator avoidance.

Between mid-December 2018 and February 2019 near normal temperatures and snowfall occurred for Southcentral and Interior Alaska. However, as has



occurred since 2013, Southwestern Alaska received unseasonably warm temperatures, rain, and strong wind. North of the Yukon River, temperatures remained below freezing and experienced very high snowfall on the Seward Peninsula.

The mild winter of 2018-19 concluded with record setting warm temperatures and early snowmelt in March throughout most of the state. The majority of the Interior and Southcentral was completely snow free by mid-April which greatly contributed to increased wildfire risk in those areas. The DOT was able to have the Denali Highway cleared nearly 2 weeks early on 1 May. As a result of the early melt and rapid increase in daytime high temperatures, plant phenology and subsequent peak spring breeding activity of grouse and ptarmigan was between 4-10 days early throughout most of Alaska.

Beginning in 2017, and accelerating in 2018 and 2019, a growing spruce bark beetle (*Dendroctonus rufipennis*) outbreak has severely affected large stands of mature (≥ 15 cm diameter) white spruce (*Picea glauca*) throughout Southcentral and the Kenai



Small Game Summary - Continued



Peninsula. Much of the lower Susitna and Matanuska river watersheds have been severely affected in addition to portions of the Anchorage bowl. This will likely have a strong negative effect on spruce grouse populations throughout Southcentral and the Kenai Peninsula over the coming years and have severely increased the wildfire risk in affected areas.

ADF&G field personnel observed high densities of both avian and terrestrial predators during spring 2019. These observations were widespread throughout much of the state. Higher predator densities are likely explained by the snowshoe hare population nearing their 10-year peak in many areas of the state, however predators will also impact grouse and ptarmigan.

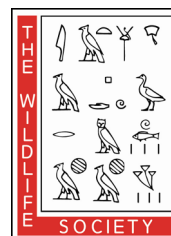
Beginning in early-June and continuing throughout July and early August 2019, much of the state set record high temperatures coupled with very dry conditions. These warm and dry conditions are highly correlated with high chick survival for both grouse and ptarmigan. Portions of the Alaska Range had several heavy rain events in early August 2019; however this occurred late enough in the brood rearing period to likely have minimal impact on chick survival. Read the full report [here](#): Merizon, R.A., C.J. Carroll. 2019. Status of grouse, ptarmigan, and hare in Alaska, 2017 and 2018. Wildlife Management Report ADF&G/DWC/WMR-2019-2.

TWS National Award - Continued

in addition to benefiting the management of this population. **Dr. Rod Boertje**, who initiated and led this project, received this award on behalf of the Department at the recent joint meeting of The Wildlife Society and the American Fisheries Society in Reno, Nevada.

The Wildlife Restoration Awards were created to recognize outstanding projects supported by funding from the U.S. Congress through the Federal Aid in Wildlife Restoration Act (also known as the Pittman-Robertson or P-R Act) and associated non-federal matching funds. Established in 2018, the annual awards highlight the importance and effectiveness of the Federal Aid program and recognize excellence in wildlife management and research. The awards are presented in 2 categories; Wildlife Management and Wildlife Research and Surveys.

Is it time to renew your membership?



New memberships and renewals to The Wildlife Society and the Alaska Chapter are available online at [The Wildlife Society website](#).

Click **Join** or **Renew** to obtain membership forms. On The Alaska Chapter [website](#) click on **Membership**.



Returning Prescribed Fire to the Delta Junction Bison Range

By Sue Rodman - ADF&G Division of Wildlife Conservation, Program Coordinator and Forester

In May 2018...Hats turned backwards, sunglasses on, and ATVs rolling into the Panoramic Fields of the Delta Junction Bison Range, Gabe Pease-Madore, Mary Jo Hill, and Sue Rodman set out to evaluate fuel moisture and site conditions for the next day's planned prescribed fire. About 2 ½ 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 Delta Junction Bison Range (DJBR) for continued habitat enhancement.

In 2017, staff from both state agencies and the BLM burned about 800 acres in the northern portion of the Panoramic Field Complex on April 22-23. 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 with. In some of these panels, aspen regeneration has 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 trees back to short stubs.



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

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 winters of 2017-2018 and 2018-2019 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 blades roll 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



Bison and Prescribed Burns - Continued

way provides fresh new shoots of aspen for moose to browse where the older trees had grown out of their reach.

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 sharp-tailed 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. It’s key to have sufficient fuel to carry fire in order to generate enough heat to top kill these plants; otherwise the expense of the operation outweighs the benefits to providing forage. Annually, Cooper and his colleagues conduct surveys in August to evaluate the vegetation response to fire, determining whether objectives were met.

