

Environmental Assessment for Bison and Elk Management Step-down Plan: *A Structured Framework for Reducing Reliance on Supplemental Winter Feeding*

National Elk Refuge, Wyoming

Date: December 2019

The U.S. Fish and Wildlife Service (Service) prepares this Environmental Assessment (EA) to evaluate the effects associated with the proposed action in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR §§1500-1509) and Department of the Interior (43 CFR Part 46; 516 DM 8) and U.S. Fish and Wildlife Service (550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment. The EA tiers to the “Final Bison and Elk Management Plan and Environmental Impact Statement,” completed in January 2007 (43 CFR §§46.410; 46.135). Although the BEMP and subsequent Bison and Elk Management Step-down Plan were developed in coordination with agency partners, this EA evaluates the effects associated with the proposed action that will be taken exclusively by the Service on the NER.

I. Proposed Action

The Service is proposing to begin to reduce supplemental feeding on the National Elk Refuge (NER) under a dynamic, structured framework as decided in the 2007 Bison and Elk Management Plan (BEMP) and associated Environmental Impact Statement (EIS).

Background

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS, Refuge System), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

The mission of the NWRS, as outlined by the National Wildlife Refuge System Administration Act (NWRSA), as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.), is:

“... to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

The 24,778 acre National Elk Refuge is located in Teton County, Wyoming, north of the Town of Jackson and south of Grand Teton National Park (GRTE). As its name implies, the management focus of the NER is elk. Congress established the refuge in 1912 as a “winter game (elk) reserve.” The refuge was established in response to severe elk starvation in Jackson Hole. The development of the town of Jackson and settlement of the valley (known as Jackson Hole) by cattle ranchers substantially reduced the herd’s natural winter range and led to massive starvation during the winter of 1909 and 1910. At the request of the State of Wyoming, the U.S. Congress first appropriated \$20,000 on March 4, 1911, for “...feeding, protecting and removing elk in Jackson Hole and vicinity.” In 1927, the refuge’s purpose was expanded to, “. . . for grazing of, and as a refuge for, American elk and other big game animals. . .”

In 2007, the “Bison and Elk Management Plan: National Elk Refuge, Grand Teton National Park, and John D. Rockefeller, Jr. Memorial Parkway” (Service and NPS 2007a), referred to throughout this document as the BEMP, was approved after a nine year process that included extensive public input and close collaboration with several cooperative agencies and partners. The purpose of the plan is to provide managers with goals, objectives, and strategies for managing elk and bison on the NER and in GRTE. The BEMP established four goals based on the desired conditions and purposes of the refuge and GRTE, the mission of the National Wildlife Refuge System and the National Park System, and other legal and policy directives:

Goal 1: Habitat Conservation

Provide secure, sustainable ungulate grazing habitat that is characterized primarily by native composition and structure within and among plant communities and that also provides for the needs of other native species.

Goal 2: Sustainable Populations

Contribute to elk and bison populations that are healthy and able to adapt to changing conditions in the environment and that are at reduced risk from the adverse effects of non-endemic diseases.

Goal 3: Numbers of Elk and Bison

Contribute to the Wyoming Game and Fish Department (WGFD) herd objectives for the Jackson elk and bison herds to the extent compatible with Goals 1 and 2, and the legal directives governing the management of the National Elk Refuge.

Goal 4: Disease Management

Work cooperatively with the State of Wyoming and others to reduce the prevalence of brucellosis in the bison and elk populations in order to protect the economic interest and viability of the livestock industry, and reduce the risk of adverse effects of, or from, other non-endemic diseases not currently found in the Jackson bison and elk populations.

The major management strategy of the BEMP to meet these goals is to move elk and bison management toward reduced reliance on supplemental feeding and eventually, total reliance on natural forage. These goals and strategies continue to guide management of the refuge. As federal agencies, the U.S. Fish and Wildlife Service and the National Park Service operate under a set of laws and policies that direct, guide, and limit the actions they are able to take. A list of laws and policies that pertain to the management of the refuge can be found in Appendix A.

Management actions taken to date under the BEMP have focused on disease monitoring, reducing elk and bison herd sizes through public hunting, and increasing natural, standing winter forage through expanded irrigation.

In 2009, the Service developed the *National Elk Refuge Irrigation Expansion Project Plan and Environmental Assessment* ([NER Irrigation Plan-and-EA](#)) to implement one part of the BEMP. The Plan's objective was to increase natural forage on the refuge to help reduce reliance on supplemental winter feeding.

The Service's second major responsibility in meeting the BEMP's primary management strategy was to develop a dynamic, structured framework for reducing supplemental feeding on the refuge. The BEMP scheduled the completion of the Step-down Plan for 2008. However, litigation challenging the BEMP in 2008 led to the decision to postpone its development until the case was resolved. As of March 2015, two court rulings have upheld the 2007 BEMP and Record of Decision (ROD). In a lawsuit against the BEMP and its author agencies (*Defenders of Wildlife et al. v. the U.S. Department of Interior and State of Wyoming 2010*), the plaintiffs argued that the BEMP violated the National Wildlife Refuge System Improvement Act (National Wildlife Refuge System Improvement Act 1997) by disrupting the biological integrity of the refuge, and that the plan and accompanying Environmental Impact Statement (EIS) violated NEPA because they did not provide a thorough discussion of mitigation. The crux of the plaintiff's argument was that the plan did not set a specific date for the cessation of supplemental feeding. In response, the agencies argued that the plan constituted a valid exercise of discretion and that it and the EIS were sufficiently detailed to satisfy the requirements of NEPA. In March 2010, the United States District Court for the District of Columbia ruled in favor of the agencies. In 2011, the plaintiffs appealed the ruling to the United States Court of Appeals for the District of Columbia Circuit. The Court of Appeals affirmed the District Court ruling (*Defenders of Wildlife et al. v. the U.S. Department of Interior and State of Wyoming 2011*).

The Improvement Act requires the Service to develop a Comprehensive Conservation Plan (CCP) for each unit in the National Wildlife Refuge System. Development of the NER CCP began in August 2010 with the establishment of a planning team comprised of staff from the National Elk Refuge and Mountain-Prairie Region, Division of Refuge Planning, WGFD, Teton County, and the NPS. The final CCP, completed in September 2015, indicates that its purpose is to complement the BEMP, and that together, both plans provide guidance for managing the refuge.

In November 2012, the Service began working on an Adaptive Management Plan (AMP) to develop a dynamic, structured framework for reducing supplemental feeding on the refuge. A

planning team comprised of representatives from the NER, GRTE, WGFD and Bridger-Teton National Forest (BTNF) met monthly from May 2013 through July 2015 to develop the plan. The team completed the first draft of the AMP in July 2013. Several iterations of the plan followed, and the final draft of the AMP was completed in July 2015. In August 2015, the team decided that the only viable action was shortening the feeding season. The AMP framework was discarded and a step-down management plan approach was assumed. Some of the background information from the AMP was moved to the “Bison and Elk Management Step-down Plan: A Structured Framework for Reducing Reliance on Supplemental Winter Feeding” (Step-down Plan). The first draft of the Step-down Plan was completed on August 21, 2015.

Some conditions on the refuge have changed as a direct result of BEMP implementation (e.g. enhanced irrigation/improved forage production), and others have changed due to unknown factors. Although total bison and Jackson elk herd numbers have decreased to WGFD objective levels since the release of the BEMP, the proportion of the Jackson elk herd that winters on the refuge has increased. In the early 2000s, approximately 50% of the Jackson elk herd wintered on the NER, but in recent years, the portion increased to 80%. Other changes that occurred off the refuge have the potential to influence refuge management. Wolves were delisted; grizzly bears have expanded their range and numbers; and Chronic Wasting Disease (CWD) was found in mule deer within the range of the Jackson elk herd. CWD was also confirmed in wild free-ranging elk in Montana near Red Lodge, located along the eastern flanks of the Beartooth Mountains in southwest Montana in November of 2019.

The BEMP considered the likelihood of changing conditions and called for an adaptive approach to address them. The Service developed the proposed action according to explicit guidance provided by the BEMP using the latest scientific data. Some of the proposed strategies have changed based on the changes in the environment. The decisions and determinations made in the BEMP and associated EIS analysis have not substantially changed.

II. Purpose & Need

The purpose of this action is to implement one of the major decisions of the BEMP: a dynamic, structured framework for reducing supplemental feeding on the refuge in order to change the winter elk distribution on the refuge. The Service believes this is an important and necessary action to inform management actions that will ultimately be necessary to achieve the BEMP’s long term goal to adaptively manage bison and elk populations to achieve desired conditions, with animals relying predominantly on available native habitat (on refuge, park, and forest lands) and cultivated forage (on the refuge).

The action is needed to reduce the numbers and density of elk on the refuge so that density-dependent diseases such as brucellosis and CWD cannot be easily transmitted through the elk and bison populations.

Additional needs as outlined in the BEMP, include:

- Reducing the number of elk wintering on the refuge to 5,000.

- Supporting WGFD’s current objective for the Jackson Elk Herd.
- Maintaining a bison population objective of 500.
- Mitigating bison and elk livestock conflicts on private lands.

In short, the overall purpose of this action is to provide a path for progressively transitioning from winter feeding of elk and bison on the refuge to greater reliance on free standing forage, while maintaining population and herd ratio objectives.

III. Alternatives

A. No Action Alternative

Supplemental Feeding of Elk

Under the No Action alternative, current management direction would continue and the refuge would not begin reducing supplemental feeding. The initiation of feeding in any given year, is coordinated with WGFD, and depends on elk numbers, the timing of migration, winter temperatures, snow depths, and the accessibility of standing forage. Non-feeding years have occurred irregularly and infrequently. Since the refuge was established in 1912, there have been ten years when no feeding was provided. The last such winter was in 2018. Biologists evaluate several factors to determine whether feeding is needed, and if so, when it should begin and end. Currently, the initiation of supplemental winter feeding occurs when available forage drops to 300 lbs. /acre along transects in areas with highly preferred grasses. During the last 20 years, feeding initiation dates have varied from December 30 to February 28 (except in 2018, when no feeding occurred). The feeding termination date is presently based on a snow cover index, and a subjective evaluation of available forage and forage greenness. The current average end date is April 2, ranging from March 24-April 20. Since 1912, the period of supplemental feeding has ranged from “no feeding” to a maximum of 147 days. At the present time, elk are fed an average of 70 days annually.

Supplemental Feeding of Bison

Bison discovered refuge feeding operations in 1980 and have since been fed each year to help minimize disruption to elk feeding operations. Because bison displace elk from feedlines, refuge staff attempt to feed most bison in the northernmost refuge feeding ground and provide a heavy feed ration, which helps keep them in this area. This strategy prevents bison from mingling with elk and prevents bison from moving to areas where conflicts with humans are more likely.

Forage Production

Under the 2009 Irrigation Plan, the Service has been irrigating approximately 3,600 acres to increase refuge-wide forage production.

Hazing

Refuge staff haze elk and bison to conserve winter forage, prevent year-round use of winter range, and in some cases, to prevent elk and bison from moving to private lands or other areas where conflicts with humans are likely. Hazing using ATVs has proven most effective. This strategy is typically employed during three time periods: 1) in May to move elk and bison off the NER that are lingering on refuge winter range; 2) in July when some bison typically return to the NER; and 3) in the period just prior to feeding initiation when elk and bison are most likely to leave the refuge for private lands.

B. Proposed Action Alternative

The Service and the National Park Service (NPS) have prepared a Bison and Elk Management Step-down Plan: A Structured Framework for Reducing Reliance on Supplemental Winter Feeding (Step-down Plan). The Step-down Plan contains objectives and strategies for reducing supplemental feeding on the refuge which are presented in this document as the proposed action alternative. While the Step-down Plan discusses other strategies for bison and elk management with the NPS and other partners, this proposed action and analysis are solely focused on the reduction of supplemental feeding on the refuge.

Supplemental Feeding of Bison and Elk

Under the proposed action alternative, the NER will delay the initiation of feeding and terminate feeding early using an adaptive management approach based on annual environmental conditions, and in accordance with DOI regulations pertaining to the use of adaptive management (43 CFR §46.145). By delaying the start of the supplemental feeding season, the Service believes that it will decrease the probability that elk using native winter range or state feeding grounds will discover refuge feeding grounds. Because elk and bison use of feeding grounds is a learned behavior, over time this could increase the proportion of elk that winter on native winter range, reduce the number of elk that move from the Gros Ventre drainage to the NER, and decrease the refuge wintering elk population.

Although supplemental feeding of bison will be delayed to the same degree as supplemental feeding of elk, bison numbers are currently at objective levels, and bison can subsist on less nutritious forage than elk. These factors make changes in bison numbers or winter distribution unlikely, but bison distribution will be monitored by refuge staff to ensure that the proposed action is not causing bison to shift their winter distribution to surrounding private lands.

During the initial two years of the Step-down Plan implementation, emphasis will be placed on terminating feeding early to achieve the goal of reduced elk-fed-days and bison-fed-days. This approach will provide an opportunity to monitor elk and bison behavioral responses to reduced feeding and identify private land conflict areas that may require focused management measures.

In the early years of Step-down Plan implementation, the Service is expecting to terminate feeding about a week earlier than current conditions. As bison and elk behavioral responses are

better understood, along with the necessary mitigation measures to protect private lands, feeding delays will be extended to encourage a redistribution of elk and bison to native winter range.

Like the No Action alternative, the initiation of the delayed feeding will be influenced by seasonality and forage availability. It will also be influenced by the distribution of animals, particularly on private, livestock producing lands. Because NER is the largest feeding operation in North America, and includes elk and bison, efforts to reduce supplemental feeding operations at this scale are unrepresented, and neither the environmental conditions nor the response of the elk and bison to delaying feeding over the next few years can be accurately predicted. Therefore, the Service does not believe that setting an arbitrary number of days to delay feeding initiation is appropriate. Instead, the Service believes a conservative approach of monitoring environmental conditions and starting with short intervals of days is warranted. For example, during the severe winter of 2017, small numbers of elk began leaving the refuge for surrounding private land prior to the 300 lbs. /acre forage threshold when supplemental feeding is typically recommended. Delaying the start of supplemental feeding by an additional week under severe winter conditions would likely have resulted in large numbers of elk moving to private land and higher elk winter mortality. The greatest opportunity to delay the supplemental feeding start date exists in winters of mild to moderate severity, and therefore maintaining flexibility is important. This approach will provide an opportunity to monitor elk and bison behavioral responses to delayed feeding and identify private land conflict areas that may require focused mitigation measures.

Forage Production

Similar to the No Action alternative, the refuge would continue to implement the 2009 Irrigation Plan to increase refuge-wide forage production.

Hazing

Similar to the No Action alternative, the refuge would continue to use hazing to conserve winter forage, prevent year-round use of winter range, and in some cases, to prevent elk and bison from moving to private lands or other areas where conflicts with humans are likely.

Monitoring

Under the proposed action alternative, the Service will use its extensive monitoring and data collection (e.g. elk telemetry and elk and bison visual counts), to further refine the variables used (snow cover index, forage availability, and forage greenness) to determine both the delay and termination of feeding. For more detailed information concerning monitoring please see the Monitoring section of the Step-down Plan (Appendix B).

Initial success of Step-down Plan implementation will be a consistent decline in the 3-year running average of elk and bison fed days (the number of days feeding occurred multiplied by the average number of animals fed) from the established baseline. While the BEMP did not provide specific measurement criteria for the definition of “transitioning from intensive supplemental winter feeding to greater reliance on free-standing forage” we will consider this objective met when the 3-year running average of elk and bison fed days is <50% of baseline for

5 years in a row. These levels of reduction are consistent with elk and bison predominantly relying on freestanding forage rather than supplemental feed.

C. Other Related Non-Service Actions

The following actions may be implemented by others to further efforts to reduce the population and density of elk on the refuge, as well as protect private adjacent lands from an overabundance of elk. These potential actions will comply with all laws, regulations and policies applicable to the agency or organization responsible for carrying out the action.

Additional public review and environmental compliance (NEPA) may be required prior to the implementation of these strategies.

Vegetation Restoration and Protection

The BEMP identified approximately 4,500 acres of previously irrigated and cultivated grasslands in GRTE in need of restoration to native sagebrush grassland community. Substantial progress in this endeavor has been made since 2008. Of the 4,500 acres targeted for restoration in the Kelly Hayfields of GRTE, 1,235 acres are currently under restoration treatment and 3,265 acres remain non-native pasture. Of the 1,235 acres undergoing treatment, 745 acres has been seeded with native grass, shrub, and select forb mixes, and 89 acres are considered fully restored. Two-hundred and seventy of these acres are currently fenced to reduce grazing pressures of early native vegetation establishment from bison and other ungulates. All treatments are monitored. Invasive plant treatments may have to continue indefinitely. GRTE will continue to seek funding for restoration of the remaining areas as well as maintenance of restored pastures.

Hazing

WGFD staff will continue to periodically haze elk and bison on private lands adjacent to the NER throughout the year.

Private Lands

Several strategies may be employed to mitigate likely changes in bison and elk distribution, including providing incentives for non-breeding cattle operations, increased fencing in limited areas to separate elk and bison from livestock feed lines, hazing elk and bison away from livestock feed lines, and purchasing private lands easements or leases to prevent co-mingling.

Hunting

A hunting program on the NER helps maintain the WGFD 11,000 Jackson elk herd objective, and disperses elk during fall months to conserve winter forage on the refuge. Few options for manipulating elk hunting are currently available because the Jackson elk herd is at or near the current 11,000 WGFD objective. Working in coordination with WFGD, additional harvest options may be considered in the future, but are not part of the proposed action analyzed in this

EA. Any proposed expansion of the current hunting program would require additional environmental compliance and public review.

D. Alternatives Considered, But Dismissed From Further Analysis

There continue to be citizens who would like the NER to employ different management strategies including: fertility control in elk and bison, agency reductions of either elk or bison, via culling outside the hunting season, and reducing the daily feed ration that elk and bison receive.

Fertility control and agency population reductions (culls by agency staff outside of normal hunting seasons) were not considered in the EIS and therefore are outside of the scope of the BEMP and Step-down Plan.

Reduced rations were discussed as a feeding reduction strategy during the Step-down Plan development process, but this strategy was rejected due to predicted negative effects (starvation and high mortality for elk calves). Elk currently receive an average daily ration of 8 lbs. per animal per day. Significantly reducing the daily ration that elk receive below 8 lbs. would likely result in higher winter mortality among elk calves. Elk calves follow adult animals to feedgrounds, and because they are the least dominant animals, they cannot compete with adult elk for alfalfa pellets at ration levels below 8 lbs. per animal. Therefore the principal strategy in the Step-down Plan is to reduce reliance on supplemental feed by shortening feed season length rather than reducing daily rations.

The Service, along with its partners in developing the BEMP and Step-down Plan, believes decreasing supplemental feeding through a structured and dynamic framework based on principles of adaptive management, as decided in the BEMP, is the only way to continue to meet the purposes of the refuge, the mission of the NWRS, and achieve the goals and objectives of our partners and other stakeholders for management of bison and elk in Jackson Hole.

IV. Affected Environment & Environmental Consequences

The 24,778-acre National Elk Refuge is nestled in the valley known as Jackson Hole in northwestern Wyoming, and is part of the National Wildlife Refuge System. The refuge lies centrally in the Greater Yellowstone Ecosystem, a mosaic of Federal, State, and private lands totaling 18 million acres that encompass the largest concentration of wild ungulates (hoofed mammals) and large carnivores in the lower 48 States.

The refuge is 6 miles at its widest point and 10 miles from southwest to northeast; elevations range from 6,200 to 7,200 feet. The northern half of the refuge consists of steep rolling hills. The southern half is glacial washout material, with one resistant formation (Miller Butte) rising approximately 500 feet above the valley floor. The town of Jackson borders the refuge on the south, and the town of Kelly lies near its northern boundary. Lands to the south and west are mostly privately owned. Lands east of the refuge are administered as part of the Bridger-Teton

National Forest (U.S. Forest Service), including the nearby Gros Ventre Wilderness. The GRTE borders the refuge on the north and northwest.

The refuge is the terminus of seasonal migrations for four celebrated large mammal species. Part of the Jackson bighorn sheep herd spends the winter on the refuge on Miller Butte and around Curtis Canyon, and migrates to summer range in the Gros Ventre Mountains. Portions of the Jackson elk herd migrate from their summer range in Yellowstone National Park and other areas to winter on the refuge. The refuge hosts the Jackson bison herd during the winter months, one of only three remaining free-roaming bison herds in North America. Pronghorn summer on the refuge and winter south of Pinedale, Wyoming, making one of the longest mammal migrations in the Western Hemisphere.

For more information on the background, history, environment and management of the refuge, please see the 2015 [Comprehensive Conservation Plan](#) (CCP).

This EA tiers to the BEMP and provides additional specific analysis of the proposed action. For more information on the affected environment and environmental consequences of the decisions made and impacts of that plan, see the [Final Bison and Elk Management Plan and Environmental Impact Statement](#).

The Council on Environmental Quality (CEQ) directs agencies to discuss impacts in proportion to their significance and only briefly discuss impacts that are not important (40 CFR §1502.2(b)). The Service has determined that the proposed action will have negligible impacts on the following resources: Air Quality, Topography, Soils, Geology, and Hydrology. So, these resources are not discussed further.

A. Elk—Affected Resource

The Jackson elk herd occupies approximately 8,000 km² in the upper Snake River watershed north of the town of Jackson (Figure 1). Much of the herd is migratory, moving between distinct winter and summer ranges. Primary winter areas include the Buffalo Valley, lower elevations of the Gros Ventre River drainage, the NER, and areas adjacent to the NER on BTNF lands. Summer areas occur throughout the herd's range and are divided for convenience into five geographic regions that include GRTE, Yellowstone National Park (YNP), the Gros Ventre drainage, Teton Wilderness, and Southwest Boundary area, which includes private and public lands in the vicinity of GRTE's southwest boundary.

Winter feeding of elk in Jackson Hole began in 1910 and was originally initiated to reduce winter mortality of elk and minimize depredation of ranchers' hay. According to historical reports, before Euro-American settlement some Jackson elk wintered in the southern portion of Jackson Hole (present location of the NER and town of Jackson) and may have used areas outside Jackson Hole, including the Green River and Wind River basins to the south and east, respectively, and the Snake River basin to the southwest in what is now eastern Idaho (Allred 1950; Anderson 1958; Blair 1987; Barnes 1912; Sheldon 1927). Radio-collar studies have documented small numbers of Jackson elk wintering in each of these areas in recent times as

well (NER and GRTE, unpublished data). Over time, changes in land use and development, over hunting, and establishment of feeding grounds probably reduced the Jackson elk herd's range.

By the end of the 19th century, the Jackson elk herd was believed to be largely confined to Jackson Hole and the immediate surrounding area, where wintering conditions are often harsh. Significant numbers of elk died during several severe winters in the late 1800s and early 1900s. The primary reasons for these mortality events included the loss of available winter range in Jackson Hole due to new ranching operations and an expansion of Jackson. The expansion prompted local citizens and organizations, as well as state and federal officials in Jackson Hole, to begin feeding elk in the winter of 1910–11. Congress heeded the appeals for assistance, and on August 10, 1912, appropriated \$45,000 for the purchase of lands and maintenance of a “winter game (elk) reserve” (37 Stat. 293). The first winter census in the area was conducted in 1912 and showed about 20,000 elk residing in Jackson Hole and the Hoback River drainage (the latter is not within the Jackson elk herd's range).

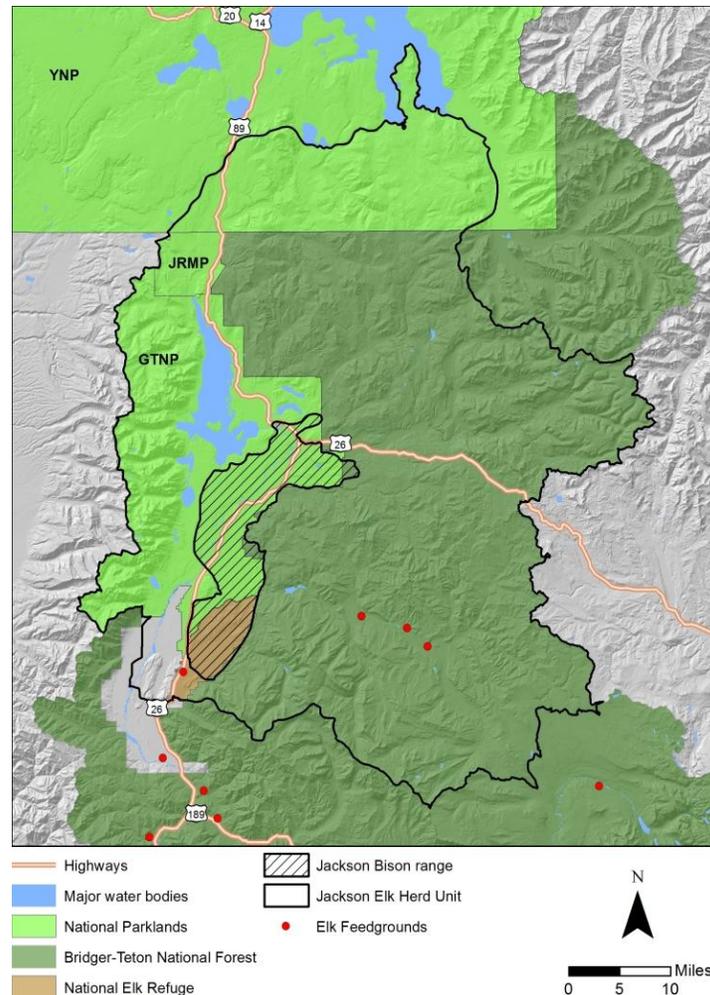


Figure 1. Jackson elk and bison herd ranges, including the National Elk Refuge, Grand Teton and Yellowstone National Parks, and Bridger-Teton National Forest.

Today, the need for the refuge’s winter elk feeding program is a direct result of reduced access to significant parts of elk native winter range, loss of historic migration patterns, behavioral conditioning of elk to winter feeding, and the desire to maintain a population objective established in the context of supplemental feeding. In recent times, the population has fluctuated near the WGFD herd objective of 11,000 (Figure 2).

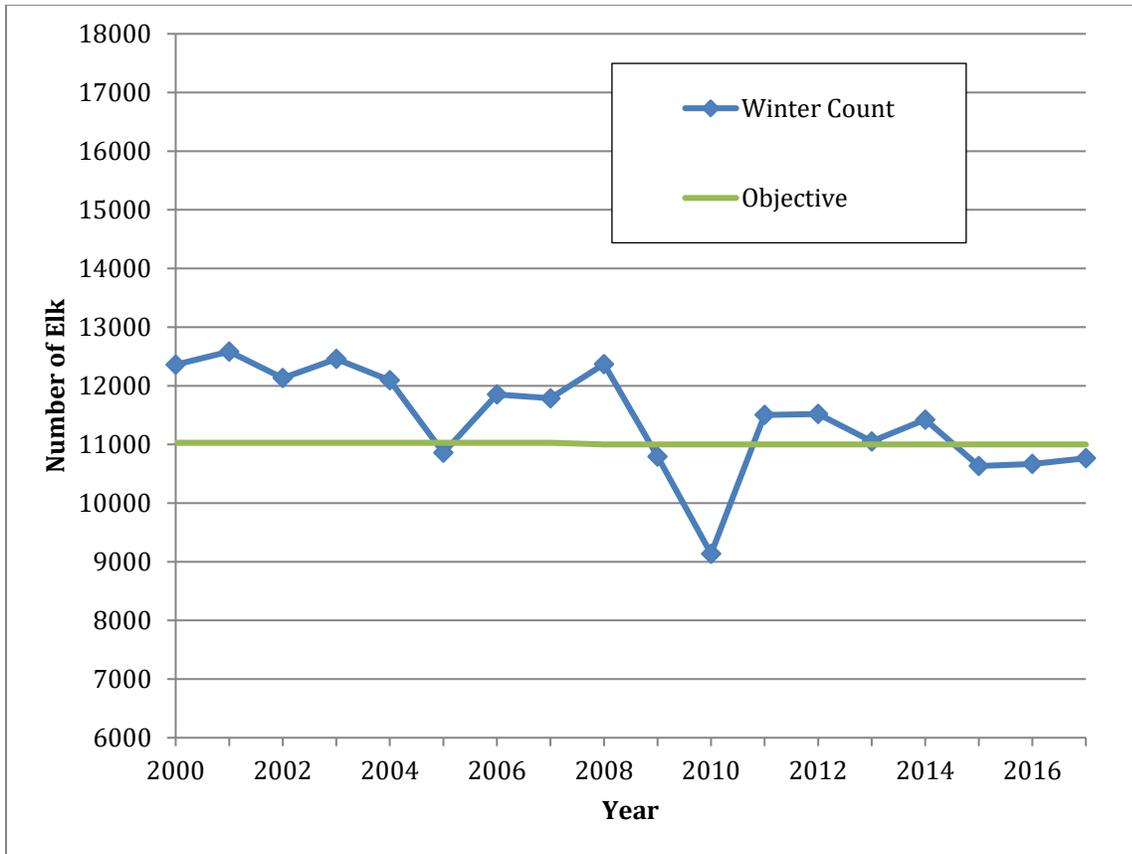


Figure 2. Winter Counts and herd objective for the Jackson elk herd, 2000-2017.

Elk are versatile habitat generalists (Houston 1982) and use a mixture of habitat types in all seasons. Having evolved as an ecotone species in cold, temperate climates, elk retain features adaptive to both wooded and plains environments. They prefer open areas (Geist 1982) but also use dense coniferous forests for shelter (Clark and Stromberg 1987).

Adaptable foragers with a mixed diet, elk frequent a variety of habitats and move about seasonally. While they make short movements in the fall after the frosts occur, they generally remain on summer range until heavier snow covers forage, stimulating migrations to lower elevations wintering areas. A few elk forgo migration and winter on wind-swept, more exposed parts of their summer range.

Elk—Environmental Consequences

1. No Action Alternative

Population & Distribution

Since 2007, the overall Jackson elk herd population has declined from nearly 13,000 and is currently close to the 11,000 elk objective, but the number of elk wintering on the NER has been well above the 5,000 elk objective since implementation of the BEMP in 2007 (Mean = 7,100 elk). Supplemental feeding has occurred in all but 10 winters on the refuge since 1912, and although the program minimizes winter elk mortality from starvation, contributes to the WGFD elk herd objectives, eliminates commingling with livestock, and keeps elk off adjacent roadways, elk occur at numbers and densities well in excess of carrying capacity (Smith et al. 2004, Lubow and Smith 2004). This trend is correlated with a decline in elk use of native winter range and an increase in the proportion of NER elk that occupy winter ranges immediately adjacent to the refuge.

The attraction of highly nutritious, easily accessible food during the winter months is powerful to both elk and bison, and their knowledge of NER feeding grounds has been passed down through generations. As a result, elk and bison have been strongly conditioned to seek supplemental food on the refuge, even during winters when natural forage is available and even abundant.

Disease

With large numbers of wintering elk and bison on the NER, high animal concentrations have created an unnatural situation that has increased the risk for major outbreaks of exotic diseases. Density-dependent ungulate disease is a major concern for the refuge. Brucellosis, septicemic pasteurellosis, psoroptic mange, necrotic stomatitis, necrotizing pododermatitis (foot rot), and helminth and lungworm parasitism are well documented in the Jackson elk herd. Although the population level effects of these diseases have been minimal for elk, their prevalence at the refuge suggests that substantial population reductions, and other negative wildlife health effects, are possible if more serious ungulate diseases were introduced to the refuge. For example, chronic wasting disease, bovine tuberculosis, malignant catarrhal fever, and foot-and-mouth disease have not been documented in the Jackson elk herd, but could have serious negative population effects at current elk densities.

CWD is a fatal, incurable spongiform encephalopathy which infects elk, deer and moose. CWD was confirmed in wild free-ranging elk in Montana near Red Lodge, located along the eastern flanks of the Beartooth Mountains in southwest Montana in November of 2019. Red Lodge sits inside the northeastern corner of the Greater Yellowstone Ecosystem, which holds the largest concentration of large wild mammals in the Lower 48, including elk. Tens of thousands of elk—part of more than a dozen different large herds, migrate seasonally in the tri-state area of Montana, Wyoming and Idaho between the high country and lower elevations each year, often mixing while on summer and winter range. It is anticipated that this disease will eventually infect the Jackson elk herd. Prions, the proteins that cause CWD, can be shed into the environment by

infected animals, bind to a variety of soil minerals and whole soils, and remain infectious for years (Johnson 2006). The primary factor influencing prion deposition is the number of CWD infected elk on the refuge.

Additionally, considerable evidence suggests that CWD transmission and prevalence are density dependent (Peters et al. 2000, Williams et al. 2002). Monello et al. (2014) found that elk densities of 15-110/km² (0.06 to 0.45 /acre) in Rocky Mountain National Park were associated with 13% CWD prevalence, and they predicted elk population declines when CWD prevalence exceeded 13%. NER elk densities range from 77-16,850/km² (0.31-68 /acre; NER unpublished data), which suggests that the introduction of CWD to NER elk would cause a significant decline in the Jackson elk population over time.

Using population data specific to the Jackson elk herd, the Service completed a modelling exercise that estimates the predicted prevalence of CWD and the effects of the disease on population growth rate (Galloway et al. 2017). It is important to note that these predictions are based on a potential invasion of the disease, and there is currently no evidence that CWD is present in the Jackson elk herd. However, given that CWD was detected in a mule deer immediately north of the refuge in 2018, it is anticipated that this disease will eventually infect the Jackson elk herd.

In the absence of hunting, the model predicts that the population will decline when CWD prevalence reaches 7% in adult and yearling cow elk (95% Bayesian credible interval, BCI: 0 - 23% prevalence). However, when current cow elk harvest levels are included as a source of mortality in the population, the model predicts that the Jackson elk population will decline at any level of CWD prevalence. Prior research in Rocky Mountain National Park showed infection probability of cow elk averaged 8% (95% credible interval = 0.05, 0.12). This average infection rate and its associated uncertainty were used as a prior distribution to forecast the effect of the introduction of 5 elk with CWD into the Jackson population. Forecasts included a wide range of CWD prevalence rates after 5 years (median = 10%, 95% Bayesian credible interval = 6 - 16%). The prior distribution of infection rates has a large effect on model outcomes. Because the infection rate is based on Rocky Mountain National Park data and does not vary over time, the model likely overestimates prevalence in the early years following introduction of CWD, and underestimates the effects of the disease later on when both infected animals and CWD prions become more common in the environment.

The large herd size and density of elk on the refuge increases the risk of CWD prevalence and transmission on the population. Additionally, the supplemental feeding of high numbers of elk may increase the probability that prions are shed on alfalfa pellets, snow or grass along the feed lines. This could increase the transmission of CWD between animals during the feeding process.

For more information on the possible impacts of disease on the elk herd, please refer to the BEMP.

The refuge has several management strategies to combat disease in the elk herd, including:

- Monitoring refuge elk and bison for observable disease symptoms and documenting unusual winter mortality events.
- Sampling for CWD on the refuge and vicinity from hunter-harvested elk including mandatory sampling of elk harvested on the refuge.
- Training permanent refuge staff to immediately shoot any elk that exhibit suspected symptoms of CWD.
- Engaging with the DOI Chronic Wasting Disease Task Force to share information and leverage efforts to detect the presence of the disease and identify options to reduce its transmission and spread.
 - The Chronic Wasting Disease Task Force is chartered in the Department of the Interior (DOI) to:
 1. Gather principle representatives from DOI’s relevant bureaus and agencies to review the 2002 report, “Plan for Assisting States, Federal Agencies and Tribes in Managing Chronic Wasting Disease in Wild and Captive Cervids” and identify in the report items that have been completed, are incomplete, or no longer relevant.
 2. Create an action plan to be submitted to the Secretary with recommendations on the role that DOI should play in addressing CWD.
 3. Collaborate with the states and federal partners to implement the Secretary’s vision.
 - Members include: Assistant Secretary – Fish and Wildlife and Parks, Assistant Secretary - Policy, Management and Budget, Assistant Secretary – Water and Science, Bureau of Land Management representatives, National Park Service representatives, U.S. Fish and Wildlife Service representatives, U.S. Geological Survey representatives, and DOI Office of Congressional Liaison.

The WGFD also has a CWD working group process in place to guide revisions to their CWD management plan. Information about their process is available at: <https://wgfd.wyo.gov/get-involved/cwd-working-group#feedback>.

For more information on the refuge’s efforts to combat CWD, see the CCP.

2. Proposed Action Alternative

Population & Distribution

The proportion of the Jackson elk herd that winters on NER has increased notably over time. This trend is correlated with a decline in elk use of native winter range and an increase in the proportion of NER elk that occupy winter ranges immediately adjacent to the refuge. Although increasing elk harvest above current levels would likely allow us to achieve the 5,000 elk objective for NER, it would likely result in a reduction in the overall Jackson elk herd population below the current WGFD 11,000 objective.

The principal goal of reducing reliance on supplemental feeding is to limit transmission of density dependent diseases in elk and bison while simultaneously minimizing winter mortality in elk. The refuge will work to achieve this goal by experimentally reducing feed season length and closely monitoring elk and bison distribution and winter mortality. Because use of feeding grounds is a learned behavior, decreasing feeding season length will potentially reduce the likelihood of elk that winter on native range finding NER feeding grounds. Over time, this could result in a greater percentage of elk using native winter range relative to NER feeding grounds, which will reduce the density of elk and bison on the refuge, and reduce the prevalence and severity of disease among the herds.

The BEMP anticipated that the total elk winter mortality (currently 1 - 2%) could increase up to 3 percentage points, with most of the increase in elk mortality occurring amongst very old age classes and calves. If Step-down Plan implementation results in elk winter mortality in excess of these levels, the Service will take adaptive actions to mitigate elk mortality in future years, such as reducing the period of time between reaching the 300 lbs. /acre forage threshold and the commencement of supplemental feeding.

Disease

Over time, reduced reliance on supplemental feeding should result in a greater percentage of elk using native winter range relative to NER feeding grounds. This in turn will reduce the density of elk on the refuge, and the prevalence and severity of density-dependent ungulate diseases among the herd. Additionally, reduced supplemental feeding will lessen the amount of time elk spend concentrated along feed lines, which could reduce CWD transmission by decreasing the prions shed into the environment where elk congregate.

Under the proposed action, the refuge will engage with the DOI Chronic Wasting Disease Task Force, as well as continue monitoring and sampling for disease among the herd, as they would under the No Action alternative.

B. Bison—Affected Resource

Bison are native to Jackson Hole, as evidenced by the presence of prehistoric bison remains throughout the valley, but were hunted to near-extinction outside YNP by the mid-1880s.

In 1948, 20 bison from YNP were reintroduced to the 1,500-acre Jackson Hole Wildlife Park near Moran. The Jackson Hole Wildlife Park was a private, non-profit organization sponsored by the New York Zoological Society, the Jackson Hole Preserve, Inc., and the WGFD. A population of 15 – 30 bison was maintained in a large enclosure there until 1963, when brucellosis was discovered in the herd (likely transferred with the original 20 animals from YNP). At that time, all the adult animals were destroyed, but four vaccinated yearlings and five vaccinated calves were retained. In 1964, twelve certified brucellosis free bison from Theodore Roosevelt National Park were added to the herd. In 1968, the herd (down to 11 animals) escaped the confines of the wildlife park, and a year later, the decision was made to allow them to range freely. The expansion of GRTE in 1950 encompassed the Wildlife Park and allowed the bison to range

freely consistent with NPS wildlife management policy. The herd remained small and wintered mostly in the Snake River bottoms in GRTE until 1975, when it followed the winter environmental gradient to the NER and began wintering there. The use of standing forage by bison on the NER was viewed as natural behavior and acceptable to managers. In 1980, bison discovered and utilized supplemental feed provided to elk in winter. They have continued to do so ever since.

Since 2007, the bison population has declined from nearly 1,200 animals in 2007 to about 545 during winter 2016-2017 (Figure 3), due to hunting programs administered by WGFD. Licensing changes enacted in 2014 included a reduction in the bison cow/calf license fee (from \$416 to \$263 for residents and \$2522 to \$1022 for non-residents), and a revision of the once-in-a-lifetime restriction that exempted bison hunters who only harvested cows.

Today, hunting continues to be used as a tool to maintain the bison population at objective levels and affect bison distribution. As of winter 2019, only 160 bison regularly used NER feedgrounds with most bison wintering off the refuge in the Buffalo Valley. The Service views this as a desirable outcome because lowering bison numbers on the refuge increases natural forage available to wintering elk. Continuation of this bison distribution trend increases the likelihood that the Service will meet the objectives of the Step-down Plan (reduced elk and bison fed days).

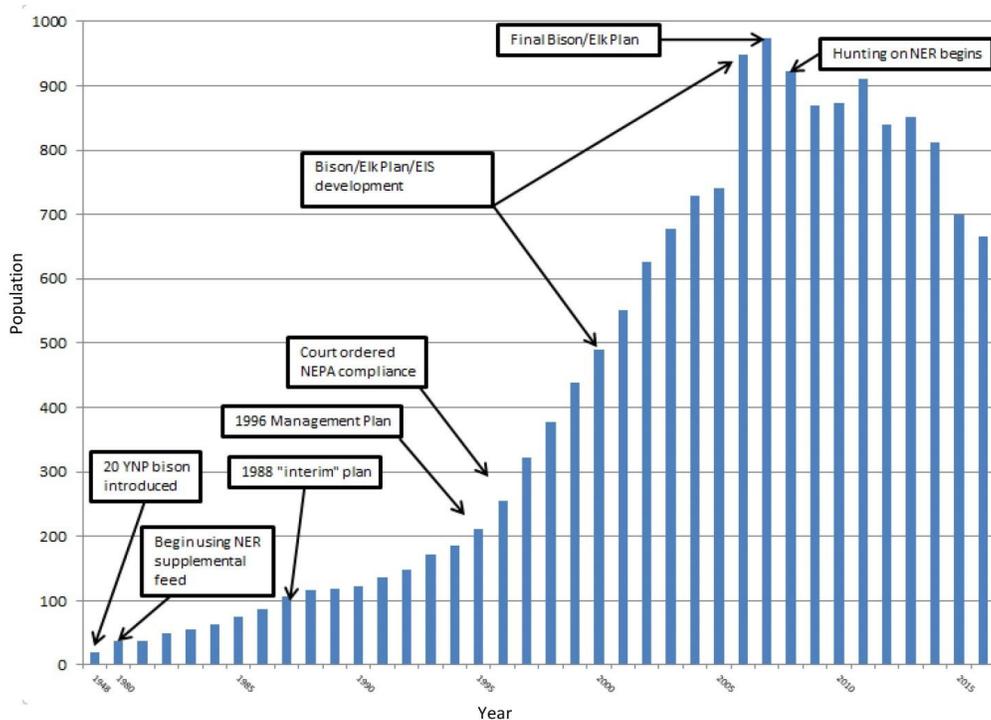


Figure 3. Population growth and planning history for the Jackson bison herd, 1948-2016.

Bison—Environmental Consequences

1. No Action Alternative

Population & Distribution

Like elk, bison are strongly attracted to the highly nutritious, easily accessible food that supplemental feeding provides during winter months, and their knowledge of NER feeding grounds is passed down through generations. As a result, they are conditioned to seek supplemental food on the NER, even when natural forage is available and abundant.