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 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.

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 the silty soil up 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 on 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.



Bison and Prescribed Burns - Continued



The prescribed burn in progress. Photo - Tom Mowry.

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.

At 67 degrees F, 15% relative humidity, and southeast 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, 6 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 the high moisture content of the soil requires substantial effort to run fire here. 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. The fall post-fire evaluation of the burn confirmed that prescribed fire does reduce woody cover in the fields, but not by our objective of 50-75%. Additionally, the burn did not increase graminoids and forbs by 25%, at least according to the plot data from sites we measured. There is a lot of variability across each panel within the field complexes, so expanding the plot points will help us quantify change more accurately in addition to continuing the program to test different prescriptions and sites. As Clint Cooper reported last year, there are additional benefits to continuing the prescribed fire program on the bison range that we don’t have measurable objectives for at this time, such as nutrient release into the soil and increased use by bison and moose.



Bison and Prescribed Burns - Continued

On May 9, 2019, a limited burning window opened between snow melt and what was to become a high fire danger season across the state. Again, with moisture levels high just under the leaf litter, we began the prescribed fire operation in the southeast corner of the Panoramic Field: attempting to black line the southern portion of the unit and let it rip north across the shrubs that were burned in 2017. The focus here was to further set back aspen and willow encroachment onto a panel quaintly named the Club House where large herds of bison enjoy spring sun with their calves.

After wrestling with the mud and using the big tractor to pull out the Forestry engine, stable soils supported the ignition at 3:10 pm with variable winds changing direction every few minutes at 4-6 mph with gusts to 10 and a somewhat high relative humidity of 28%. Past years proved most efficient under 20% humidity. The black line consisted of matted and standing grass separated from thousands of acres of black spruce by a 20-foot wide disc line of overturned soil. Two ignitors ran drip torches along this narrow stretch of grass to yield friendly 6 to 12-inch flame lengths with a comfortable rate of spread between 0.5 and 3 chains per hour. One chain equals 66 feet; this unit is used in forestry to measure distances and in fire to measure fire spread as it is easily measured by a person's paces and converts to miles readily (80 chains in a mile). The engine and two holding firefighters followed the operation to ensure a clean line with no slop-over into the adjacent grass area.

Burn boss Gabe Pease-Madore made it very clear that we had two watch out situations to be concerned about: fire whirls and embers lofting into the adjacent black spruce. We stood watching the fire with an intent gaze; the shifting winds were teasing the black spruce as embers would become airborne and then fall back quickly into the "black." Fire Effects Monitor, Mary Jo Hill constantly measured wind direction and speed. As the ignitors advanced east away from us, we noticed the flame lengths soar to 4 and then 6 feet high. The holders quickly ran forward to douse the flames with back-pack sprayers and swamp the flames with their flappers. A fire whirl had spun up embers



The aftermath of the prescribed burn. Photo - Tim Mowry. and burned grass; the mini tornado quickly sent debris tens of feet into the air...and then settled back to the ground.

After running to help with tools and water, we all checked the black spruce forest for any embers to make sure we didn't start a fire in the moss that was almost crunchy dry. Ignitors carefully finished the line to anchor in the disc line, and one more small area was burned to complete the corner. Pease-Madore and Rodman, serving as the agency representative for ADF&G, made a command decision to end the operation. We started with a narrow window of weather conditions in the first place, and the day's dry fuels, shifting winds, and high potential for fire spread in the black spruce caused us to reconsider further burning. This operation is intended to be annual, cost effective, and low risk. We will return in 2020.

In writing the prescribed fire 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

Continued on pg. 25



Polar Bears' Plastic Diets Are a Growing Problem

By Gloria Dickie - Originally published in *Hakai Online Magazine* April 5, 2019

Earlier this year, 52 polar bears descended upon Belushya Guba, Russia, prompting the small military settlement on the Novaya Zemlya archipelago to declare a state of emergency. The so-called “[polar bear takeover](#)” was a dramatic example of a widespread issue: where bears and unsecured waste overlap, bruins are likely to be found muzzle-deep in trash. That’s a threat to human safety, and garbage diets are bad news for bears, too.

Dumps are often chock-full of plastic and, as a new survey from Alaska shows, polar bears are ingesting a lot of it. In an analysis of the stomach contents of 51 polar bears that had been killed by subsistence hunters in the southern Beaufort Sea between 1996 and 2018, researchers led by Raphaëla Stimmelmayer, a wildlife veterinarian with Alaska’s North Slope Borough Department of Wildlife Management, found that 25 percent of the bears had plastic in their stomachs.