The discovery of supplemental feed by bison has several consequences, including a substantial increase in population (Figure 3). Bison on feedlines have, at times, disrupted elk feeding operations and displaced and injured elk. To minimize conflicts between bison and elk, managers have provided separate feedlines for bison since 1984. As the population has grown, separating elk and bison on feedlines has become increasingly difficult, and a variety of feeding strategies are employed to help reduce displacement of elk.

Disease

Wintering large numbers of elk and bison on the NER has created an unnatural situation that has contributed to an increased risk for potentially major outbreaks of exotic diseases. Artificially concentrating elk and bison on feedgrounds maintains higher brucellosis seroprevalence in elk and bison (Cross et al. 2007, 2010) and puts both species at risk for other density-dependent diseases (Smith 2001). Brucellosis and density-associated parasitism are well documented in the Jackson bison herd. Jackson bison herd seroprevalence is approximately 60%. Although these diseases have had a minimal effect on bison population numbers, their prevalence at the refuge suggests that health effects, including substantial mortality and other negative wildlife health effects are possible if more serious ungulate diseases were introduced to the refuge. Bovine tuberculosis, bovine paratuberculosis, malignant catarrhal fever, and foot-and-mouth disease could threaten the health of the bison population on the feedgrounds if these diseases were introduced.

2. Proposed Action Alternative

Population & Distribution

The proposed action is not likely to affect bison population levels because hunting is the predominant cause of bison mortality. Bison are capable of digesting less nutritious forage than elk, and therefore reductions in feed season length are not likely to increase bison winter mortality or significantly change bison distribution patterns.

Disease

Reducing the density of elk and bison on the refuge will lessen the prevalence and severity of density-dependent disease among the bison herd.

C. Non-Target Wildlife—Affected Resource

The refuge provides habitat for several wide ranging wildlife species including bighorn sheep, pronghorn, moose, mule deer, gray wolf, and grizzly bear. Part of the Jackson bighorn sheep herd spends the winter on the refuge on Miller Butte and around Curtis Canyon and migrates to summer range in the Gros Ventre Mountains. Pronghorn summer on the refuge and winter south of Pinedale, Wyoming, making one of the longest mammal migration in the Western Hemisphere.

Flat Creek, and its associated marshlands, are integral for the natural recruitment of native trout for the Snake River watershed. Flat Creek provides a native fishery of trophy Snake River cutthroat trout. No stocking occurs in Flat Creek, making natural recruitment the only source of native trout. Both Flat and Nowlin Creeks are important spawning and recruitment streams for native trout, and these creeks along with the Gros Ventre River are managed as wild Snake River cutthroat trout fisheries and are important habitat for other native fish species.

Flat Creek Marsh is an important migratory stopover for waterfowl and shore bird species in the Pacific flyway, and breeding habitat for trumpeter swans and other waterfowl. The Flat Creek wetlands provide habitat for the highest density of nesting trumpeter swans in the Greater Yellowstone area.

Non-Target Wildlife—Environmental Consequences

1. No Action Alternative

The high density of elk and bison on the refuge increases the risk of disease prevalence and transmission, including CWD which is contagious to elk, deer, and moose. Additionally, the elk and bison herds being over carrying capacity on the refuge has resulted in damage to and loss of habitat due to browsing of willow, cottonwood, and aspen stands, thereby reducing the availability of these habitats to other species. The problem is compounded by unusually low winter mortality, which has affected predators and other species and has required intensive hunting programs to mitigate these impacts.

2. Proposed Action Alternative

Reduced reliance on supplemental feeding on the refuge, will lessen the prevalence and transmission of disease, which will benefit other species such as deer and moose. Additionally, lowering the population and density of elk and bison on the refuge will conserve habitat (trees and shrubs) that other wildlife on the refuge rely on.

Elk are an important food source for wolves and other carnivores and there are concerns that reducing reliance on supplemental feeding on NER will reduce overall elk numbers and subsequently decrease the food supply for wolves and other carnivores. However, the strategy of the Step-down Plan is not to reduce overall elk populations, but rather re-distribute elk to native winter range. Therefore, there should be no impact on the food supply for wolves or other carnivores. To date almost all research regarding the effects of wolves and other predators on elk distribution and density has occurred in areas with no feedgrounds, and therefore the applicability of that research to the situation at NER is limited. We are currently collaborating with other researchers to evaluate the effects of wolves on elk winter distribution in the Jackson elk herd and also on the effects of supplemental feeding and other factors on elk aggregation and density patterns.

D. Candidate, Threatened and Endangered Species—Affected Resource

A “Biological Opinion” was completed for the BEMP that documents the effects of implementing the plan, and is included in the BEMP as Appendix E ([Bison and Elk Management Plan/EIS](#), pages 171 – 202). Additionally, a Biological Opinion was completed for the CCP that documents the effects of implementing the CCP, and is included in the CCP as Appendix G ([Comprehensive Conservation Plan](#), pages 288 – 324) Species evaluated in these two Biological Opinions are listed below.

Canada Lynx (Threatened): NER elevation ranges from 6,200 to 6,700 feet with no suitable habitat for Canada lynx. The NER does not have any lynx analysis units (LAU) or critical habitat designated, nor does the refuge share any LAU boundaries with GRTE. There have been no confirmed Canada lynx observations on the NER in 103 years of record keeping, and we do not anticipate any future habitat changes that would facilitate occupancy by Canada lynx.

Grizzly Bear (Threatened): Grizzly bears in the Greater Yellowstone area are considered a distinct population segment and are currently listed as a threatened species under the Endangered Species Act (ESA). The grizzly population has grown by 4 - 7% per year and current estimates suggest that there are more than 650 bears in the population. Grizzly bears widely use the northern two-thirds of GRTE, but can occur throughout the park and surrounding areas. A sow and three cubs were observed on the refuge feeding on a bison gut pile in August 2013. Since that time, grizzly bears have occasionally been observed on the NER, and the Service anticipates increased use of the refuge by grizzly bears in the future.

Yellow-billed Cuckoo (Threatened): Although there have been no confirmed yellow-billed cuckoo observations on the NER in 103 years of record keeping, there is approximately 550 acres of cottonwood riparian habitat on NER. The yellow-billed cuckoo is a Neotropical migratory bird that historically was distributed throughout most of the United States, southern Canada, and northern Mexico. There is proposed critical habitat for this species, but the NER is located outside the critical habitat area.

In addition to the species evaluated in the 2007 BEMP Biological Opinion, species considered in the Biological Opinion completed for the 2015 CCP include whitebark pine and greater sage-grouse. Greater sage-grouse is no longer listed as a candidate, threatened or endangered species.

Whitebark Pine (Candidate): NER elevation ranges from 6,200 to 6,700 feet with no suitable habitat for whitebark pine. There have been no confirmed whitebark pine observations on NER in 103 years of record keeping, and we do not anticipate any future habitat changes on NER that would facilitate occupancy by whitebark pine.

Species originally considered in the 2007 BEMP Biological Opinion, but are no longer listed as candidate, threatened or endangered species include the bald eagle and gray wolf.

Candidate, Threatened and Endangered Species—Environmental Consequences

1. No Action Alternative

Canada Lynx: The No Action alternative would have no effect on Canada lynx.

Grizzly Bear: The No Action alternative would have no effect on grizzly bear beyond the environmental baseline.

Yellow-billed Cuckoo: The No Action alternative would have no effect on yellow-billed cuckoos.

Whitebark Pine: The No Action alternative would have no effect on whitebark pine.

2. Proposed Action Alternative

Canada lynx: The proposed action would have no effect on Canada lynx, because there is no suitable habitat for the Canada lynx on the NER.

Grizzly Bear: While minor increases in elk mortality as a result of reduced supplemental feeding may be beneficial to grizzly bears in the GYE due to increased availability of carcasses, the effect would not likely be significant. As the elk herd adjusts to the change in food resources few elk will perish. Elk carcasses are expected to comprise a small proportion of a bear's yearly diet due to other abundant food resources and the presence of other scavengers (e.g., wolves, coyotes, ravens, etc.) on the landscape. The effects of the proposed action, supplemental feeding, as described in the Step-down Plan and associated EA were considered in the 2015 Comprehensive Conservation Plan and associated August 25, 2015, biological opinion. Supplemental feeding was considered in the biological opinion to have negligible impacts to grizzly bears (page 21 CCP Appendix G), and since the proposed action tiers from the CCP's covered activities, no further site specific section 7 consultation is necessary at this time.

Yellow-billed Cuckoo: The proposed action would have no effect on yellow-billed cuckoo. Other actions proposed in the CCP will likely result in a slight increase in cottonwood regeneration associated with enclosure construction. In the long term, this may result in modest

increases in yellow-billed cuckoo habitat and may positively affect cuckoo populations should the species occupy the refuge in the future.

Whitebark Pine: The proposed action would have no effect on the whitebark pine, because there is no whitebark pine habitat on the NER.

E. Habitat—Affected Environment

Native Habitat

The Service has classified 33 plant community types on the refuge, 23 of which are dominated by native plants and 10 by nonnative grass species (Figure 4). Homesteaders, or refuge staff, planted nonnative grass plant communities to support hay production, or pasture for livestock or elk. Smooth brome, intermediate wheatgrass, meadow brome, and Russian wildrye are common examples of these plant communities on the refuge. While some of these communities have adapted to natural conditions where adequate soil moisture exists, most are perpetuated by irrigation activities.

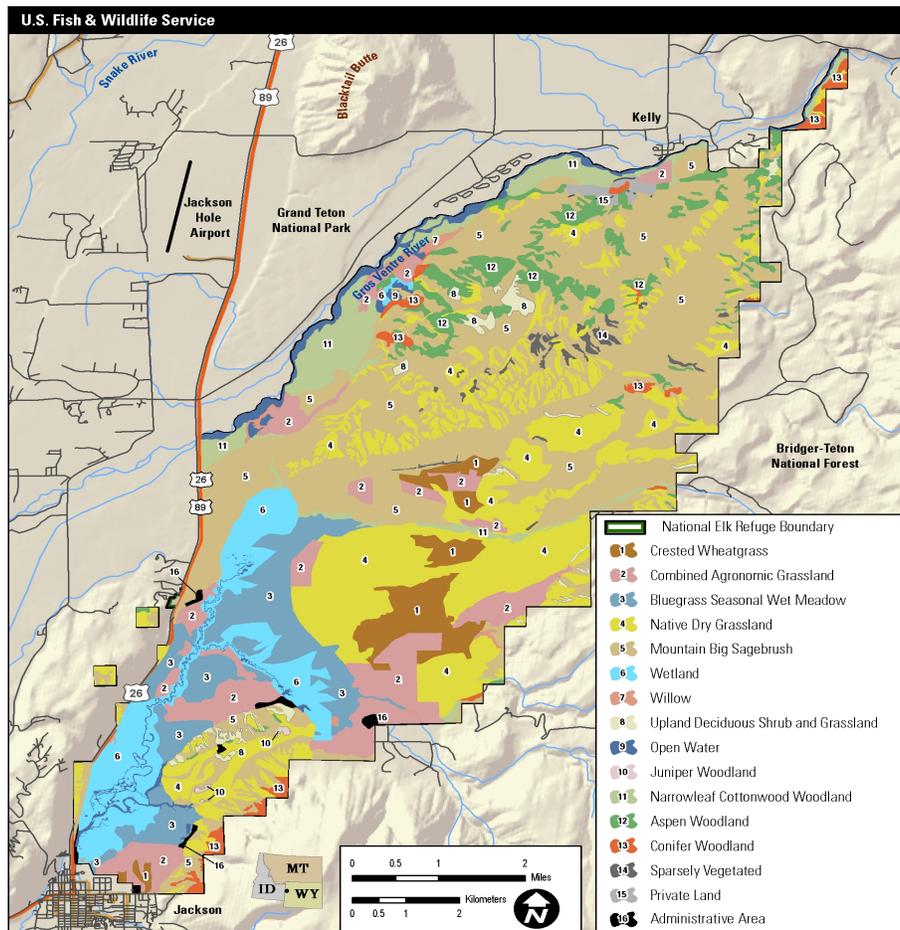


Figure 4. Map of plant communities on the National Elk Refuge, Wyoming.

Native grasslands are important plant communities on the refuge because they provide winter forage for elk and bison, which are primarily grazers. Native grasslands occur where there is sufficient precipitation to grow grasses but not trees, or where drought, frequent fires, grazing by large mammals, or human disturbance have prevented trees or shrubs from growing. Native grasslands, including some bluegrass, wheatgrass, and needlegrass species, cover approximately 8,092 acres. Except for localized areas, native grasslands are in good condition, especially in the northern part of the refuge (Eric Cole, biologist, U.S. Fish and Wildlife Service, Jackson, Wyoming, personal communication, 2002).

Sagebrush shrublands encompass approximately 8,010 acres and are scattered throughout the refuge, with the largest concentrations in the east-central and northeastern parts. Sagebrush shrublands are generally tall, dense, and comprised of native species in the northern half of the refuge, with some small areas in the McBride and Peterson management units having shorter, lower density sagebrush (Eric Cole, biologist, U.S. Fish and Wildlife Service, Jackson, Wyoming, personal communication, 2002).

The NER contains approximately 2,676 acres of wetlands, including marshlands, wet meadows, and open water (see Figure 4). Wetlands function as a natural sponge that stores and recharges groundwater supplies. Wetlands moderate streamflow by releasing water to streams (especially important during drought), and reduce flood damage by slowing and storing floodwater. Wetland plants protect streambanks against erosion, because the roots hold soil in place and the plants break up the flow of stream or river currents. Wetlands improve water quality by filtering sediment, pollutants, and excess nutrients from surface runoff. As one of the most biologically productive ecosystems in the world, the nutrient-rich environment of wetlands provides food and habitat for a variety of wildlife. Wetlands on the refuge are some of the most diverse and important in Jackson Hole because of their water-regulating functions, visual qualities, and importance to wildlife, especially resident and migratory birds.

Wet meadow habitats occur on approximately 1,720 acres on the refuge and are comprised of shrubby cinquefoil, sedges, and grasses such as foxtail barley, timothy, Kentucky bluegrass, tufted hairgrass, and common horsetail. Approximately 1,450 of the 1,720 acres contain willow plants less than 1.5 feet tall, indicating that mature willow stands have been converted to other plant communities because of decades of heavy elk browsing (Smith et al. 2004).

Riparian areas and aspen woodland communities occur on approximately 3,227 acres of the refuge. These habitat types have been declining in condition and acreage throughout refuge history. Riparian woodlands and aspen woodlands are particularly important as wildlife habitat and have been affected by elk and bison browsing. Riparian woodland habitat consists of approximately 300 acres of willow habitat and about 1,090 acres of cottonwood communities. Riparian woodlands occur along the Gros Ventre River and Flat Creek.

Aspen woodland habitat consists of approximately 1,850 acres of aspen-dominated communities on hillsides, usually some distance from water. Aspen dominated woodlands are scattered on the Gros Ventre Hills throughout the northern part of the refuge and on the eastern edge of the refuge in the south, next to the Gros Ventre Wilderness. Many aspen stands are characterized by

mature trees, with little if any aspen understory. Aspen stands in the northern hills of the refuge appear to be declining slowly, but some aspen communities escape browsing, and stand replacement is occurring periodically.

Conifer forests on the refuge cover 160 acres and consist of Douglas-fir, juniper, lodgepole pine, wheatgrasses, and other plant species. Conifer forests occur mostly on the extreme eastern edge of the refuge in the north and in the south on hillsides next to Bridger-Teton National Forest and on the northern slopes of the Gros Ventre Hills. Elk use the refuge forests and the adjacent national forest land for cover and shelter from winter storms, and they graze on palatable understory shrubs and grasses. Bison rarely use conifer stands.

Cultivated Fields

Cultivated fields, which the Service plants specifically to augment native forage that is available for elk in the winter, are used extensively by elk and bison. The refuge chooses cultivated plant species based on their palatability, persistence, ability to compete with weeds, low probability that they will invade native grasslands, and their ability to stand up after a heavy snowfall. Only part of the approximately 2,400 acres available for cultivation would likely be cultivated in any particular year. Most cultivated fields on the refuge are irrigated using the K-Line irrigation system that was installed in 2010, with limited flood irrigation in the Ben Goe and Pedersen management units.

Ten plant community types are in the cultivated fields in the southern and central parts of the refuge. Dominant plant species include alfalfa, intermediate wheatgrass, Kentucky bluegrass, Russian wild rye, smooth brome, and meadow brome. Smooth brome, the most common species, provides moderate-quality standing forage but is undesirable because of its inability to remain erect in heavy snow. Smooth brome also requires irrigation in drought years and may spread to suitable sites in other cultivated fields and native grassland habitats. Experiments with other plant species are ongoing in an effort to find palatable grass species that will meet refuge forage production objectives, and to assess the practicality of restoring native species to some areas.

Forage Production

Forage production is an estimate of the amount of food available to elk and bison produced in a given growing season. This includes: (1) annual growth of trees and shrubs that are less than 8 feet from the ground, and (2) herbaceous vegetation such as grasses, forbs (nonwoody broad-leaved plants), and weeds, which are a subcategory of forbs. Annual forage production mostly depends on the species composition of the plant community, precipitation, the amount of water available for irrigation, the number of staff members available for irrigation activities, and infestation by insect herbivores such as grasshoppers. The time of year that precipitation occurs is also important; rain in the spring and early summer increases forage production more than later in the year.

Habitat—Environmental Consequences

1. No Action Alternative

Native Habitat

Supplemental feeding maintains elk and bison numbers that are in excess of the natural carrying capacity of the habitat. As a result of these high animal numbers, grazing and browsing by elk and bison has modified the structure of and caused the loss of some plant communities.

The Service considers the native grassland communities, while heavily used by elk and bison, to be largely representative of historical dry, native grassland plant communities and self-sustaining if new infestations of invasive plant species are controlled. In the southern half of the refuge, the Poverty Flats grasslands receive heavy use by elk, and Miller Butte receives moderate to heavy use. On the southern end of the refuge, there is little residual growth of bunchgrasses following previous years of ungulate grazing during the grass dormant season. This removal can increase the production of some perennial bunchgrass plants, although standing dead plant material has been shown to be beneficial to plant health by some authors (Briske 1991, Sauer 1978). The grasslands on the northern end of the refuge receive less use by elk and bison because of deeper snow and hunting disturbance.

In general, sagebrush stands closer to feeding grounds are shorter and less dense. In the southern half of the refuge, sagebrush stands are in poor condition because of over browsing by elk and bison, and mechanical damage by bison, elk, and mechanical equipment use during supplemental feeding operations.

Most wetlands receive moderate to heavy winter use by elk, but vegetation generally recovers its dense and tall condition and largely native species composition during the growing season. Bison rarely used wetlands in the past, but have recently begun to graze wet areas next to the Poverty Flats feedground and wet meadows near the Jackson National Fish Hatchery.

There is often little residual cover in wet meadow communities because of heavy grazing by elk. The amount of residual cover varies from year to year depending on the depth of snow cover and grazing pressure.

Dobkin et al. (2002) state that willow, cottonwood, and aspen stands on the refuge were modified by browsing by ungulates; this is based on historical photographs, written records, and an understanding of the ecology of these communities. Dieni et al. (2000) and Smith et al. (2004) also note the growing experimental evidence that ungulate browsing is the cause of declines in aspen and cottonwood communities. Dobkin et al. (2002) also found that willow sites on the refuge were “mostly poorly functioning or nonfunctioning ecologically.” They concluded that although willow habitat is influenced by flooding, hydrologic conditions, ungulate use levels, fire frequencies, and precipitation patterns, the decline of willows on the refuge appears to be mostly related to heavy browsing (28 - 55% removal of annual growth). The decline of willows along Flat Creek in the southern part of the refuge has exceeded 95% (Smith et al. 2004).

Shrubby cinquefoil, a less palatable woody species, is abundant in the prior range of willows and has probably increased as willows declined. In contrast, willows in the northern end of the refuge are moderately browsed, and only a few willow plants reach their full height potential. Growth of new willow stems out of the browse zone is sporadic, and there is some space between most willow clumps.

Large numbers of elk on the refuge prevent suppressed willow plants from growing out of the browse zone. Decades of winter browsing by elk have reduced these willows to remnant plants less than 18 inches high. There are 1,450 acres of suppressed willow plants in what are now wet meadow communities, but were once willow habitat. However, the root systems of these willow plants remain intact and continue to produce suckers. This suggests that these areas could still support tall, dense willow communities if they were protected from ungulate browsing.

Elk browsing in cottonwood communities has removed understory, and cottonwood trees are not regenerating. Cottonwood stands close to the McBride feedground experience higher snag density and higher down woody debris cover. Cole (2002a, 2002b) did not find a difference in the number of woody plant species in stands closer to feeding grounds as compared to stands farther away, but total woody cover grew with increasing distance from feedgrounds (Smith et al. 2004).

Elk browsing on aspen suckers restricts aspen recruitment by preventing suckers from growing out of the browse zone. Many aspen stems are approximately 120 years old, which is approaching the maximum lifespan of 150 years. Most of these stands will eventually convert to sagebrush shrubland habitat, primarily in the form of snowberry and rose stands. A few stands may convert to native grassland habitat, depending on their location and the understory condition.

Findings by Keigley et al. (2009) suggests that limited scale regeneration of aspen has occurred on the northernmost parts of the refuge since 2005. Possible but untested explanations of this regeneration include changes in ungulate distributions or migration patterns, changes in ungulate numbers, or some combination of these factors. Cottonwood and aspen saplings grow inside exclosures (fenced areas) on the upper section of Flat Creek, indicating that these trees can replace themselves if ungulates are totally excluded.

Regeneration of young conifer trees appears sufficient to replace existing stands, but subdominant species in these communities that are much more palatable to elk, such as serviceberry and chokecherry, are heavily browsed and are not regenerating.