Ingesting plastic can cause serious problems for polar bears because of their physiology. Polar bears have a very narrow pyloric sphincter—the outlet from the stomach to the small intestine—so large items can

cause painful blockages. Two of the bears whose stomachs were stuffed with more plastics than the other bears had behaved differently, too—they were more irritable and aggressive, and did not respond to deterrents meant to shoo them away.

Scientists know that bears in poor body condition are likely to be more aggressive. In a [2017 study](#), Geoff York, senior conservation director with the nonprofit conservation group Polar Bears International, and his colleagues showed that nutritionally stressed male polar bears are more likely to attack people. “These bears are potentially not just hungry, but in pain,” York says.

Andrew Derocher, who heads the Polar Bear Science lab at the University of Alberta and was not involved in the study, says it’s unclear whether polar bears act aggressively because they are hungry, or because they have bellies full of plastic. “It’s a chicken and the egg question,” says Derocher. “Are the bears hungry and therefore eating crap at the dump? Or is it that bears get into dumps, eat things they shouldn’t eat, and end up with problems?”



Feeding at a landfill is full of immediate threats for polar bears—like one in Churchill, Manitoba, that ate a sharp tin can. But researchers are finding the accumulation of plastic in polar bears’ stomachs can cause problems, too. Photo - Eric Baccaga/NPL/Minden Pictures.



Polar Bear Diets - Continued

Stimmelmayer says most of the ingested plastics she found were clear plastic shopping bags and heavy-duty black garbage bags. She doesn't think polar bears are deliberately eating plastic bags, as is the problem with leatherback turtles, which confuse the bags with jellyfish. Instead, she thinks that when people toss away bagged scraps, the cold Arctic conditions cause the plastic to freeze to the food, making it impossible for the bears to eat one but not the other.

Preventing polar bears from eating plastics isn't easy. Unlike in the south, where garbage can be managed through landfills, that's often not an option in the Far North, where bedrock might be too close to the surface to dig deep, or the ground is permafrost.

"Waste management is a growing issue, because of the nature of food that people are eating and the westernization of Inuit diets," says York. "The processed nature of what we ship to the North has changed a fair bit in the last couple of decades to a very plastic-heavy [packaged] type of food." "The best answer is to reduce those things coming into the North, or make sure there are programs in place to haul non-organic things back out," he says.

There's not enough data to determine if polar bears' plastic consumption has increased since the stomach surveys began in the 1990s, but it's something wildlife managers want to track. In Canada's Northwest Territories, hunters already sample the health of harvested polar bears, but they don't always open the stomachs. "What has come out of this study is that [hunters] want to make a more concerted effort to look at [the stomachs] in the Northwest Territories," says Stimmelmayer.

In Belushya Guba, the bears eventually left town and Russian officials ended the state of emergency. But bears feeding in dumps is an increasingly common sight, Derocher says. "That's going to lead to a whole new range of problems."

Burns and Bison Range - Continued

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 2017 and 2018 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.

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 building 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.

As efficiency of operation improves over time, reduced implementation costs support continuation of this operation. With more monitoring, we can validate an adequate return interval for fire to limit woody species encroachment and assess how fire affects the grass species composition. Lab data from forage and soil analyses will inform these questions in this next cycle. Managing risk and understanding the low and high limits of the burning prescription is fundamental to sustaining this operation; fire managers must balance the short term gain of acres burned with the long term objectives of improved range in order to carefully apply fire on the ground.

Recent annual prescribed fire operations are paid from a federal aid Wildlife Restoration grant to enhance wildlife habitat statewide. As we determine an operational cost and associated efficiency of scale to run fire in the bison range annually, we anticipate that prescribed fire will again become an integral part of the bison range management regime.



Refuge notebook: Rethinking nonnative species in a human-driven world

By John Morton, Kenai National Wildlife Refuge, USFWS - Originally published in the *Peninsula Clarion* Aug 1, 2019.

Wow. In the Alaska Department of Fish and Game's 2019-2020 hunting regulations, mule deer and white-tailed deer can now be harvested. These two nonnative species appear to be here to stay. Mule deer are moving in from the Yukon Territory, recently seen near Skagway, Tok, Delta Junction and Fairbanks. White-tailed deer are probing our border with British Columbia, observed recently around Hyder and Haines.

It's strange how sometimes we accept novel species without blinking. In this case, deer are expanding their distribution northward and westward as the climate warms, a response that some would describe as natural because it's unassisted by humans, but others would say is unnatural because the climate is warming due to human activities.