Cultivated Fields

Because cultivated fields are subject to grazing during the dormant season (fall and winter), these plant communities are not damaged by excessive grazing under current conditions.

Forage Production

The Service is irrigating approximately 3,600 acres to increase forage production refuge-wide and decrease reliance on supplemental feeding by providing an alternative food source for the elk on the NER. Refuge-wide herbaceous forage production averaged 14,387 (SD = 4,125) tons during 1998–2013. In recent years, irrigation of approximately 3,600 acres has increased refuge-wide forage production by approximately 10% compared to what would have been produced with precipitation alone, and by 15% in the southern portion of NER that receives the greatest use by elk and bison.

2. Proposed Action Alternative

Native Habitat

Reducing the numbers and density of elk and bison on the refuge, could result in increased height and cover of woody plant communities on the refuge, with subsequent benefits to bird and invertebrate species that depend on these conditions. In the future, there could be less damage and loss to willow, cottonwood, aspen stands, and sagebrush shrublands.

Cultivated Fields

Because cultivated fields are subject to grazing during the dormant season (fall and winter), these plant communities are not damaged by excessive grazing under current conditions and are not likely to be affected by any changes in the proposed action.

Forage Production

Like the No Action alternative, the Service would continue to irrigate 3,600 acres to increase forage production to decrease reliance on supplemental feeding by providing an alternative food source for the elk on the NER. Refuge-wide herbaceous forage production averaged 14,387 (SD = 4,125) tons during 1998–2013. In recent years, irrigation of approximately 3,600 acres has increased refuge-wide forage production by approximately 10% compared to what would have been produced with precipitation alone, and by 15% in the southern portion of NER that receives the greatest use by elk and bison.

F. Water Resources—Affected Environment

The Gros Ventre River is the largest watercourse on the refuge, and is among the river segments designated as wild and scenic by the Craig Thomas Snake Headwaters Legacy Act of 2008. Flat Creek and its associated marshlands are integral for the natural recruitment of native trout for the Snake River watershed. Flat Creek provides a native fishery of trophy Snake River cutthroat trout. No stocking occurs in Flat Creek, making natural recruitment the only source of native trout. Both Flat and Nowlin Creeks are important spawning and recruitment streams for native trout. These creeks along with the Gros Ventre River are managed as wild Snake River cutthroat trout fisheries and are important habitat for other native fish species.

Water Resources—Environmental Consequences

1. No Action Alternative

The large amount of fecal matter produced by wintering elk and bison is a possible nonpoint source of pollution affecting refuge water quality, but has not been documented as a problem.

2. Proposed Action Alternative

Reducing the population and density of bison and elk, especially around the Nowlin Marsh area, which is close to the feeding grounds, may result in less fecal matter getting into the Marsh and eventually Flat Creek, providing long-term benefits to water quality on the refuge.

G. Visitor Use and Experience—Affected Environment

The National Elk Refuge is considered one of the “crown jewels” of the Refuge System because of its spectacular scenery, proximity to two renowned national parks (Grand Teton and Yellowstone), and large, charismatic populations of seasonal elk and bison populations that people want to observe. It is the spectacle of thousands of elk wintering on the refuge’s grasslands that intrigues the public and makes the refuge iconic.

Annually, thousands of people observe and photograph elk at close proximity on the refuge while participating in the sleigh ride program. Bison are popular with visitors and residents as a symbol of the West, and they are central to the culture and traditions of many American Indian tribes. Bison are less visible on the refuge in the winter, but can occasionally be viewed in the Chambers and McBride area from the Refuge Road or Highway 89.

The visitor services staff at the National Elk Refuge offer year-round programs that incorporate wildlife viewing, photography, interpretation, and environmental education into the visitor experience.

There is also a high level of interest and participation in elk and bison hunting on the National Elk Refuge.

Visitor Use and Experience—Environmental Consequences

1. No Action Alternative

Visitor Experience

An average of 30,000 visitors annually experience a winter interpretive program from horse drawn sleighs through a concessionaire agreement between the refuge and the Grand Teton Association. During the winter season of 2018-2019, the refuge had just over 36,000 visitors participate in sleigh rides. This hour-long activity commences at and returns to the west boundary of the Nowlin Management Unit along Highway 89. Winter supplemental feeding at

the Nowlin feedground sustains up to 2,000 elk in this vicinity which can be viewed from the sleighs.

Public Safety

Historic radio telemetry data, snow and forage condition evaluations, and observations of elk movements indicate that when available forage on the refuge declines below 300 lbs. of forage /acre, some elk leave the refuge for neighboring private lands. One of the purposes of monitoring this threshold level of 300 lbs. of forage /acre is to assess when elk may start moving off the refuge due to limitations in native forage. A purpose of supplemental feeding, based on this threshold, is to minimize elk moving onto adjacent private lands and roadways; and reducing the risk of wildlife-vehicle collisions, which is a potential hazard to residents and visitors.

Supplemental feeding encourages bison to stay in the northernmost part of the refuge where conflicts with humans and private property are minimal.

2. Proposed Action Alternative

Visitor Experience

Winter elk numbers on the Nowlin Management Unit may decline as supplemental feeding is reduced. However, the production of high quality forage on the unit is expected to be adequate to attract and sustain elk in order to maintain an informative and high quality sleigh ride interpretive experience.

As discussed in more detail above under the proposed action for Habitat, one of the objectives of the Service's extensive vegetation restoration and protection efforts is to improve wildlife viewing opportunities for visitors in a natural setting. Observing normal elk grazing behavior will enhance the quality of this experience for some visitors. Additionally, the wildlife viewing opportunities may increase throughout the refuge as a result of greater dispersion of elk across the refuge landscape during the winter months.

Public Safety

Keeping the elk and bison on the NER and around the feedgrounds helps control interaction, and reduce conflicts of elk and bison with livestock, private property, and humans. Therefore, reducing reliance on supplemental feeding may slowly increase the incidences of these interactions and conflicts. The Service has several management strategies outlined in the Step-down Plan to ensure public safety, such as hazing wildlife and fencing.

H. Socioeconomics

Residents—Affected Environment

During the late nineteenth century, when elk populations all over North America were being hunted to near-extinction, the residents of Jackson Hole protected elk from “tusk hunters” and

large-scale commercial hunting operations. Elk are just as important to today's residents of the Jackson Hole. Annually, thousands of people have the opportunity to see elk at close proximity on the refuge while riding on horse-drawn sleighs and from adjacent roadways and pull-outs. Thousands of pounds of elk antlers are collected from the refuge and sold at an annual antler auction each spring as part of a Jackson Hole community event. Elk are as important to backcountry enthusiasts as they are to people that never leave the roadway. Jackson Hole is a popular destination for in-state and out-of-state elk hunters. The presence of elk for visitors contributes substantially to the local economy.

Residents—Environmental Consequences

1. No Action Alternative

Tourism

Tourism and resulting economic benefits to the local economy will not be adversely affected, and Teton County, WY will continue to benefit from visitation related to, and generated by, the refuge and its resources.

2. Proposed Action Alternative

Tourism

Tourism and resulting economic benefits to the local economy will not be adversely affected, and Teton County, WY will continue to benefit from visitation related to, and generated by, the refuge and its resources. Long-term benefits could occur from reduced wildlife disease impacts and tourism supported by healthy elk and bison populations.

Adjacent Landowners—Affected Environment

The National Elk Refuge borders the Bridger Teton National Forest to the east, Grand Teton National Park to the north and northwest, and private lands to the west and south. The proposed action could potentially affect adjacent landowners due to increased use of adjacent lands by elk and bison during the winter months.

Adjacent Landowners—Environmental Consequences

1. No Action Alternative

Historic radio telemetry data, snow and forage condition evaluations, and observations of elk movements indicate that when available forage on the refuge declines below 300 pounds of forage per acre, some elk leave the refuge for neighboring private lands. One of the purposes of monitoring this threshold level of 300 pounds of forage per acre is to assess when elk may start moving off the refuge due to limitations in native forage. Minimizing elk moving onto adjacent private lands reduces the risk of wildlife co-mingling with livestock on private lands. Elk moving

off the refuge to search for forage on private lands may increase the potential of co-mingling with cattle and damages to private lands.

When necessary, the NER staff may haze elk and bison during the summer to conserve winter forage, prevent year-round use of winter range, and in some cases to prevent elk and bison from moving to private lands or other areas where conflicts with humans may occur. Hazing bison using ATVs has proven most effective. The strategy is typically employed during three time periods: 1) in May to move lingering elk and bison off the NER's winter range; 2) in July when some bison typically return to the NER; and 3) in the period just prior to feeding initiation when elk and bison are most likely to leave the NER for private lands. Hazing of elk and bison by WGFD staff also occurs on private lands adjacent to the refuge periodically throughout the year.

2. Proposed Action Alternative

Reducing reliance on supplemental feeding on the refuge could result in some bison and elk moving to adjacent private lands. However, monitoring bison and elk movements and adaptive management strategies will minimize the likelihood of this occurring. Elk and bison on private adjacent lands can cause damage to the vegetation and soil on that land, reduce forage for livestock, and result in co-mingling with cattle, which increases the risk of specific diseases, such as brucellosis being transmitted to cattle.

The Service will employ several strategies to reduce the impacts to private lands adjacent to the refuge. Like under the No Action alternative, the Service would continue to haze bison and elk to protect lands neighboring the NER. Also, fencing of haystacks and livestock feed lines could be used to mitigate particularly difficult conflicts on private lands. Targeted fencing of golf course greens and sand traps in the fall through spring has also been successful in some situations for mitigating elk and bison presence and associated damage in these areas. It is important to note that Teton County, Wyoming has a "wildlife-friendly" fence policy and does not support extensive fencing that is impermeable to wildlife in residential areas. Other mitigation methods, should wildlife conflicts become a major issue, could include long-term leases on private lands that allow for wintering elk, the purchase of permanent conservation easements, or direct compensation to support specific actions (e.g. removing cattle from certain areas during the spring when they may be particularly vulnerable to brucellosis transmission).

Cattle Industry—Affected Environment

The Service has received comments from those who are concerned about brucellosis and other density-dependent wildlife diseases spreading to cattle. One of the primary reasons the refuge has engaged in supplemental feeding is to keep elk and bison on the refuge so they do not interfere with local cattle operations.

Cattle Industry—Environmental Consequences

1. No Action Alternative

Currently, the refuge undertakes several management strategies to keep bison and elk on the refuge and away from local cattle operations. The most important is supplemental feeding, but fencing and hazing are other strategies. Under the No Action alternative, these mitigation strategies would continue to prevent negative impacts to the cattle industry from management of elk and bison on the refuge.

2. Proposed Action Alternative

Reducing reliance on supplemental feeding on the refuge, may lessen the prevalence and severity of brucellosis and other density-dependent diseases in the elk and bison herds due to wider distribution in the valley. However, this broadened distribution comes with a higher risk of infected elk and bison interacting with livestock. In order to mitigate the risk of these occurrences, the Service is exploring several strategies to ensure this action does not adversely affect the cattle industry including: continued and possibly increased hazing, purchasing conservation easements to accommodate greater distribution of elk and bison, and extensive monitoring to track elk and bison movements. One of the main reasons for taking a slow, conservative approach to reducing reliance on supplemental feeding is the ability to monitor the response of elk and bison to the reduction, and implement sufficient mitigation measures to offset any impacts to local landowners and the local cattle industry.

I. Cultural Resources—Affected Environment

Prior to Euro-American contact, American Indians inhabiting the region are thought to have seasonally used this high-elevation valley primarily during the warm months, and it is believed that no one tribe occupied Jackson Hole year-round. Traditional uses of the lands included hunting and fishing, collection of plants and minerals, and ceremonial activities.

Refuge resources of contemporary tribal importance include bison, which continues to be of particular interest to many American Indian tribes on a regional and national scale, because the animals are central to cultures and traditions. Associated present-day activities pursued by tribes on the refuge include the ceremonial bison hunt conducted by the Shoshone-Bannock.

About 20% of the refuge has been inventoried for cultural resources. There are at least 29 known cultural resources on the National Elk Refuge: 8 precontact sites and 21 historic sites. Seven sites are eligible or potentially eligible for the National Register of Historic Places. Based on environmental conditions in conjunction with previous cultural resource inventories across the surrounding landscape, additional precontact and historic resources are thought to exist on the refuge.

At least eight precontact archaeological sites have been recorded, which include roasting pits, stone circles, and a bison kill site. Among the artifacts that have been identified are elk and bison bones, and numerous cores, flakes, choppers, scrapers, bifaces, and projectile point fragments.

The historic sites are primarily represented by ditches and associated water control structures, trash scatters and dumps, collapsed log structures and foundations associated with homesteads, the remains of a local schoolhouse, and the Kelly Cemetery.

The historic Miller Ranch (48TE903) has three main structures: the Miller House, the Miller Barn, and a USDA Forest Service cabin. The Miller House, built in 1898 and listed on the National Register of Historic Places in 1969, was one of the early homesteads in the valley. It was one of the first tracts purchased for the NER and served as the refuge's original office. The National Register nomination for the property was amended in 2001 to include the Miller Barn (the listing includes the Forest Service cabin as well).

In 2016, the NER Headquarters Complex/Administrative Area (48TE2006) was formally documented and evaluated as a National Register-eligible historic district under Criterion A and C, with multiple buildings (including Quarters 1, the Office, the Service and Comfort Station, and Quarters 9) recommended as eligible/contributing under the district's 1940-1966 period of significance.

Cultural Resources—Environmental Consequences

1. No Action Alternative

The Service believes that implementation of the No Action alternative would not result in any substantial direct or indirect impacts to previously documented or unidentified cultural resources, and has subsequently determined that, in accordance with the implementing regulations for Section 106 of the National Historic Preservation Act (36 CFR Part 800): "...the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, [and] the agency official has no further obligations under section 106 or 36 CFR §800.3(a)(1)" (with "effect" defined in the regulations as "...alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register").

In particular, the Service has determined that the No Action alternative has no potential to effect historic properties, because there would be no ground disturbance or changes to existing environmental conditions. Supplemental feeding has taken place on NER every year since the refuge was established in 1912. Non-feeding years have occurred irregularly and infrequently, and there have been only ten years when no feed was provided. Under the No Action alternative, supplemental feeding would continue to take place during winter months (with historical dates ranging from December 30-April 20), when the ground is likely to be frozen and/or snow-covered. Additionally, under the No Action alternative, there is no expected change to bison numbers or distribution from existing conditions.

2. Proposed Action Alternative

The Service believes that implementation of the proposed action alternative will result in negligible direct or indirect impacts to previously documented or unidentified cultural resources, and has subsequently determined that, in accordance with the implementing regulations for Section 106 of the National Historic Preservation Act (36 CFR Part 800): "...the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, [and] the agency official has no further obligations under section 106 or 36 CFR §800.3(a)(1)" (with "effect" defined in the regulations as "...alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register").

In particular, the Service has determined that the proposed action alternative has no potential to effect historic properties, because there would be no ground disturbance or substantial changes to existing environmental conditions as a result of implementation, with the exception of a decreased density of elk on NER during winter months and consequently, a more varied distribution of elk across the landscape encompassing the Jackson Hole (which would concurrently represent a return to historical conditions). Supplemental feeding has taken place on NER every year since the refuge was established in 1912. Non-feeding years have occurred irregularly and infrequently, and there have been only ten years when no feed was provided. Under the proposed action alternative, supplemental feeding would continue to take place during winter months (with historical dates ranging from December 30-April 20), when the ground is likely to be frozen and/or snow-covered. Under the proposed action alternative, there would also be less frequent access to the feedgrounds by vehicles and personnel (i.e. to deliver feed), and fewer elk concentrated within the feedgrounds as compared with more recent historic conditions (i.e. in recent years, 80% of the Jackson elk herd has wintered on NER, up from approximately 50% in the early 2000s). Additionally, under the proposed action alternative, there is no expected change to bison numbers or distribution from existing conditions.

Any future activities undertaken in association with or as a result of implementation of the proposed action alternative (such as, for example, the application of mitigation measures under the SDMP) would be subject to further review and consideration on an individual basis under Section 106 of the National Historic Preservation Act.

V. Cumulative Impacts

Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR §1508.7).

Chronic Wasting Disease, Brucellosis, and Other Non-Endemic Diseases

Currently, CWD is not found in the Jackson elk herd, but it has been detected in a mule deer in GRTE. As of 2019, CWD has been detected close to the Jackson elk herd in mule deer (within

40 miles); in moose; and in elk (within 175 miles of the Jackson elk herd). Intensive surveillance will continue for CWD in the Jackson elk herd Unit. It is reasonably foreseeable that CWD will infect the Jackson elk herd.

As previously discussed, by reducing the numbers and density of elk on the refuge as outlined in the proposed action, the Service is hoping to reduce the impacts of CWD in the elk herd. This will also reduce the impacts of CWD in the valley on mule deer and moose.

Wolf Numbers & Distribution

Wolves in the Greater Yellowstone area are descendants of 31 individuals that were translocated from Canada to Yellowstone National Park in 1995. Wolves from Yellowstone National Park have colonized surrounding areas and have consistently occupied the NER and areas surrounding the refuge since 1999. As of December 2017, there were at least 238 wolves documented in Wyoming outside of Yellowstone National Park, 97 wolves in YNP, and 12 wolves on the Wind River Indian Reservation.

To date almost all research regarding the effects of wolves and other predators on elk distribution and density has occurred in areas with no feedgrounds, and therefore the applicability of that research to the situation at NER is limited. We are currently collaborating with other researchers to evaluate the effects of wolves on elk winter distribution in the Jackson elk herd and also on the effects of supplemental feeding and other factors on elk aggregation and density patterns. Ultimately, the Service will use an adaptive management strategy that maintains the refuge's winter elk population objective of 5,000 which focuses on encouraging greater distribution rather than reducing the overall herd population.

Climate Change

Climate change refers to the increasing changes in the measures of climate over a long period of time – including precipitation, temperature, and wind patterns (USGS 2019). Moderate to long-term effects of climate change in Jackson Hole will likely include increases in average temperature, a reduction in the duration and distribution of snow cover, an increase in the number of frost free days, increased wildfire frequency, and changes in plant community composition and structure including loss of forest and shrub cover and an increase in invasive plants (Riginos and Newcomb 2015). Although climate change is a naturally occurring phenomenon and temperature and precipitation changes are anticipated, there are many unknowns. Consequently, we do not fully understand the potential impacts that climate change may have on terrestrial and aquatic habitats and the associated wildlife species.

Using available and emerging science, the Service continues to assess predictions of these complex effects and the Service will continue to use an adaptive management approach to implementation of this action to ensure that it does not add to the impacts of climate change on the environment.

VI. Monitoring

A robust monitoring program will be necessary to track the impacts of actions implemented under this plan. Critical monitoring components will include:

- enhanced forage production and availability sampling;
- measuring animal abundance and distribution including differences in some sex and age classes;
- estimating winter mortality;
- brucellosis seroprevalence rates; and
- CWD Surveillance.

In many cases, attribute baselines for the period preceding the implementation of this plan have been developed for comparison once the plan is implemented. For more information on current and planned monitoring at the NER, see the Step-down Plan (Appendix B).

Modifying elk and bison behavior while reducing reliance on supplemental feeding will require a long-term and sustained commitment. Change is unlikely to happen fast, and interpreting effects of management actions will be complicated by varying environmental conditions from year to year. Actions completed each year, the results of monitoring programs, and any proposed changes in management direction will be presented in an annual Step-down Plan update/report, completed by NER staff by the end of June.

Irreversible or Irretrievable Commitment of Resources

There are no irreversible or irretrievable resource commitments identified by this assessment, except for a minor consumption of fossil fuels for routine operations.

VII. Summary of Analysis

Alternative A—No Action Alternative

As previously described, current management direction would continue and the refuge would not begin reducing reliance on supplemental feeding. Elk currently are fed an average of 70 days annually.

Since 2007, the overall Jackson elk herd population has declined from nearly 13,000 and is currently close to the 11,000 elk objective, but the number of elk wintering on NER has been well above the 5,000 elk objective since implementation of the BEMP in 2007.

Supplemental feeding sustains more elk and bison than the land can support naturally. This situation has resulted in loss and modification of aspen, willow, and cottonwood plant

communities; habitat; as well as an increased prevalence and severity of density-dependent diseases among the elk and bison populations.

This alternative does not meet the purpose and needs of the Service as previously discussed, because it would not begin reducing reliance on supplemental feeding on the National Elk Refuge (NER) under a dynamic, structured framework as decided in the 2007 Bison and Elk Management Plan (BEMP).

Alternative B—Proposed Action Alternative

As previously discussed, the purpose of this action is to implement one of the major decisions of the BEMP: a dynamic, structured framework for reducing reliance on supplemental feeding on the refuge in order to change the winter elk distribution on the refuge. The Service believes this is an important and necessary action to inform what management actions will ultimately be necessary to achieve the BEMP's longer term goal of stopping supplemental feeding of elk and bison on the refuge in the future.

Under this action, ideally the numbers and density of elk on the refuge would be reduced so that density-dependent diseases would not be as easily transmitted through the elk and bison populations. In the long-term, it could also lead to less habitat damage on the NER.

This alternative helps meet the purpose and needs of the Service as previously discussed, because it would support several BEMP objectives including:

- Reducing the elk on the refuge to 5,000.
- Supporting WGFDD's objective of 11,000 elk for the Jackson herd.
- Maintaining a bison population objective of 500.
- Mitigating bison and elk livestock conflicts.

The Service has determined that the proposed action meets the purposes of the National Elk Refuge and the mission of the NWRS.

List of Sources, Agencies and Persons Consulted

The following agencies and organizations were consulted during the development of this EA.

- Wyoming Game and Fish Department
- Wyoming State Historic Preservation Office, Cheyenne, Wyoming

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State Coordination

Refuge staff worked in close cooperation with staff of the WGFD during the development of the BEMP, and the subsequent development of the AMP and Step-down Plan for which this EA has been prepared. The refuge population objective of 5,000 wintering elk, and the Step-down Plan were developed in consultation with conservation partners, including staff of the WGFD. WGFD

staff and other conservation partners attended sixteen planning meetings held at the National Elk Refuge from May 22, 2013 through July 31, 2015.

Service staff met with WGFD representatives on December 16, 2019 to discuss the comment letter received from the WGFD on the Step-down Plan, draft EA and draft Finding of No Significant Impact (FONSI). During the meeting the Service presented responses to comments and proposed changes to the Step-down Plan, draft EA and draft FONSI as a result of the comments received. Further conversations to gather more information resulted in several changes to the Step-down Plan, Final EA and FONSI.

In accordance with Section 106 of the National Historic Preservation Act of 1966 and its governing regulations (36 CFR Part 800), the Service reviewed the proposed action for direct and indirect impacts to previously documented and unidentified historic properties, and determined that the proposed undertaking has no potential to affect historic properties. The Wyoming State Historic Preservation Office was notified of this determination on September 16, 2019. The Wyoming State Historic Preservation Office concurred with the Service's determination of effect for this undertaking in a letter to the Service dated September 24, 2019.

Tribal Coordination

The Service invited the following tribes to consult on a government-to-government basis with regard to the implementation of the Step-down Plan and the content of the associated EA: the Assiniboine and Sioux Tribes of Fort Peck, Blackfeet Nation, Chippewa-Cree of Rocky Boy, Confederated Salish and Kootenai Tribes, Crow Nation/Crow Tribe of Indians, Gros Ventre and Assiniboine Tribes of Fort Belknap, Northern Cheyenne Tribe, Eastern Shoshone Tribe, Northern Arapaho Tribe, Nez Perce Tribe, and Shoshone-Bannock Tribes.

In accordance with Section 106 of the National Historic Preservation Act of 1966 and its governing regulations (36 CFR Part 800), the Service reviewed the proposed action for direct and indirect impacts to previously documented and unidentified historic properties, and determined that the proposed undertaking has no potential to affect historic properties.

Public Involvement

The Service has participated in extensive public outreach, consultation, and coordination with its partners and other stakeholders, on issues related to the proposed action including, the nine year planning and NEPA process to develop the 2007 BEMP and associated EIS; the NEPA process to develop the 2009 Irrigation Plan and EA; and the multi-year planning and NEPA process associated with developing the 2015 CCP for the refuge. Issues identified during engagement with the public, partners, and stakeholders, including:

- effect on winter density and dispersal of elk and bison;
- winter access to forage by elk and bison under various snow conditions;
- environmental contamination of Chronic Wasting Disease;
- potential harm to plants and wildlife; and

- Adverse impacts to neighboring landowners.

We have attempted to address these issues throughout the analysis in this EA.

Staff at the NER have been involved in an ongoing public engagement effort, receiving feedback and sharing information about the BEMP, related accomplishments, and our continued intention to transition from an intensive supplemental feeding program to greater reliance on freestanding forage.

On September 30, 2019 the Service released the Draft EA, draft FONSI and Step-down Plan for public review. Members of the public were notified of the availability of the Draft EA, draft FONSI and Step-down Plan through a press release posted on the Service website at https://www.fws.gov/refuge/national_elk_refuge/. Following the release of the Draft EA, draft FONSI and Step-down Plan, the Service opened a 30-day public comment period that ended on October 30, 2019. The public was encouraged to submit comments regarding the Draft EA, draft FONSI and Step-down Plan via email to nationalelkrefuge@fws.gov, in-person, by phone, or by mail.

During the comment period, 328 unique pieces of correspondence were received on the Draft EA, draft FONSI and Step-down Plan, including letters from 5 government agencies, 9 organizations and 314 individual commenters. Once all the correspondence was received, Service staff read each one and identified specific comments within each piece of correspondence. Correspondence reviewers derived a total of 40 substantive comments from the correspondence received.

The Service received 424 pieces of correspondence after the close of the comment period. Service staff read each one and identified specific comments within each piece of correspondence. Comments received after the close of the comment period expressed concerns similar to those received during the comment period. No new concerns or substantive comments were identified in the correspondence received after the close of the comment period.

The Service's response to substantive comments are presented in the Public Comments Analysis Report (Appendix C).

APPENDIX A

OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS AND REGULATIONS

Cultural Resources

American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996 – 1996a; 43 CFR Part 7

Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3

Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa – 470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810

Paleontological Resources Protection Act, 16 U.S.C. 470aaa – 470aaa-11

Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10

Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971)

Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)

Fish & Wildlife

Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450

Fish and Wildlife Act of 1956, 16 U.S.C. 742 a-m

Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904

Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21

Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001)

Natural Resources

Clean Air Act, as amended, 42 U.S.C. 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23

Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.

Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999)

APPENDIX B
STEP-DOWN PLAN BISON AND ELK MANAGEMENT
A STRUCTURED FRAMEWORK FOR REDUCING RELIANCE ON SUPPLEMENTAL
WINTER FEEDING

The Step-down Plan is available for viewing and download at:
https://www.fws.gov/refuge/national_elk_refuge

APPENDIX C

PUBLIC COMMENTS ANALYSIS REPORT

On September 30, 2019 the Service released the Draft Environmental Assessment (EA), draft Finding of No Significant Impact (FONSI) and Bison and Elk Management Step-down Plan (Step-down Plan) for public review. Members of the public were notified of the availability of the Draft EA and Step-down Plan through a press release posted on the Service website at https://www.fws.gov/refuge/national_elk_refuge/. Following the release of the Draft EA and Step-down Plan, the Service opened a 30-day public comment period that ended on October 30, 2019. The public was encouraged to submit comments regarding the Draft EA, draft FONSI and Step-down Plan via email to nationalelkrefuge@fws.gov, in-person, by phone, or by mail.

NATURE OF THE COMMENTS RECEIVED

During the comment period, 329 unique pieces of correspondence were received on the Draft EA, draft FONSI and Step-down Plan, including letters from 6 government agencies, 9 organizations and 314 individual commenters. Once all the correspondence was received, Service staff read each one and identified specific comments within each piece of correspondence. Correspondence reviewers derived a total of 40 substantive comments from the correspondence received.

The Service received 424 pieces of correspondence after the close of the comment period. Service staff read each one and identified specific comments within each piece of correspondence. Comments received after the close of the comment period expressed concerns similar to those received during the comment period. No new concerns or substantive comments were identified in the correspondence received after the close of the comment period.

THE COMMENT ANALYSIS PROCESS

Comment analysis is a process used to compile and correlate similar public comments into a format that can be used by decision makers and the Draft EA/Step-down Plan planning team. Comment analysis assists the team in organizing, clarifying, and addressing technical information pursuant to the National Environmental Policy Act (NEPA) regulations. It also aids in identifying the topics and issues to be evaluated and considered throughout the planning process.

In total, the Service received comments from 752 submitters on various aspects of the Draft EA/draft FONSI/Step-down Plan. Members of the planning team read and analyzed all comments, including those of a technical nature; opinions, feelings, and preferences of one element or one potential alternative over another; and comments of a personal or philosophical nature. The team grouped and organized comments by issues and themes, drafted concern statements, and participated in developing this comment summary.

Although the analysis process attempts to capture the full range of public concerns, this content analysis report includes the following caveats. Comments from people who chose to respond do not necessarily represent the sentiments of the entire public. Furthermore, this was not a vote-

counting process, and the emphasis was on the content of the comment rather than the number of times a comment was received.

ORGANIZATION OF THIS REPORT

This report is organized as follows.

Content Analysis – This is the basic summary report, which provides information on the numbers and types of comments received. Data show the amount of correspondence received by organization type (federal, state, and local government agencies; conservation organizations, individuals, etc.). While the Service acknowledges comments expressing a feeling, opinion, or a preference for a particular alternative, those comments are not considered substantive and are not included in the responses.

Concern Response Report – This section summarizes the substantive comments received during the Draft EA/draft FONSI/Step-down Plan public review comment process. As defined in the Council on Environmental Quality’s regulations for implementing the National Environmental Policy Act, comments are considered substantive if they:

- question, with reasonable basis, the accuracy of the information in the document
- question, with reasonable basis, the adequacy of the environmental analysis
- present reasonable alternatives other than those presented in the environmental assessment
- cause changes or revisions in the proposal

Substantive comments are organized by topic and further consolidated into concern statements. Comments have been summarized and paraphrased. Representative quotes are then provided for each concern statement. The Service provides a response for each concern statement.

Where appropriate, the text of the Final EA and FONSI has been revised to address the substantive comments in this appendix.

Attachment: Copies of Correspondences from all Entities, Excluding those Received from Unaffiliated Individuals – This appendix contains copies of correspondences that were received during the comment period from all entities (government, organizations, etc.) excluding those received from individual commenters (unaffiliated individuals).

CONTENT ANALYSIS

Table 1. Correspondences by Organization Type

Organization Type	Number of Correspondence
Federal Agency <ul style="list-style-type: none"> ● National Park Service, Grand Teton National Park and John D. Rockefeller, Jr. Memorial Parkway 	1
State Agency <ul style="list-style-type: none"> ● Office of the Wyoming Governor ● Wyoming Game and Fish Department ● Wyoming State Historic Preservation Office 	3
Local Agency <ul style="list-style-type: none"> ● Teton County Board of Commissioners ● Teton County Conservation District 	2
Conservation/Preservation <ul style="list-style-type: none"> ● Defenders of Wildlife ● Greater Yellowstone Coalition ● National Wildlife Refuge Association ● Sierra Club ● Western Watersheds Project ● Wyoming Wildlife Advocates 	6
Industry Organization/Company <ul style="list-style-type: none"> ● Mountain Pursuit ● Wyoming Outfitters & Guides Association ● Wyoming Sportsmen for Fish and Wildlife 	3
Unaffiliated Individual	738
Total	753

ALTERNATIVE PREFERENCE

The most common topic found in the individual comments was support for or opposition to a reduction in supplemental winter feeding of elk and bison on the NER. The EA analysis includes Alternative A: Current Management (No Action), and Alternative B: Step-down Plan, A Structured Framework for Reducing Reliance on Supplemental Winter Feeding (Proposed Action). Although the Service considers all comments in the decision-making process, comments expressing alternative preference are not considered substantive and were not included in the responses to comments.

POINTS OF CLARIFICATION IN THE EA AND STEP-DOWN PLAN

Purpose of the Refuge

Although feeding has been a critically important management strategy since the founding of the Refuge, it is not a Refuge purpose (neither by congressional action or executive order). State-sponsored elk feeding occurred at the future site of the Refuge as early as 1909, and

continued once the Refuge was established in 1912. Initially the Refuge was only 2,000 acres in size (located between Miller Butte and the town of Jackson), and in the early 1900's much of the Refuge's current acreage was occupied by homesteads and cattle operations.

Due to limited Refuge size and ongoing conflicts with surrounding livestock operations, feeding was required in the early years of the Refuge to save the last remnants of elk in the region. The National Elk Refuge was established in 1912 as a "winter game (elk) reserve (37 Stat. 293, 16 USC 673), and the following year Congress designated the area as "a winter elk refuge" (37 Stat. 847). In 1921 all lands included in the refuge or that might be added in the future were reserved and set apart as "refuges and breeding grounds for birds" (Executive Order [EO] 3596), which was affirmed in 1922 (EO 3741). In 1927 the refuge was expanded to provide "for the grazing of, and as a refuge for, American elk and other big game animals" (44 Stat. 1246, 16 USC 673a). The Refuge is now 24,777 acres in size, and these purposes apply to all or most of the lands now within the refuge. Several parcels have been added to the refuge specifically for the conservation of fish and wildlife (Fish and Wildlife Act of 1956), and for opportunities for wildlife-oriented recreational development, the protection of natural resources, and the conservation of threatened or endangered species (Refuge Recreation Act of 1962, 16 USC 460k-1).

Consistency between Goals, Objectives, and Strategies in the EA and Step-down Plan

The EA and Step-down Plan tier to the 2007 Bison and Elk Management Plan (BEMP), which describes a phased approach to reducing the number of animals on feed under Goal 2: Sustainable Populations. The overall goal of the Step-down Plan is to outline a framework for progressively transitioning from winter feeding of elk and bison on the NER to greater reliance on free standing forage, while maintaining population and herd ratio objectives.

The Step-down Plan will focus on achieving Phase 1) reduction of animals on feed to 5,000 elk and 500 bison (2007 BEMP, pages 135-136), while maintaining WGFD's current elk herd objective.

Elimination of the Supplemental Winter Feeding Program

The Step-down Plan does not include an objective for the complete cessation of supplemental feeding on the refuge. Rather, the Step-down Plan proposes a gradual reduction in the number of elk fed days to encourage greater reliance on freestanding forage.

Refuge Closure

The Step-down Plan does not include a proposal to close or shut down the National Elk Refuge.

Chronic Wasting Disease Working Group

The Chronic Wasting Disease Task Force is chartered in the Department of the Interior (DOI) to:

1. Gather principle representatives from DOI's relevant bureaus and agencies to review the 2002 report, "Plan for Assisting States, Federal Agencies and Tribes in Managing Chronic Wasting Disease in Wild and Captive Cervids" and identify in the report items that have been completed, are incomplete, or no longer relevant.
2. Create an action plan to be submitted to the Secretary with recommendations on the role that DOI should play in addressing CWD.
3. Collaborate with the states and federal partners to implement the Secretary's vision.

The DOI CWD Task Force provides a forum for information exchange on DOI activities related to CWD, facilitate cooperation between State and Federal agencies' efforts in addressing CWD, and serve as the authoritative source regarding implementation of any strategy going forward.

The WGFD also has a CWD working group process in place to guide revisions to their CWD management plan. Information about their process is available at: <https://wgfd.wyo.gov/get-involved/cwd-working-group#feedback>.

MOST COMMON CONCERNS

The most common concerns or issues expressed among all entities (agencies, organizations, and unaffiliated individuals) were:

- impacts of reduced supplemental feeding to elk (starvation, elk more vulnerable to wolf predation)
- support for reduced supplemental feeding
- opposition to reduced supplemental feeding
- impacts to private land
- general concern about disease (brucellosis, chronic wasting disease)
- concern about disease transmission from elk or bison to/from livestock
- economic importance of elk herd
- loss of habitat (winter range) and migration corridors caused by human development
- manage populations with hunting and habitat protection
- concern about impacts to other species if elk and bison feeding is reduced

CONCERNS OUTSIDE THE SCOPE OF ANALYSIS

Hunting

Some commenters expressed the desire to expand hunting as a means to manage the Jackson elk herd. While the Service supports hunting as a population management tool, hunting is outside the scope of this EA. The Service will continue to work with the NPS and our other partners on elk population management options. Any efforts to expand hunting will involve a separate planning and public process.

CONCERN RESPONSE REPORT

Topic 1. Native Winter Range/Natural Forage

Concern Statement	Representative Comment	Service Response
<p>1.1 Concern with regard to the availability of native winter range and the winter carrying capacity to support bison and elk during winter months.</p>	<p>A failure of the assessment is the absence of biological or scientific measurements of what “native winter range” and “winter carrying capacity” forage might be available during the winter months – especially during harsh winters. Before we adopt options which reduce the amounts or duration of supplemental feeding, managers and the public should know what these estimates are and what the impacts on sustaining herd numbers might be.</p>	<p>Carrying capacity (the number of elk that the Jackson Hole area can support without supplemental feeding) has been evaluated for the National Elk Refuge and surrounding winter range. Hobbs et al. (2003) estimated elk carrying capacity for the Jackson Elk Herd to be 16,000 elk overall and 5,000 elk on the National Elk Refuge in winters with average snow conditions and forage production. However, the model also predicts that in severe winters that follow years with low forage production, total elk winter mortality could be as high as 30%. Therefore, under severe winter conditions the carrying capacity of the Refuge and the overall Jackson Elk Herd are likely much lower than 5,000 and 16,000 respectively. Under the EA, the goal is not to eliminate supplemental feeding altogether, but rather to shorten feed season length as conditions allow. This means that in severe winter situations elk will still be fed, and the elk starvation rates predicted by Hobbs et al. (2003) will be very unlikely.</p>
<p>1.2 Actively manage lands adjacent to the NER to improve native winter range.</p>	<p>One element of local management of elk and habitat that is glaringly absent is how to manage adjacent public lands to improve elk redistribution. In the past wildlife managers partnered on what was known as JIHI (Jackson Interagency Habitat Initiative) to use prescribed burns and management of natural fire incidents to benefit in particular winter-range for elk. We encourage the continued support of the NER in managing winter-closures on public lands to benefit wintering wildlife. Creating, maintaining and expanding opportunities for elk to utilize public and private land suitable winter ranges is critical to reducing the numbers</p>	<p>We agree that habitat management strategies and winter range closures are important tools to affect elk and bison winter distribution. The Refuge will continue to work with staff from other agencies to pursue habitat restoration and management opportunities to encourage elk and bison use of public lands adjacent to NER. For example the Refuge supports efforts by Grand Teton National Park to restore native plant communities in the Kelly hayfields; where appropriate we support prescribed burning and fire use policies on adjacent National Forest land; and we fully support winter range closures that limit</p>

	of elk on the NER, while maintaining population objectives.	human disturbance of wildlife on native winter range east of the Refuge.
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Topic 2. Herd Size Objectives

Concern Statement	Representative Comment	Service Response
2.1 Trend counts for population should be used versus estimation techniques which have varied over time.	Page 12 - Figure 2. Perhaps only trend count figures should be used. During the time scale shown, annual trend count efforts have remained constant while estimation techniques have varied.	Figure 2 in the EA and Step-down Plan has been revised to remove population estimates from the graph.
2.2 Concern with regard to the ability to meet the stated 11,000 overall Jackson elk herd objective and goal of 5,000 elk wintering on NER.	The EA and Step-down Plan support goals of 5,000 elk for the NER and the WGFD's current overall Jackson elk herd objective. Events may prove that these are incompatible goals.	The principal strategy of the Step-down Plan is to modify elk distribution over time so that 5,000 elk winter on NER. Based on elk winter distribution patterns prior to the release of the Bison and Elk Management Plan in 2007, it is possible to winter 5,000 elk on NER while maintaining WGFD's current elk herd objective.
2.3 Concern with regard to how the plan addresses numbers of elk on the NER in excess of the 5,000 objective.	The assessment fails to address winters when many of the overall herd is hosted by the NER. What happens when numbers far exceed the objective of 5,000?	There likely will be years when the number of elk on NER exceeds the 5,000 objective, but the ultimate objective is that the average number of elk wintering on NER will be 5,000. The principal goal of the Step-down Plan is to return to historic elk winter distribution patterns.

Topic 3. Supplemental Winter Feeding of Bison and Elk

Concern Statement	Representative Comment	Service Response
3.1 Recommend a decision matrix be developed to facilitate how disagreements over initiation or termination of feeding would be resolved.	In 2018, the NER and Department did not provide supplemental feed to elk and bison. This success was due to the collaborative and flexible approach to monitoring forage and elk distribution. We suggest that a decision matrix be developed to facilitate how disagreements over initiation or termination of feeding would be resolved. It will be important that decisions are resolved in a timely manner as timing is often critical. In addition, decisions should be based on	The following process has been added to the Step-down Plan Addendum: A biologist for the Service and a biologist for the Wyoming Department will jointly monitor conditions on the Refuge during the late fall, early winter, and early spring of each year. The purpose for this

	<p>the risk/likelihood of conflicts occurring on lands off the NER.</p>	<p>monitoring will be to collect the following types of data: (1) forage availability, (2) elk numbers, (3) elk distribution, (4) forage production, (5) forage utilization, (6) snow conditions, and (7) temperatures. These data, as collected, will be recorded and copies placed in the files of each agency. This information and the recommendations of the biologists will be used by the Refuge Manager and the District Game Supervisor to make a determination when the supplemental feeding program should begin and end. If agreement cannot be reached by field representatives of the Service and the Wyoming Department, the matter will be referred to the next higher level of authority in the respective agencies for resolution. The elevation of this decision and resolution shall be conducted in a timely manner to avoid potential conflict with elk and bison on private land. In addition, measures will be in place for immediate feeding, if determined necessary.</p>
<p>3.2 Concern with regard to feeding threshold.</p>	<p>Although the threshold for initiation of feeding has been 300 lbs. per acre, there have been many occasions when feeding was initiated above this level due to impending storms, icy conditions, elk and/or bison behavior and other variables. We suggest that the average available forage, when feeding was initiated from 2008-2017, be used as a benchmark on which to evaluate the feeding threshold. This change would base the threshold on actual conditions experienced.</p>	<p>The 300 lbs. per acre is a general guideline for feeding initiation that has been in place since 2008. Since that time WGF and Refuge staff have modified the sites that are sampled and frequency of data collection to improve the precision and applicability of forage availability estimates. The 300 lbs. per acre indicator is one of several considerations that is used for feeding initiation including other environmental conditions such as snow conditions, weather, and elk and bison behavior. We propose to continue monitoring the key index sites that we have identified in recent years, increasing the frequency of these measurements, expanding the time of year that sampling occurs, and carefully monitoring elk and bison behavior to make necessary adjustments to the feeding initiation date relative to the 300 lbs. per acre threshold.</p>
<p>3.3 Suggestion to reduce elk and bison fed days on</p>	<p>The focus on encouraging elk and bison use of native winter range is placed on delaying the initiation of feeding. There is a higher risk of creating conflicts associated with the delaying feeding</p>	<p>The Service has amended the plan to focus on terminating feeding early during the first two years, and then begin delayed initiation of feeding in years 3-5 if management measures developed by the</p>

the end of the feeding season.	when compared to the early termination. We recommend that emphasis be placed on early termination dates to achieve the goal of reduced elk-fed-days and bison-fed-days.	stakeholders group are in place to address potential elk and bison conflict on private land.
3.4 Supplemental feeding may be required under certain circumstances.	While we support efforts to minimize supplemental feeding of bison and elk and have agreed on a goal of managing for 5,000 elk and 500 bison on the National Elk Refuge (NER), we do not think it is realistic to assume that even reduced population levels of elk and bison can be maintained (let alone current objectives) without the need for supplemental feeding under certain circumstances (severe winters, drought summer, as modeled in Hobbs et al. 2003). We request this recognition be clearly stated.	The Service appreciates WGFD support to minimize supplemental feeding of bison and elk on the NER, and acknowledge there may be a need for supplemental feeding under certain circumstances (severe winters, drought summer). The EA text has been revised to clearly state this recognition.