Sometimes we deliberately introduce species. More than 30 species of big game, furbearer and game birds have been transplanted in Alaska by various agencies and organizations. Some of these are novel species such as Roosevelt elk from Washington State and plains bison from Montana.

Several forestry programs have deliberately introduced novel tree species to Alaska, of which the most widely dispersed are Siberian larch, lodgepole pine and Scotch pine.

A couple years ago, I informally inventoried exotic trees planted in urban areas on the Kenai Peninsula and recorded over 60 tree species including oaks, maples, ash, elms and even dawn redwood. In contrast, there are only 14 native tree species on the peninsula.

Sometimes we fight species. To date, \$3.2 million has been spent combating elodea, the first freshwater invasive plant to establish in Alaska. Elodea was likely first introduced here when somebody decided to dump their aquarium into the nearest lake.

And consider that we spend a lot of money eradicating northern pike from the Kenai Peninsula, a species deliberately (and illegally) introduced from populations, presumably in the Yukon River drainage where it is native.

Yet the peninsula is also the recipient of ruffed grouse and Arctic grayling, two other species native to Alaska but not to the Kenai Peninsula.

Sometimes we try to prevent species from even arriving here. The Alaska Division of Agriculture lists 14 prohibited and restricted noxious terrestrial plants, and has banned the importation of elodea and three other aquatic invasive plants without a permit.

ADF&G prohibits felt sole boots for fishing to prevent introducing New Zealand mudsnails, Didymo (rock snot) and whirling disease.



Spreading Nonnative Species - Continued

The U.S. Department of Agriculture requires travelers entering Alaska from a foreign country to declare fruit, vegetables, plants and plant products, meat and meat products, animals, birds and eggs.

An interesting twist is the deliberate introduction of a novel parasitoid wasp, collected in Alberta, as a biocontrol agent for ambermarked birch leafminer, which was accidentally introduced to Alaska from Europe in the 1990s, whereupon it started damaging our native birch.

What was thought to be *Lathrolestes luteolator*, the wasp which kills birch leafminer in Europe, was released right here in the Fred Meyer parking lot in 2007. The irony is that later that year, the species released turned out to be a different wasp, *Lathrolestes thomsoni*, a new (previously undescribed) species to science.

What a tangled web we weave!

If these distinctions between what is “bad” and what is “good” seem a bit arbitrary and a little confusing, I’d be the first to agree with you. We place value on salmon and big game so transplanted species that jeopardize these resources are generally suspect, but not always.

Consider that although deer may represent a new species to harvest, they are also a vector for new tick species, tick-borne diseases, and chronic wasting disease, all of which threaten moose in Alaska.

We sometimes deliberately introduce plants and animals that we like, even when we know they cause harm. How many European bird cherry trees grow in the Kenai-Soldotna area, although Anchorage banned their sale two years ago because cyanide in their bark kills moose?

Similarly, night crawlers are sold at local bait shops even though their invasion into the boreal forest will ultimately change the ecological system in ways more dramatic and permanent than fire or insects.

In a rapidly warming climate, we know most native species will move generally northward in latitude and upward in elevation.

However, species move at different rates based on their dispersal mechanisms, reproductive rates and topographic obstacles, which is what contributes to high extinction rates. Some conservationists have begun talking about facilitating these distributional shifts by translocating species to novel locations.

The problem is that nonnative species are moving, too, often much faster than native species because humans are generally the primary vector of the former. So even as we may wonder about the colonization of the Interior by mule deer or Southeast Alaska by fisher, there are now 598 nonnative species in Alaska.

Here on Kenai National Wildlife Refuge, we have documented 2,183 species, of which 5% are nonnative. Of these 105 nonnative species, 90% are of Eurasian origin. Why does any of this matter? It means that as species “reassemble” in a changing climate, nonnative species, many of them from continents other than North America, are more readily available to be part of that new assemblage. It has literally altered the evolutionary potential of ecosystems to adapt in our new world.

It also creates tension between the disciplines of climate adaptation, very much in its infancy, and conventional invasive species management. I’m deeply involved in both professional communities and I recognize a need for better communication and sharing of ideas to find a middle ground.

When all is said and done, what’s the difference between a mule deer that walks into the state from Canada, an Amur maple sold by the 4-H in Soldotna but considered invasive in Minnesota, or lodgepole pine seedlings given away by the DNR for planting in the aftermath of a spruce bark beetle outbreak?

It is not simply an ecological decision, but one that has deep roots in societal values.



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