Topic 4. Impacts to Elk

Concern Statement	Representative Comment	Service Response
4.1 Concern with regard to potential elk starvation from reduced supplemental feeding.	After the last few winters of watching deer and elk starve in my neighborhood, it breaks my heart to think you will discontinue feeding at the feed grounds. A lot more elk and deer will surely starve to death. This is especially tragic since I would think we should have learned from our past mistakes of not feeding. I am a 6th generation Jackson native and remember seeing starved elk at the base of rancher hay storage where they couldn't get to the hay and they were not being fed at the feed grounds.	The plan calls for reducing feed season length as a tool to affect elk winter distribution over time. Under this strategy, elk will still be fed during harsh winter conditions, and we do not anticipate high levels of elk starvation as a result of this plan. NER has intensively monitored winter elk mortality levels for decades (average winter mortality 1.5%), and we will continue to monitor elk mortality rates during the life of the Step-down Plan.
4.2 Concern with regard to impacts of reduced supplemental feeding to the calf to cow ratio.	Reduced supplemental winter feeding may lead to the potential extirpation of the Jackson Herd due to a low calf to cow ratio. Calves cannot compete for food when forage is limited and die more readily. Without new calf recruitment, we have older elk cows giving birth at a lower rate.	The plan calls for reducing feed season length as a tool to affect elk winter distribution over time. Under this strategy, elk will still be fed during harsh winter conditions. Significant changes to calf ratios are unlikely as a result of this plan.
4.3 Reduced supplemental feeding will make elk more	Reduced supplemental feeding will make elk more vulnerable to wolf predation.	We do not have studies or data to address the effect of wolves on the elk population, and will work with WGFD to adaptively manage and potentially use this effort as a

vulnerable to wolf predation.		case study. The presence of wolves disperses elk and will help achieve the objective of redistributing elk to native winter range. We are also collaborating with researchers and other agencies to evaluate the effects of wolves and other factors on elk winter distribution.
4.4 Use best available science on elk-wolf interactions and how they may benefit the reduction of density dependent disease transmission.	We are concerned with how NER has characterized elk-wolf interactions as a detriment to achieving the goals of the EA. We encourage the NER to revisit the best-available science on elk-wolf interactions and how they may benefit the reduction of density dependent disease transmission. To imply that the NER would increase feeding to artificially inflate populations to prevent the natural predator-prey interactions from occurring seems to undermine the goal of healthy, free-ranging elk populations and would be severely inconsistent with the management of elk in GTNP.	To date almost all research regarding the effects of wolves and other predators on elk distribution and density has occurred in areas with no feedgrounds, and therefore the applicability of that research to the situation at NER is limited. We are currently collaborating with other researchers to evaluate the effects of wolves on elk winter distribution in the Jackson elk herd and also on the effects of supplemental feeding and other factors on elk aggregation and density patterns.
4.5 Concern with regard to impact to elk from hazing.	The EA informs us that the NER is hazing the elk with motorized vehicles to run the elk off of the refuge in the spring, when the elk are weakened and in need of their reserves and also in the middle of winter to force the elk to remain on the refuge rather than leave in search of forage. Hazing with motorized vehicles causes distress to the elk herd. It is also unpleasant for the residents and tourists to witness the hazing of elk and bison.	<p>Hazing has been employed on the NER on a limited basis for decades as a tool to affect elk and bison distribution. During the Spring, the goal of this strategy has been to encourage elk and bison to leave areas that have been heavily contaminated by feces to reduce disease risk and also to conserve forage on NER for when it is more critically needed during the winter months. Hazing during the Spring does not occur in all years, and only occurs when sufficient forage is available off the Refuge to support elk and bison.</p> <p>Elk and bison are hazed onto the Refuge during winter months if they are a safety hazard on adjacent roadways, are co-mingling with livestock, or are attempting to enter the town of Jackson. When these conditions occur, supplemental feeding is typically used in conjunction with hazing to keep these animals on the Refuge. The step down plan calls for reduced feed season length when conditions allow, and therefore feeding is still likely to occur under any conditions that hazing would be employed. Therefore we do not anticipate any significant changes to the frequency or</p>

		intensity of hazing relative to how it has been used on NER for decades.
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Topic 5. Chronic Wasting Disease (CWD)

Concern Statement	Representative Comment	Service Response
5.1 Due to the likelihood that chronic wasting disease will become evident in more cervids in Jackson Hole, the Service needs to act quickly to implement the Step-down Plan.	<p>In light of the increasing likelihood that chronic wasting disease will become evident in more cervids in Jackson Hole, we encourage the consideration of delaying feedings, when needed, by weeks rather than days. NPS management policies encourage reliance on natural processes to demonstrate effects on native wildlife populations, and our experience gives us confidence that the elk in the Jackson herd, as elsewhere, can be sustained without the feeding to a degree that has been seldom tested in recent decades.</p> <p>Ultimately we will need to confront CWD in this elk herd. A thoughtfully swift action in response is critical to the long-term success of the herd and the Jackson community's relationship with that herd. While it could be debated exactly how fast to reduce feeding duration, a reduction is ecologically necessary in the context of CWD, which we know is likely already in or near the herd.</p>	<p>Although delaying feedings by weeks rather than days is something that we're working towards, management strategies to reduce conflicts need to be in place to offset high elk winter mortality, elk and bison commingling with livestock on private land, and other elk and bison effects on private lands. The Service proposes to use an incremental, adaptive approach as we work towards reducing reliance on supplemental feeding that starts with delaying feedings by days, and gradually progresses to longer delays in feedings. The Service intends to finalize the Step-down Plan by December 31, 2019, and begin implementation of the Step-down Plan in 2020.</p>
5.2 Concern with regard to the risk of prion contamination of the grounds, watershed and aquifer.	<p>There is one overriding and dominant reason (to end supplemental feeding) and that is the risk of prion contamination of the grounds, watershed and aquifer which would eventuate if CWD enters the area. This could pose a terrible risk to both animal and people populations. CWD has been a disaster to commercial elk herds in several states, and it seems like a no brainer to decrease the elk density immediately before it is too late. It is difficult to study prion related diseases in animals and humans because of the long latency and other factors, but the lethality is undeniable and if it gets into the herd the damage to the refuge and the surrounding region could be</p>	<p>We agree that CWD poses a significant threat to cervid populations, which is the primary reason that we are attempting to reduce our reliance on supplemental feeding that concentrates animals in large numbers on the NER. Although there is sufficient evidence to recommend that people should not consume meat from CWD positive animals, there is currently no evidence to suggest that CWD prions in the environment pose a health risk to humans. Academic work is ongoing regarding testing for CWD prions in the environment, however no environmental tests are currently commercially available. NER is currently collaborating with USGS to conduct environmental sampling for</p>

	<p>catastrophic not just to the outfitters and hunters, but to the entire economy. The health risks to ingesting water or dust from a contaminated refuge are theoretical, but imagine what impact a well-placed negative anecdote could have on the region's biology and economy. The liability risk alone to Federal and state agencies should compel proactive supplemental feeding to end NOW.</p>	<p>CWD prions on the Refuge, and we collected baseline soil samples throughout the Refuge in 2019. Once environmental CWD assays have been refined, we will test our baseline soil samples for the presence and quantity of CWD prions. This will allow us to repeatedly measure CWD prion contamination at these sites and assess changes in environmental prion contamination over time.</p>
<p>5.3 Feeding areas should be much less concentrated.</p>	<p>I believe the answer to CWD is to spread out the feeding areas. The elk need to be spread out over the entire refuge. Of course, this would entail much more labor. Crowding of animals is what mainly spreads the disease. You have the opportunity to feed on new ground or fresh snow with the available equipment, thus reducing the transmission of CDW in the herd. This is common practice for many livestock operations, both here in the valley and throughout the state.</p>	<p>NER currently feeds elk and bison over a 5,000 acre area. Given topography and snow depth limitations, there are few opportunities to feed on additional terrain on other parts of the Refuge. As a result, expanding NER feedground area as a disease management strategy is not under consideration as a feasible option.</p>
<p>5.4 There is a lack of scientific evidence that CWD can be transferred from deer to elk.</p>	<p>There is no objective proof that CWD from mule deer has been transmitted to the area's elk population.</p>	<p>Although the relative importance of animal to animal, environment to animal, and inter-species transmission of CWD is difficult to quantify, there is ample evidence that both deer and elk contract CWD. To date the geographic expansion of CWD has been more rapid for deer than elk, and prevalence rates have been higher in deer than in elk where the disease occurs. However, based on the pattern of the CWD expansion over time, it is inevitable that the Jackson elk herd will eventually be infected with CWD. Recently, a confirmed case of CWD was reported in elk located in southwest Montana. The timeframe for initial infection of the Jackson Elk Herd remains uncertain.</p>
<p>5.5 CWD is being used as a scare tactic to convince people the feeding program is a problem.</p>	<p>While there are some who continue to share the message that CWD is catastrophic, there is no evidence that supports these claims. There has been no area which has seen whole scale elimination of deer, elk or moose from CWD that has occurred in the wild.</p>	<p>There is ample evidence to suggest that CWD can have significant negative population level effects on both deer and elk herds. For the Jackson Elk Herd specifically, the best available evidence suggests a median CWD prevalence of 10% within 5 years of initial infection, and population decline in the complete absence of cow harvest at 7% prevalence. Current harvest levels in the Jackson Elk herd</p>

		could not be sustained at any level of CWD prevalence. These findings suggest that the effects of CWD on the Jackson Elk Herd and hunter opportunity will be significant and negative over time. Furthermore, elk on NER currently host a number of density dependent diseases that are rare or absent in unfed elk populations. The prevalence of these other diseases on NER suggests that the feeding program will amplify the effects of CWD when it infects the Jackson Elk Herd.
5.6 Encourage increased surveillance and monitoring of CWD, and the development of a safe carcass disposal system. Specify in the Step-down Plan what action would be taken if CWD is discovered on the NER.	We are supportive of NER continuing the increased surveillance and monitoring, prompted by the recent discovery of CWD in mule deer in Grand Teton National Park. We encourage the NER to continue to work with local agency partners in a safe carcass disposal system. Finally, if CWD is detected on the NER it should necessitate a rapid response plan for any immediate modifications in elk management. We ask the NER to specify within the Step-down Plan what actions would be taken. We encourage the consideration of the potential human risks of CWD be included in any action framework, as determined by best-available science.	We agree that monitoring for CWD is important. We have implemented mandatory CWD testing for all elk harvested on NER, will continue to sample all elk that die on NER for CWD, and will continue to euthanize and sample all elk and deer on NER that exhibit CWD symptoms. Under the Bison and Elk Management Plan, we are directed to follow the State's CWD management plan. WGFD is currently working on a new version of their CWD management plan, and the NER will develop a disease contingency plan (a step-down plan of the CCP) once WGFD finalizes their plan. The Refuge is currently working with Teton County, WGFD and other agencies to develop carcass disposal options for Teton County.

Topic 6. Impacts to Other Species, including Threatened and Endangered Species

Concern Statement	Representative Comment	Service Response
6.1 Concern with regard to the stability of the grizzly bear population if there is a decrease in elk numbers.	It's imperative that the Jackson elk herd that winters primarily on the NER maintain its overall population of 11,000 elk. There are a greater number of predators (grizzly bears, wolves), than there was 12 years ago when the EIS was written. The Jackson elk herd is key in providing a prey base for the stability of the grizzly bear population.	The Refuge has agreed to support the WGFD population objective for the Jackson Elk Herd and we do not expect a reduction to the overall population of elk. There should be no significant impacts to grizzly bears. Extensive monitoring will ensure that the population of elk will not significantly affect grizzly bears.

Topic 7. Impacts to Private Lands

Concern Statement	Representative Comment	Service Response
<p>7.1 General concern about impacts to private land from elk and bison leaving the NER.</p>	<p>We do not support actions/measures that create elk and bison commingling conflicts with livestock, damage to stored crops, or human safety issues (wildlife-vehicle collisions, bison in urban neighborhoods) off the NER. The Department is responsible for addressing wildlife conflicts, and it is imperative that appropriate mitigation measures are identified and enacted before management strategies are implemented. The document mentions monitoring elk and bison behavioral responses to delayed feeding and identifying private land conflict areas that may require focused mitigation measures. While we agree monitoring is essential when elk and bison are not fed, once conflicts arise, it is too late to identify and respond with focused mitigation measures. Mitigation measures need to be in place prior to any management actions being taken that might encourage elk and bison to be redistributed away from the NER to the west and south.</p> <p>The assessment discusses approaches which include targeted fencing, hazing, direct compensation, and land leasing or the purchase of easements for winter range. The assessment should discuss what areas would be a priority focus, how such actions would be funded, and landowner willingness to host such mitigation efforts. It is assumed that these challenges would be undertaken by the State of Wyoming and the WGFD, or would federal resources and funds be available? These need further discussion and transparency for the people of Wyoming and the public at large.</p>	<p>The Step-down Plan/EA acknowledges increased winter elk and bison distribution would occur. The Final EA was revised to reduce impacts to livestock and private properties. Management strategies would attempt to prevent conflicts and assist in allaying those that did occur. There are benefits of increased distribution of elk, including reduced habitat damage from high elk concentrations, reduced disease transmission and prevalence among elk, and reduced long-term risk to livestock. Because the delay in feedings will occur in incremental small steps, we do not anticipate conflicts in large quantities. The Service will work with all relevant internal and external partners to pursue management strategies and funding as conflicts arise. During the first year the Service will convene a group of stakeholders to further develop management strategies to address potential conflicts on private land. Several partners have indicated a willingness to assist in implementing strategies that would be employed to reduce impacts as a result of the likely changes in bison and elk distribution, including:</p> <ul style="list-style-type: none"> ● providing incentives to private landowners to switch to non-breeding cattle operations ● providing incentive payments to private landowners to move livestock to a different location during the winter months when elk are present on the refuge and most likely to move to private land ● increased fencing to separate elk and bison from livestock feed lines and feed storage areas ● hazing elk and bison away from livestock feed lines ● hazing elk and bison to other portions of the refuge when they approach the Town of Jackson should elk and bison leaving the refuge seem likely

		<ul style="list-style-type: none"> ● exploring various incentives for local ranchers to mitigate the effects of co-mingling with livestock ● coordinate with WGFD to increase presence along Highway 191 during periods of high elk use.
7.2 Concern with regard to increased conflicts between elk/bison and cattle/horses.	As elk and bison disperse from the refuge and spread out towards valley ranches increasing conflicts between elk/bison and cattle and horses will occur.	The goal of the Step-down Plan is to change elk winter distribution over time by shortening feed seasons when conditions allow, which in turn reduces the likelihood that elk with no knowledge of NER will discover NER feedgrounds. Over time this could result in a greater proportion of elk wintering on native winter range or remaining in the Gros Ventre drainage rather than wintering on NER. We intend to accomplish this goal without causing elk to spread out to surrounding private land. We intend to maintain a sample of GPS collared elk, and continue to closely monitor elk and bison distribution to prevent conflicts on private land before they occur.
7.3 Concern with regard to the risk of brucellosis transfer from elk and bison to the valley's cattle.	As elk/bison are forced off the refuge due to reduction in supplemental feeding, it brings the very real risk of brucellosis transfer to our valley's cattle. Valley ranches struggle against increased regulation and development pressure. The financial implications of increased elk/bison cattle conflict could be the proverbial nail in the coffin of local ranches.	See response for 7.2
7.4 Recognition should be given to Teton County's Wildlife Friendly Fencing regulations.	<p>Elk/bison will threaten haystacks and damage fencing as they search desperately for food.</p> <p>We disagree that the NER or by default WGFD should consider elk conflicts with residential developments as a "trigger" or criteria for feeding. Our local county Comprehensive Plan supports permeability of our landscape for movements of wildlife including elk and allowing elk movements on and through residential development may be a critical step to redistribution of elk on the landscape. The conflicts with private agricultural interests are different and may have significant impacts of disease transmission that are</p>	The EA text has been revised to recognize Teton County's Wildlife Friendly Fencing regulations. Section (5.1.2) places restrictions on fencing height, materials and design; however, the Planning Director may exempt special purpose fencing from this Section. Special purpose fencing includes fencing to secure stored livestock feed and fencing for winter livestock feeding areas. The Service will work with the County to address the regulations as may be necessary where conflicts with private agriculture interests may require spatial and temporal separation of elk and livestock.

	challenging to mitigate. We encourage the continued work to address these conflicts by creating spatial and temporal separation of elk and livestock.	
7.5 Ensure safeguards are in place to respond quickly to impacts on private land.	FWS needs to work closely with WGF and Teton County BCC to deploy safeguards and respond in a timely and effective manner to impact on private land if indeed increases in elk populations and concentrations on private lands correlate to reductions in feeding and/or other management strategies deployed to achieve the target range of 5,000 elk wintering on the NER. In other words that the USFWS is responsive and nimble as this iterative step-down process plays out.	See response for 7.2.

Topic 8. Public Safety

Concern Statement	Representative Comment	Service Response
8.1 General concern with regard to public safety due to bison and elk moving off the NER.	"Keeping elk and bison on the NER and around the feedgrounds helps control interaction, and reduce conflicts of elk and bison with livestock, private property, and humans. Therefore, reducing reliance on supplemental feeding may slowly increase the incidences of these interactions and conflicts." These conflicts may not slowly increase, rather it is likely for conflicts to develop rapidly and be difficult to mitigate once they start.	During the first year of plan implementation the Service will work with internal and external partners to develop management strategies to address potential conflicts on private lands, and will emphasize reducing feed days and adaptively employ management strategies to address concerns as may be necessary.
8.2 Concern with regard to increase in wildlife vehicle conflicts.	There has been an increase in wildlife vehicle conflicts in recent years – when natural forage is lacking or can't be accessed due to heavy snow, deer, moose, elk and bison are slaughtered on our roadways. The Step-down Plan will only make this problem worse as elk/bison roam the valley, its ranches and subdivisions for forage. In addressing conflicts, we urge the NER to also engage with Teton County and local wildlife interests in	The goal of the Step-down Plan is to change elk winter distribution over time by shortening feed seasons when conditions allow, which in turn reduces the likelihood that elk with no knowledge of NER will discover NER feedgrounds. Over time this could result in a greater proportion of elk wintering on native winter range or remaining in the Gros Ventre drainage rather than wintering on NER. We intend to accomplish this goal without causing elk to spread out to surrounding private land. We intend to maintain a sample of GPS collared

	implementing the Teton County Wildlife Crossing Master Plan to address conflicts on local highways.	<p>elk, and continue to closely monitor elk and bison distribution to prevent conflicts on surrounding roadways before they occur.</p> <p>We agree that working with Teton County, Wyoming Game and Fish Department and other entities to implement the Teton County Wildlife Crossings Master Plan could help mitigate potential wildlife/vehicle conflicts.</p>
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Topic 9. Monitoring

Concern Statement	Representative Comment	Service Response
9.1 Monitoring of bison and elk movement is a critical component of Step-down Plan implementation.	The Step-down Plan appears to address undesirable outcomes through monitoring and a series of feedback loops to generate iterative artificial feeding, harvest and mitigation adjustments. TCD would like to emphasize that elk and bison distribution on private lands, the commingling of elk and bison with livestock, hunting harvest regimes, wildlife viewing opportunities, the prevalence of disease, and levels of wildlife mortality are all fundamental issues to our community. Therefore, it is imperative that the proposed monitoring be robust, and adaptive management actions be responsive. The Service must predictably prioritize adequate allocation of resources to provide for the flexible management that will be required for success of the Step-down Plan. It is certain that doing otherwise will negate public support for the Step-down Plan, and perhaps thereby erode opportunities and trust necessary to implement future plans to avert other detrimental changes such as a prevalence of CWD.	The Service agrees that elk and bison distribution on private lands, the commingling of elk and bison with livestock, hunting harvest regimes, wildlife viewing opportunities, the prevalence of disease, and levels of wildlife mortality are fundamental issues to the community. We will engage in robust monitoring as described in the Step-down Plan, and take responsive adaptive management actions to address undesirable outcomes should they occur.

Topic 10. Budget and Operations

Concern Statement	Representative Comment	Service Response
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10.1 Funding levels and sources need to be identified to address impacts to private land.	The EA and SDP are silent on the budget allocations for conflict reduction actions. Funding levels and sources need to be identified and made available for long-term leases of private land, purchase of private land easements as well as incentives and direct compensation for required changes or disruptions in private livestock and agricultural operations.	This is an adaptive plan. We will work with our partners to develop additional management actions and funding sources.
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Topic 11. Cooperation Between and Among Government, Organizations, and Individuals

Concern Statement	Representative Comment	Service Response
11.1 Concern regarding data collection, sharing and transparency.	The Service needs to maintain exceptional standards around data collection and monitoring of variables used to determine both the delay and termination of feeding, including making the data and interpretations openly available to county agencies and the public.	The Refuge has an excellent monitoring program in place with decades of baseline data on elk and bison distribution, forage conditions, elk winter mortality, supplemental feeding metrics, and disease occurrence and prevalence. We are well positioned to continue this monitoring program, evaluate the effects of the Step-down Plan and share the results.
11.2 Consider partnering with federal, state and local agencies to conserve and improve wildlife habitat.	TCD is open to partnering with federal and state agencies to support the four goals of the Step-down Plan, specifically with regard to the conservation and/or improvement of wildlife habitat and at-will private landowner mitigations.	The Service appreciates support for the Step-down Plan/EA, and looks forward to partnering with the Teton Conservation District with regard to the conservation and/or improvement of wildlife habitat and at-will private landowner management strategies to reduce conflicts.
11.3 Partner with federal, state and local agencies to aid private landowners interested in enhancing winter forage.	The BCC urges the USFWS to undertake extensive efforts to coordinate and work with Bridger-Teton National Forest, Grand Teton National Park, private, county and state interests to plan for and mitigate impacts on private lands. As well we urge the USFWS to undertake and fund efforts to aid private landowners interested in incentives to enhance winter forage.	The Service will continue to coordinate extensively with the BTNF, GRTE, private, county and state interests to plan for and manage to reduce impacts to private lands.
11.4 Participate with other agencies to map native winter range and estimate viability of mapped range to	That the USFWS participates with BCC, WGF, TCD and possibly other agencies in undertaking a detailed and extensive mapping of so-called "native winter range" and estimate the viability of the mapped range to sustain a target level of 11,000 elk while achieving the	The Refuge currently collaborates with WGF and other agencies to map winter range using elk GPS collar data and will continue to do so. Hobbs et al. (2003) estimated the number of elk that can be supported on NER and

sustain population objectives.	goals outlined in the 2007 EIS and 2019 Step-down Plan.	surrounding winter range in the absence of supplemental feeding. They estimated that under average snow and forage production conditions, the Refuge could support 5,000 elk, and winter ranges within the bounds of the Jackson Elk Herd could support 16,000 elk without supplemental feeding. However under severe winter conditions (deep dense snow) that follow drought conditions during the growing season, these estimates are likely much lower, and winter elk mortality could be as high as 30%.
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Topic 12. Socioeconomic Impacts

Concern Statement	Representative Comment	Service Response
12.1 Concern with regard to economic impacts to Wyoming's hunting activities and tourism industry	Eliminating the supplemental feeding program would have cascading impacts on the State of Wyoming and significantly reduce the number of elk and other ungulates available for hunting and viewing in Wyoming. This would bring with it significant economic impacts to Wyoming's hunting activities and the tourism industry. It would also severely impact the ability of the Wyoming Game & Fish Department to effectively manage Wyoming's wildlife and would have a significantly negative impact to their budget.	The National Elk Refuge is committed to supporting the WGFD herd objective. The goal of the Step-down Plan and the EA is to reduce reliance on supplemental feeding by shortening feed season length, while still maintaining WYGF's objective for the elk in the Jackson Elk Herd. However, there is considerable evidence to suggest that CWD will infect the Jackson Elk Herd, and that CWD will negatively affect the growth rate of the Jackson Elk herd and limit hunter opportunity (See response 5.5). Status quo supplemental feeding operations on NER are likely to exacerbate the effects of CWD and also negatively affect hunter and wildlife viewing opportunities.

Topic 13. Environmental Analysis/NEPA Adequacy

Concern Statement	Representative Comment	Service Response
13.1 Cumulative Impacts	The EA fails to examine the cumulative effects of the NER feedlot operations with the network of WGFD run feedlots throughout western Wyoming.	Only 3 state feedgrounds and the National Elk Refuge feeding operation are within the bounds of the Jackson Elk Herd. We have considerable baseline information via GPS collar and WGFD winter classification counts on winter elk distribution in the Jackson Elk Herd, and our intention is to measure the effects of the Step-down Plan on those variables. Maintaining a healthy

		Jackson Elk Herd will only benefit populations of elk regionally.
13.2 Wildlife Feedlot closures	The EA and SDP pretend that wildlife feedlot closures have never been attempted and that this is uncharted territory. While Wyoming is the holdout on wildlife feeding after everywhere else has entered at least the latter half of the 20th century understanding of wildlife management, many other areas had extensive wildlife feeding operations which were shut down after it was understood how damaging these feedlot operations were. The EA fails to examine these successful examples of efficiently ending large scale feeding.	The National Elk Refuge is the largest single elk feeding operation in North America with over 7,000 elk and 500 bison fed per year on average. Although Idaho has closed many small feedgrounds since 1999 and reduced their overall number of elk fed by approximately 2,000 animals, all of these operations were much smaller in scale than the National Elk Refuge, did not include bison feeding, and are not directly comparable to the situation at NER.
13.3 Need to prepare an EIS.	We urge the Service to write an entirely new EIS. The original EIS was written 12 years ago and is not relevant to the actual factors affecting the bison and the Jackson elk herd.	<p>The BEMP/EIS completed in 2007 was a nine year planning process that included multiple agencies, and considered the likelihood of changing conditions and called for an adaptive approach to address them. The Service developed the proposed action in the EA according to explicit guidance provided by the BEMP using the latest scientific data. Some of the proposed strategies have changed based on the changes in the environment, however they have not changed our analysis or determination that there will be no significant impacts from implementation of this action. The decisions and determinations made in the BEMP and associated EIS analysis have not substantially changed.</p> <p>NEPA compliance will be updated as may be necessary when the Bison and Elk Management Plan is revisited in 2022. The Service intends to utilize data and observations gathered during implementation of the Step-down Plan to inform future planning processes and environmental analysis.</p> <p>There was found to be no significant impacts from the larger BEMP and we do not believe there are significant impacts from this narrower action. Therefore, we will not be preparing an EIS at this time.</p>

<p>13.4 Request extension to public review and comment period.</p>	<p>The comment period of 30 days is far too short to allow the public the opportunity to completely review the EA and comment meaningfully. The EA, which includes the commensurate step down Step-down Plan, is over 100 pages. And it references other significant documents, which are quite lengthy and require a review for a meaningful comment at this time. The original SEIS for instance is over 500 pages. The 2007-ROD, CCP are all lengthy and time consuming to review.</p>	<p>The Service believes the 30-day public review and comment period is sufficient to receive meaningful public input. During the comment period we received over 300 unique pieces of correspondence and identified over 40 substantive comments.</p>
<p>13.5 Suggestion the Service should be able to select a different alternative analyzed in the 2007 BEMP.</p>	<p>According to the SDP, “(t)he BEMP supported the State herd objectives of 500 bison and 11,000 elk due to NEPA requirements, any further consideration of reduced herd sizes by the NER or GRTE are beyond the scope of this plan” (SDP, page 31). The fact of the matter is that the BEMP FEIS did evaluate alternatives that considered fewer elk wintering on the NER and altogether ending winter feeding, without the constraint of the Jackson Elk Herd Objectives. Specifically, Alternatives 2 and 6 considered such alternatives:</p> <p>Alternative 2: “The numbers of elk and bison on the refuge would fluctuate over time as the feeding program was eliminated within 15 years, but no specific numeric population targets would be set for elk or bison.” (FEIS, page 44)</p> <p>Alternative 6: “In the short term about 2,400-2,700 elk would winter on the refuge, but over time could increase to 2,800-3,200. . . . (W)inter feeding would be phased out within five years. Strategies to achieve population objectives would be developed in cooperation with the WGFD.” (FEIS, page 52) Using the concept of tiering, the Refuge, rather than being constrained, had the opportunity to explore other alternatives to effectively meet the stated goals of the plan. Unfortunately, it failed to do so in the</p>	<p>The Service tiered the EA to the Final BEMP and EIS to eliminate repetitive discussions of the same issues contained in the BEMP and EIS. Alternatives not selected in the BEMP were previously given serious consideration by the Service, and the Service selected Alternative #4. As stated in the Purpose and Need of the EA, one of the needs include supporting WGFD's current elk herd objective. The selected alternative in the BEMP continues to best fit our purpose and need of this EA and Step-Down Plan.</p>

	SDP. Nevertheless, the Refuge has the decision-making latitude now to consider options that would deviate from WGFD's herd objective.	
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ATTACHMENT: COPIES OF CORRESPONDENCES FROM ALL ENTITIES



United States Department of the Interior

NATIONAL PARK SERVICE
GRAND TETON NATIONAL PARK
P.O. BOX 170
MOOSE, WY 83012-0170

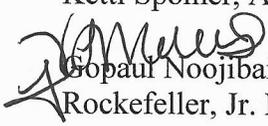


IN REPLY REFER TO:
10.D (GRTE)

OCT 30 2019

Memorandum

To: Ketti Spomer, Acting Manager, National Elk Refuge

From:  Gopaul Noojibail, Acting Superintendent, Grand Teton National Park and John D. Rockefeller, Jr. Memorial Parkway

Subject: Comments on Proposed Step-Down Plan

We appreciate the release of the draft environmental assessment and Step-Down Plan: *A Structured Framework for Reducing Reliance on Supplemental Winter Feeding* on the National Elk Refuge (NER). As you are aware, National Park Service staff at Grand Teton National Park (GRTE) have for many years worked together with NER staff and managers to implement our joint Bison and Elk Management Plan. This includes having previously provided input into the draft step-down plan.

GRTE encourages the U.S. Fish and Wildlife Service to quickly implement the step-down plan to reduce the number of elk-fed days and the length of the supplemental feeding season, should feeding be necessary this winter. In light of the increasing likelihood that chronic wasting disease (CWD) will become evident in more cervids in Jackson Hole, we encourage the consideration of delaying feedings, when needed, by weeks rather than days. NPS management policies encourage reliance on natural processes to demonstrate effects on native wildlife populations, and our experience gives us confidence that the elk in the Jackson herd, as elsewhere, can be sustained without the feeding to a degree that has been seldom tested in recent decades.

We wish you the best of luck with implementation of an approved step-down plan, and if we can provide any additional support through shared interpretation and education, please feel free to contact me at (307) 739-3410.

cc: NPS Regional Office serving DOI Regions 6, 7, and 8



November 12, 2019

Robert Wallace
U.S. Department of Interior
Assistant Secretary for Fish, Wildlife and Parks
1849 C Street NW
Mail Stop 3331
Washington, D.C. 20240

Dear Mr. Wallace,

This correspondence is in regard to bison and elk management on the National Elk Refuge (Refuge) and the draft Environmental Assessment that tiers to the Final Bison and Elk Management Plan and Environmental Impact Statement. The analysis in the assessment falls short when considering the changes that have occurred in Jackson Hole since the record of decision was signed in 2007. The bison and elk plan is more than a decade old and I strongly encourage the U.S. Fish and Wildlife Service initiate a new National Environmental Policy Act analysis that takes into consideration current environmental conditions on and adjacent to the Refuge.

The Wyoming Game and Fish Department outlined their concerns in a letter recently and I fully support their comments. Furthermore, I oppose management actions that have the potential to create bison and elk conflicts on private lands. The agricultural industry is important to Wyoming and management actions that pose an increased risk of disease and private property damage are unacceptable. The Refuge should identify mitigation measures prior to conflicts occurring.

Elk migrations from Yellowstone National Park to the Refuge are considered to be the most spectacular and extensive for any elk population and wintering elk along with the stunning scenery has made the Refuge a Wyoming icon. For over 100 years, the Refuge has played a critical role in the conservation of the Jackson elk herd and it is important that we continue to work together on this important issue.

Sincerely,

Mark Gordon
Governor of Wyoming

MG:jb



WYOMING GAME AND FISH DEPARTMENT

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October 29, 2019

WER 12158.01

U.S. Fish and Wildlife Service

Draft Environmental Assessment

Bison and Elk Management Step Down Plan on the National Elk Refuge
Teton County

Ketti Spomer

Refuge Manager (Acting)

National Elk Refuge

675 E. Broadway

Jackson, WY 83001

Dear Ms. Spomer,

The staff of the Wyoming Game and Fish Department (Department) has reviewed the Environmental Assessment for Bison and Elk Management Step-down Plan: A Structured Framework for Reducing Reliance on Supplemental Winter Feeding (EA) and offers the following comments for your consideration. In general, we support efforts to reduce the need for supplemental feeding and encouraging elk and bison to use native winter ranges. We also support the development of a flexible management plan that can be adapted as environmental conditions change. Our comments reflect the Department's role in managing the Jackson elk and bison herds.

We have concerns with the primary goal of the of the Step-down Plan and request that clarification be provided with regard to the strategies between Phase 1, Phase 2, the EA and the Step-down Plan. Throughout the document, references are made to "decreasing the need for supplemental feeding", "elk and bison rely predominantly on native habitat", "greater reliance on freestanding forage", "reduced reliance of bison and elk on supplemental feed", and "elk and bison relying predominantly on native forage". These references are made with respect to both Phase 1 and Phase 2. "In Phase 2, the overall objective is to reduce the reliance of bison and elk on supplemental feed," and "The second phase will be to manage bison and elk populations to achieve desired conditions, with animals relying predominantly on available native habitat". In the EA, Goal 4 (Disease Management) states "The major management strategy of the BEMP to meet these goals is to move elk and bison management toward reduced reliance on supplemental feed and eventually, total reliance on natural forage." The EA also states in Section II (Purpose & Need) that the purpose of the Step-down Plan is necessary "to achieve the BEMP's long term goal to cease supplemental feeding of elk and bison on the refuge".

Ketti Spomer

October 29, 2019

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As a result, it is somewhat unclear when Phase 1 and/or Phase 2 are referenced, and what objectives, implementation criteria and strategies apply to Phase 1, Phase 2, or both. Clarification of these issues, as well as points of differentiation between the EA and the Step-down Plan would be helpful in understanding the context of these documents.

While we support efforts to minimize supplemental feeding of bison and elk and have agreed on a goal of managing for 5,000 elk and 500 bison on the National Elk Refuge (NER), we do not think it is realistic to assume that even reduced population levels of elk and bison can be maintained (let alone current objectives) without the need for supplemental feeding under certain circumstances (severe winters, drought summer, as modeled in Hobbs et al. 2003). We request this recognition be clearly stated. The Department does not support complete cessation of supplemental feeding as a goal of the Step-down Plan.

The Step-down Plan is an interagency undertaking involving the National Park Service, and any efforts to achieve the goals set forth in the plan will require continuing and likely expanding the Elk Reduction Program (ERP) in Grand Teton National Park (GTNP). Interagency elk telemetry monitoring indicates that GTNP currently harbors some of the largest segments of the Jackson elk herd that winter on the NER. Seasonal movements of these elk through the central and southern reaches of GTNP make the ERP critical to managing the Jackson elk herd.

We do not support actions/measures that create elk and bison commingling conflicts with livestock, damage to stored crops, or human safety issues (wildlife-vehicle collisions, bison in urban neighborhoods) off the NER. The Department is responsible for addressing wildlife conflicts, and it is imperative that appropriate mitigation measures are identified and enacted before management strategies are implemented. The document mentions monitoring elk and bison behavioral responses to delayed feeding and identifying private land conflict areas that may require focused mitigation measures. While we agree monitoring is essential when elk and bison are not fed, once conflicts arise, it is too late to identify and respond with focused mitigation measures. Mitigation measures need to be in place prior to any management actions being taken that might encourage elk and bison to be redistributed away from the NER to the west and south.

In 2018, the NER and Department did not provide supplemental feed to elk and bison. This success was due to the collaborative and flexible approach to monitoring forage and elk distribution. In order for this type of success to be realized in the future, it is critical that coordination between NER and the Department continue regardless of the management strategy employed. We suggest that a decision matrix be developed to facilitate how disagreements over initiation or termination of feeding would be resolved. It will be important that decisions are resolved in a timely manner as timing is often critical. In addition, decisions should be based on the risk/likelihood of conflicts occurring on lands off the NER.

PROPOSED ACTION ALTERNATIVE

Supplemental Feeding of Bison and Elk

- “By delaying the start of the supplemental feeding season, the Service believes that it will decrease the probability that elk using native winter range or state feeding grounds discover refuge feeding grounds.”
 - Much of the focus on encouraging elk and bison use of native winter range is placed on delaying the initiation of feeding. There is a higher risk of creating conflicts associated with the delaying feeding when compared to the early termination. We recommend emphasis be placed on early termination dates to achieve the goal of reduced elk-fed-days and bison-fed-days.
- “Bison distribution will be monitored by refuge staff to ensure that the proposed action is not causing bison to shift their winter distribution to surrounding private lands.”
 - Because of human safety concerns it is critical that bison are monitored and that mitigation measures are implemented to avoid human-bison conflicts.
- “This type of action has not been done before, and neither the environmental conditions nor the response of the elk and bison to delaying feeding over the next few years can be accurately predicted.”
 - We appreciate this admission as there are substantial uncertainties and the potential for wildlife conflicts that could place our agency in an untenable position. Because of this, mitigation measures need to be implemented in a timely manner.
- “The greatest opportunity to delay the supplemental feeding start date exists in winters of mild to moderate severity, and therefore maintaining flexibility is important. This approach will provide an opportunity to monitor elk and bison behavioral responses to delayed feeding and identify private land conflict areas that may require focused mitigation measures.”
 - We agree that flexibility is extremely important. However, to reiterate our earlier comments, we feel strongly that mitigation measures must be in place prior to any actions that might encourage elk and bison to be redistributed away from the NER, especially to the west and south.

Forage Production/Hazing

- We applaud efforts by the NER to increase refuge-wide forage production. We believe this management action has been successful and has increased elk and bison management

opportunities on the NER. We also support efforts to haze elk and bison in spring and summer to preserve forage for wintering animals.

Monitoring

- Enhanced monitoring with which to base management decisions is important and to assist in this effort, we agree with maintaining a sample of collared elk on the NER to provide another means of evaluating animal response in the absence of feeding, and to allow early detection of undesirable movements.

OTHER RELATED NON-SERVICE ACTIONS

Private Lands

- “Several strategies would be employed to mitigate likely changes in bison and elk distribution, including providing incentives to private landowner to switch to non-breeding cattle operations, increased fencing to separate elk and bison from livestock feed lines, hazing elk and bison away from livestock feed lines, and purchasing private lands easements or leases to prevent comingling.” As stated earlier, it is essential that such mitigation measures be in place prior to any efforts to allow elk and bison to leave the NER and occupy private lands. Recognition should be given to Teton County’s Wildlife Friendly Fencing regulations.

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Elk – Affected Resource

- Page 12 - Figure 2. Perhaps only trend count figures should be used. During the time scale shown, annual trend count efforts have remained constant while estimation techniques have varied.

Elk – Environmental Consequences

- Page 13 – “Supplemental feeding has occurred in all but 10 winters on the refuge since 1912, and although the program minimizes winter elk mortality from starvation, contributes to the WGFD elk herd objectives, eliminates commingling with livestock, and keeps elk off adjacent roadways, elk occur at numbers and densities well in excess of carrying capacity (Smith et al. 2004, Lubow and Smith 2004).” This statement and a similar one on Page 24 do not agree with the same citation (Lubow and Smith 2004) on Page 21, which states that the “...the Jackson elk herd is maintained below carrying capacity.” We recommend clarifying whether the former comment only applies to winter range, or specifically feeding areas.

Ketti Spomer

October 29, 2019

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- Page 15 - The Department requests more information on the establishment and anticipated responsibilities of the chronic wasting disease (CWD) Working Group.

Population & Distribution

- Recommend clarifying whether there is a goal/objective tied to elk distribution.
- “If Step-Down Plan implementation results in elk winter mortality in excess of these levels, the Service will take adaptive actions to mitigate elk mortality in future years, such as reducing the period of time between reaching the 300 lbs./acre forage threshold and the commencement of supplemental feeding.”
 - Although the threshold for initiation of feeding has been 300 lbs/acre, there have been many occasions when feeding was initiated above this level due to impending storms, icy conditions, elk and/or bison behavior and other variables. We suggest that the average available forage, when feeding was initiated from 2008-2017, be used as a benchmark on which to evaluate the feeding threshold. This change would base the threshold on actual conditions experienced.

NON-TARGET WILDLIFE - ENVIRONMENTAL CONSEQUENCES

- “Elk are an important food source for wolves and other carnivores and there are concerns that reducing reliance on supplemental feeding on NER will reduce overall elk numbers and subsequently decrease the food supply for wolves and other carnivores. However, the strategy of the Step-Down Plan is not to reduce overall elk populations, but rather re-distribute elk to native winter range. Therefore, there should be no impact on the food supply for wolves or other carnivores.”
 - This statement is contradictory to other language in the Step-Down Plan related to the probable need to reduce elk and bison numbers to achieve goals and objectives.

VISITOR USE AND EXPERIENCE

Public Safety

- “Keeping elk and bison on the NER and around the feedgrounds helps control interaction, and reduce conflicts of elk and bison with livestock, private property, and humans. Therefore, reducing reliance on supplemental feeding may slowly increase the incidences of these interactions and conflicts.” These conflicts may not slowly increase, rather it is likely for conflicts to develop rapidly and be difficult to mitigate once they start.

- These conflicts may not slowly increase, rather it is likely for conflicts to develop rapidly and be difficult to mitigate once they start.

SOCIOECONOMICS

Adjacent Landowners – Environmental Consequences

- “Reducing reliance on supplemental feeding on the refuge could result in some bison and elk moving to adjacent private lands. However, monitoring bison and elk movements and adaptive management strategies will minimize the likelihood of this occurring.”
 - We support efforts to monitor animal movements and other variables that may indicate undesirable developments, however the Department does not support actions/measures that create commingling with livestock, damage to stored crops, or increased human safety issues (wildlife-vehicle collisions, bison in urban neighborhoods) off the NER. We also support developing mitigation measures to alleviate these conflicts, but feel strongly these measures need to be in place well before conflicts arise. We appreciate continued efforts by the Service to haze bison and elk to protect private lands neighboring the NER.

Cattle Industry – Environmental Consequences

- “Reducing reliance on supplemental feeding on the refuge, may lessen the prevalence and severity of brucellosis and other density-dependent diseases in the elk and bison herds due to wider distribution in the valley. However, this broadened distribution comes with a higher risk of infected elk and bison interacting with livestock. In order to mitigate the risk of these occurrences, the Service is exploring several strategies to ensure this action does not adversely affect the cattle industry including: continued and possibly increased hazing, purchasing conservation easements to accommodate greater distribution of elk and bison, and extensive monitoring to track elk and bison movements. One of the main reasons for taking a slow, conservative approach to reducing reliance on supplemental feeding is the ability to monitor the response of elk and bison to the reduction, and implement sufficient mitigation measures to offset any impacts to local landowners and the local cattle industry.”
 - We appreciate efforts to discourage or mitigate these conflicts, but feel strongly these mitigation measures need to be in place prior to any actions that might encourage elk and bison to be redistributed away from the NER. Given the proximity of private ranch lands, subdivisions, the town of Jackson and U.S.

Highway 191, we do not support allowing the movement of elk and bison moving south and west of the NER.

CUMULATIVE IMPACTS

Wolf Numbers and Distribution

- “Ultimately, the Service will use an adaptive management strategy that maintains the refuge’s winter elk population of 5,000 and focuses on encouraging greater distribution rather than reducing the overall herd population. Therefore, if the prevalence of wolves begin to adversely affect the elk population on the refuge below these numbers, the Service will adapt its own management strategies to ensure that reducing reliance on supplemental feeding doesn’t have an adverse cumulative impact on elk populations.”
 - It is not clear what the intended meaning of this passage is, or what these management strategies might include. We recommend providing clarification.

MONITORING

- We strongly agree with a robust monitoring plan on the NER that will include;
 - Forage production and availability sampling
 - Animal abundance and distribution
 - Estimating winter mortality
 - Brucellosis seroprevalence rates
 - CWD surveillance

However, we recommend similar efforts be directed at population segments located away from the NER as well and look forward to continued collaborations such as the Jackson Hole Elk Technical Studies Group.

SUMMARY OF ANALYSIS

- “...in order to change the winter distribution of elk on the refuge.”
 - It is possible this redistribution will not occur only on the refuge, but may expand to include lands of various jurisdictions that could present potential challenges.

SUMMARY OF EFFECTS OF SELECTED ACTION

- “There is no scientific controversy over the context and intensity of the impacts of this action and the impacts of the proposed action being minimal are relatively certain due to the adaptive and iterative approach taken.”
 - This statement is somewhat confusing, and conflicts with earlier statements that “this type of action has not been done before, and neither the environmental conditions nor the response of the elk and bison to delaying feeding over the next few years can be accurately predicted.” However, we agree with the need to maintain management flexibility to address and respond to rapidly changing situations involving elk and bison movements and potential conflict situations.

THE FOLLOWING REPRESENT COMMENTS IN RESPONSE TO SPECIFIC ELEMENTS OF THE STEP-DOWN PLAN

SUMMARY/INTRODUCTION/PLANNING HISTORY

- Page 3 – Figure 2. Perhaps only trend count figures should be presented, as estimation techniques have varied over the time scale shown.
- The BEMP (2007) set management direction for 15 years (which is up in 2022). We recommend clarifying if this means the Step-Down Plan will be revised in 3 years. This seems problematic as the success of some Step-Down Plan elements are based on 5 years of information evaluated on a three-year running average. This gives no time to evaluate the influence of the Step-Down Plan and is a concern considering the language on page 16, “Inability to meet this objective under the strategies presented here would trigger a thorough evaluation and consideration of more aggressive strategies when the BEMP is update in 2022.”

STEP-DOWN PLANNING

- Page 7, Table 1 - Recommend clarifying what a genetically viable population of bison means, including how many bison.

OBJECTIVES

- The BEMP states that consideration criteria for implementing Phase 2 of reduced feeding would include some or all of the following;
 1. The level of forage production and availability on the NER
 2. Desired herd sizes and sex ratios

3. Effective mitigation of bison and elk comingling with livestock on private lands
4. Winter distribution patterns of elk and bison
5. Prevalence of brucellosis, chronic wasting disease, and other wildlife diseases
6. Public support

The phrase “some or all” implies that perhaps effective mitigation of bison and elk comingling with livestock on private lands or public support is not necessary for implementation. We suggest these considerations are paramount for implementation.

Management Actions and Strategies

- We disagree with establishing a baseline of bison-fed-days and elk-fed-days from 2008-2017. We suggest that a time frame consistent with the analysis period for the BEMP be used to measure progress already made in reducing bison fed days and elk fed days. The EA provides support for using a time period prior to the ROD on page 4, “Some conditions on the refuge have changed as a direct result of the BEMP....”. Page 5 references the irrigation plan to increase refuge-wide forage production, and on Page 8 references are made to the restoration of sagebrush grasslands in GTNP. In addition, the Department has implemented or been engaged in a number of management actions that were directly related to the 2007 ROD including: changes to the bison hunting seasons, holding public meetings to adopt elk hunting seasons that target short distance migrating elk, adaptively implementing the Department’s online hunter management program on the NER, presenting elk and bison population objective changes to the public and supporting the use of the forage threshold to determine when to initiate supplemental feeding. Regulation changes were also adopted to facilitate the issuance of bison hunting licenses and Department staff actively worked with the NER to haze bison north away from the Town of Jackson. Finally, progress has been made to reduce the bison population and to increase bison and elk hunting opportunity on the NER.
- “Because it is largely unprecedented, the concept of modifying this behavior on such a large scale is daunting and poses questions for which there are no immediate answers. In some cases, the likelihood a specific strategy’s success will only be able to be roughly estimated, and unanticipated results are likely. Closely monitoring forage availability, elk and bison distribution, and elk mortality will allow us to evaluate the effectiveness of management actions and adjust management actions as needed should unintended negative consequences arise.”
 - We appreciate this admission, as there are substantial uncertainties from our perspective. This admittedly makes it difficult to adjust management actions and implement mitigation measures in a timely manner.

Important Changes Since 2007

- “Preliminary analysis suggests that the increasing proportion of the Jackson elk herd wintering on the NER has been associated with 1) Declines in elk use of native winter range and movements of elk from State feed-grounds in the Gros Ventre drainage to NER, and 2) increasing numbers of elk that summer immediately adjacent to the NER.”
 - The Department will continue to do what we can to limit movement of Gros Ventre elk to the NER. Our management priority is to conserve/promote long distance migrants (Teton Wilderness and southern Yellowstone National Park (YNP)), and we continue to look for ways to reduce elk numbers immediately adjacent to the NER. It will be important that the NPS remain committed to achieving goals to control elk numbers that summer in GTNP.

Chronic Wasting Disease

- Thank you for your past and continued assistance in conducting CWD surveillance sampling of elk in the Jackson Herd Unit. We ask that this coordination continue in order to make mandatory sampling on the NER as streamlined as possible.
- When available, we look forward to reviewing the NER Disease Contingency Plan (identified in the NER Comprehensive Conservation Plan (2016)) that specifies NER management response following documentation of CWD.

Winter Feeding

- Much of the focus on encouraging elk and bison use of native winter range is placed on delaying the initiation of feeding. As stated in our comments earlier, there is a higher risk of creating conflict associated with the delay of feeding compared to terminating feeding earlier in the season. We recommend emphasis be placed on terminating feeding earlier to achieve the goal of reduced elk-fed-days and bison-fed-days.
- Although the threshold for initiation of feeding has traditionally been 300 lbs/acre, there have been many occasions when feeding was initiated at forage levels above this due to impending storms, icy conditions, elk and/or bison behavior and other variables. We suggest that the average available forage measured when feeding was initiated from 2008-2017 be used as a threshold. This would base the threshold on actual conditions experienced.
- “As bison and elk behavioral responses are better understood, feeding delays will be extended to encourage a redistribution of elk and bison to native winter range. However, other factors outside of the scope of this plan such as wolf numbers and distribution could reduce the effectiveness of this strategy.”

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- Weather should be added to this, as there will be some years where carrying capacity is essentially zero. Additionally, it should be recognized that wolf numbers influence elk use of native winter ranges.
- “Delaying feeding by two weeks in January is likely to be more successful in dispersing animals to native winter range than doing so in February, when food stress and the potential for animals to move to private lands is greater.”
 - Animals not fed in January and subsequently dispersed will experience the same food stress as those likely to do so in February, and as a result of their earlier dispersal may put animals in closer proximity to private lands. Much depends on where the dispersal occurs: to the east maybe tolerable, to the west would undoubtedly create conflicts.
- “...the distribution of animals, particularly on private, livestock producing lands, would be considered prior to delaying feeding initiation date.”
 - We appreciate and support this very important consideration.
- To assist in monitoring elk and bison behavioral responses, we support keeping a sample of collared elk at all times to provide another means of gauging animal response in the absence of feeding and to allow early detection of undesirable movements.
- Although we support monitoring of calf mortality as currently done and proposed on the NER, higher calf mortalities would be expected away from the NER where no monitoring is proposed. We suggest monitoring include adjacent winter ranges as well.
- “Under the Step-Down Plan framework, we believe the 3-year running averages for total and elk calf winter mortality will be within the range of variation exhibited by the pre Step-Down Plan baseline. Total winter mortality occasionally exceeds 3% and 10% calf mortality.” “Post-Step-Down Plan mortality in excess of these levels may warrant shortening the feeding initiation delay in subsequent years.”
 - Although it would seem more “real time” adjustments could be made, by the time calf mortalities begin to rise and be detected it is probably too late to prevent additional mortalities. We recommend that more real time monitoring occur and that quick actions take place rather than waiting until the next year.

Harvest/Hunting

- All options presented could assume additional harvest is necessary or desirable, which is currently not the case (especially with respect to long distance migrants). We are in full support of using alternate harvest strategies to direct harvest at specific segments of the Jackson Elk Herd, or to achieve desirable distribution and/or arrival on specific portions of the NER. Future management will need to recognize the importance elk hunting

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seasons in GTNP have on achieving management goals. As stated earlier, elk in the southern portion of GTNP contribute greatly to the wintering elk population on the NER.

- “The portion of the Jackson Elk Herd that winters on the NER has increased in the past 2 decades. This trend is correlated with a decline in elk use of native winter range and an increase in the proportion of NER elk that occupy winter ranges immediately adjacent to the Refuge. If efforts to encourage increased use of native winter range are unsuccessful, agencies will collaborate with the WGFD in the public process of reviewing and adjusting the future Jackson Elk Herd population objective.”
 - This seems to indicate that if elk will not use native winter ranges then the herd unit population objective should be reduced commensurately, while striving to maintain 5,000 elk on the NER. While discussions of reducing the population objective is premature at this point, we strongly suggest that the NER and GTNP support reducing elk numbers that come from animals in the larger herd segments that reside in central-northern GTNP (where 40% of NER collars summer) and southern GTNP and the Snake River corridor (where 35% of NER collars summer). This would preserve and promote maintenance of long distance migrants to the Teton Wilderness (10% of NER collars) and southern YNP (currently 5% of NER collars). The Department has a public process to set population objectives for big game herds and at this time the public does not support a lower population objective for the Jackson elk herd.
- “The effectiveness of NER late-season harvest regimes is influenced by December 1st winter closures immediately east of the Refuge on Bridger-Teton National Forest (BTNF) lands. Extensive elk telemetry data suggest that delaying the winter closures could help reduce winter elk numbers on the Refuge. NER officials will work with BTNF and WGFD officials to explore the possibility of allowing hunting in limited areas after December 1st.”
 - Again, this may assume additional harvest is needed or desired. The Department is sensitive to segment-specific harvest pressure (that should be mostly directed at GTNP and non-migratory elk in the Snake River bottom) and later seasons may increase likelihood of increased harvest pressure on Teton Wilderness and southern Yellowstone long distance migrants (which is not desirable). The Department recognizes that a lot of interagency coordination has taken place in the past to establish the winter closures on the BTNF and while a discussion considering a later date may be warranted, careful consideration needs to be given to this topic.

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- “Extensive elk telemetry data suggest that delaying the winter closures could aid elk management objectives, but also that elk are sensitive to hunting pressure that causes management issues for WGFD.”
 - This speaks to the issue raised above. If there is a way to minimize hunting pressure on long distance migrants while achieving distribution efforts, we are open to having this conversation.
- “Lowering the population would help compensate for reduced use of traditional native winter range and increased growth of short-distance migrants, which has led to significant increases of winter elk concentrations on the NER.”
 - The relevance of increased growth of short distance migrants in this example is hard to follow. While we may conceptually agree that lowering the population would compensate for reduced use of native winter ranges, we would again strongly suggest any reduction in elk numbers below current levels come from the short distance migrants associated with the Snake River Corridor and central GTNP.
- “The Grand Teton National Park (GRTE) harvest accounts for about 25% of the overall Jackson elk herd harvest, and has been an important factor in regulating the population.”
 - We strongly agree that harvest of elk in GTNP is essential for meeting goals of the Step-Down Plan, as well as meeting broader management goals of the NER, WGFD, and GTNP such as conservation of long distance migratory segments of the Jackson elk herd.
- “As proposed and new management strategies are implemented and evaluated under this plan, at some point in the future it may become apparent that meeting reduced feeding goals will not be possible without reducing elk and/or bison population objectives.”
 - As stated earlier the Department has a public process for establishing population objectives and any discussion regarding lower numbers of elk should include support from the federal agencies to reduce populations residing in GTNP.

Hazing

- “NER staff haze elk and bison to conserve winter forage, prevent year-round use of winter range, and in some cases to prevent elk and bison from moving to private lands or other areas where conflicts with humans are likely.”
 - We support continuation of these efforts.

Vegetation Restoration and Protection

- We are fully supportive of efforts to restore native vegetation.

Private Lands Mitigation

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- “Several strategies would be employed to mitigate likely changes in bison and elk distribution, including providing incentives for non-breeding cattle operations, increased fencing in limited areas to separate elk and bison from livestock feed lines, hazing elk and bison away from livestock feed lines, and purchasing private lands easements or leases to prevent comingling.”
 - As stated earlier, it is critical that such mitigation measures be in place prior to any efforts to allow substantial winter occupation of these lands or encourage elk/bison to leave the NER. There should also be an evaluation of Teton County Wildlife Friendly Fencing regulations.
- Page 19 – Figure 12. Areas with high potential for conflict of elk and bison with human activities. This map shows the extensive area of potential conflict between elk/bison and human activities, and we agree with this assessment. We did not see where this Figure was referenced in the document.
- “A database will be established to track non-agricultural conflicts on private lands to determine trends that will help evaluate the effectiveness of Step-Down Plan mitigation efforts.”
 - We assume “non-agricultural” would include instances of human injury or vehicle collisions? There should be a conversation about how to monitor/record/evaluate this information and who would collect, house, and compile the information.

Models of System Dynamics

- We support efforts to evaluate the effects of management actions, especially on elk distribution and calf mortality.

MONITORING

1. Production and availability of forage
2. Measuring animal abundance and distribution (including adult bull:cow ratios in GTNP)
3. Determining EFD and BFD
4. Estimating winter mortality
5. Brucellosis seroprevalence
6. CWD surveillance

We support a robust monitoring program that includes the items listed above.

Appendix A

- “Elk use of lands surrounding the NER would increase; including;
 - USFS lands east of the NER

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- Gros Ventre feedgrounds possibly
- Southern GRTE
- State feedgrounds south of the NER”
 - Occupation of lands east of the NER would be acceptable, shifts to the Gros Ventre feedgrounds may be acceptable depending on where these elk summer, and use of lands in southern GRTE might be acceptable if the likelihood of their movements does not put them in conflict situations. Movement of NER elk to State feedgrounds south of the NER is not be supported by WGFD, as this would place animals in conflict situations with livestock and humans, feedground quotas are already being met by elk from the Fall Creek elk herd unit.
- “Most of winter distribution shift would involve elk in the Yellowstone, Teton Wilderness, and Gros Ventre segments.”
 - We are not sure this will be the case, as these segments are minor components of elk that attend the NER. If it is the case, these segments may be subjected to increased mortality.
- “The agencies would work closely with the WGFD and landowners, including livestock producers, to coordinate actions that would prevent conflicts due to elk dispersal and to defray costs of managing potential conflicts. Preventing access to food/hay rewards on private lands would be vital for effective management.”
 - We appreciate recognition of these potential conflicts and the offer to address them collaboratively.

Appendix C

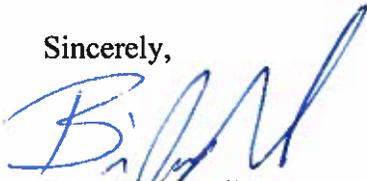
- “Prior to Step-Down Plan implementation – Work directly with ranch and other private land owners to understand preferences for elk comingling compensation or mitigation methods.”
 - The Department would like to be part of these conversations, as we are statutorily obligated to address damage and comingling situations.
- “Maintain effective communication with ranch and other private landowners to monitor the effectiveness of elk comingling compensation and mitigation methods.”
 - During our normal duties, the Department will also be in communication with these landowners.
- “A grant-funded project to interview private landowners about acceptable elk comingling mitigation and compensation methods began in summer 2018. To date, 10 ranch owners representing about 2,000 acres of potential elk winter range have been interviewed.”

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- The Department would like to be kept up to date with the outcome of these interviews.

Thank you for the opportunity to comment. If you have any questions or concerns please contact Doug McWhirter, Wildlife Management Coordinator for the Jackson Regional Office, at 307-733-2321.

Sincerely,



Brian R. Nesvik
Director

BN/kr/ml

cc: Mark Gordon, Governor of Wyoming
U.S. Fish and Wildlife Service
Doug Brimeyer, Wyoming Game and Fish Department
Richard King, Wyoming Game and Fish Department
Brad Hovinga, Wyoming Game and Fish Department
Doug McWhirter, Wyoming Game and Fish Department
Chris Wichmann, Wyoming Department of Agriculture, Cheyenne

Literature Cited

- Hobbs, N.T., G. Wockner, and F.J. Singer. 2003. Assessing management alternatives for ungulates in the Greater Teton Ecosystem using simulation modeling. Final Report. 63 pp.
- Lubow, B.C., B.L. Smith. 2004. Population dynamics of the Jackson Elk Herd. Journal of Wildlife Management 68(4):810-29.
- Smith, B.L., E.K. Cole, and D.S. Dobkin. 2004. Imperfect pasture: a century of change at the National Elk Refuge in Jackson Hole, Wyoming. Grand Teton Natural History Association. Moose, WY. 155pp.



September 24, 2019

Lisa Talcott, Refuge Supervisor
U.S.D.I. Fish and Wildlife Service
Mountain-Prairie Regions
P.O. Box 25486
Denver, CO 80225-0486

re: Reduce Supplemental Feeding on the National Elk Refuge, ,

Dear U.S. Fish and Wildlife Service:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced undertaking. We have reviewed the associated report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42).

We recommend the U.S. Fish and Wildlife Service allow the undertaking to proceed in accordance with state and federal laws subject to the following stipulation:

If any cultural materials are discovered during construction, work in the area shall halt immediately, the federal agency must be contacted, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence on your finding of no historic properties affected. If you have any questions, please contact me at 307-777-5497.

Sincerely,

A handwritten signature in blue ink, appearing to read "Richard L. Currit".

Richard L. Currit
Senior Archaeologist

Wyoming State Historic Preservation Office
2301 Central Avenue, Barrett Building, 3rd Floor
Cheyenne, WY 82002 • 307.777.7697 • wyeshpo.state.us



ARTS, PARKS
HISTORY



BOARD OF COMMISSIONERS

Natalia D. Macker, Chair
Greg Epstein, V-Chair
Mark Barron
Mark Newcomb
Luther Propst

October 29, 2019

U.S. Fish & Wildlife Service
National Elk Refuge
P.O. Box 510
Jackson, WY 83001

RE: Teton County, Wyoming Comment for Environmental Assessment/Elk Management Step-Down Plan

Dear Acting Refuge Manager Ketti Spomer:

The Teton County Board of County Commissioners (BCC) write to express our appreciation for your leadership and planning in creating a structured Step-Down Plan to reduce reliance on supplemental winter feeding of elk on the National Elk Refuge in order to achieve the goals of the 2007 EIS for bison/elk management. Teton County BCC thanks the U.S. Fish and Wildlife Service for the opportunity to provide comments. The BCC generally supports the U.S. Fish and Wildlife's (USFWS) approach to reaching its goals to protect the Jackson Hole Elk Herd in the face of increased and new threats, including the recent appearance of chronic wasting disease in the local deer population.

BCC has planning and zoning authority over private lands in Teton County. As noted on page 3 of the Environmental Assessment for Bison and Elk Management Step-Down Plan, the major management strategy is to reduce reliance of elk and bison on supplemental feeding "and eventually, total reliance on natural forage." As well the plan calls for maintaining the Jackson Elk Herd at 11,000 and a target of 5,000 elk wintering on the NER. As noted frequently in the 2007 EIS and 2019 Step-down EA, there is a high likelihood that as supplemental feeding on the NER is reduced, elk will move onto private lands. As a result, Teton County BCC respectfully requests the following:

- Maintain exceptional standards around data collection and monitoring of variables used to determine both the delay and termination of feeding, including making the data and interpretations openly available to county agencies and the public.
- That the USFWS maintain robust levels of funding and resources for data collection and monitoring activities as well as related research on elk and bison mortality and movements on and around the NER.



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Mark Barron
Mark Newcomb
Luther Propst

- That data and data collection methods are sufficient to identify statistical levels of correlation between elk mortality rates and reductions in feeding, especially at objectives (e.g., when the three-year rolling average shows a consistent decline in elk bison fed days or is less than 50% of baseline over five consecutive years).
- That funding levels and sources are identified and made available for long-term leases of private land, purchase of private land easements as well as incentives and direct compensation for required changes or disruptions in private livestock and agricultural operations.
- That USFWS work closely with WGF and Teton County BCC to deploy safeguards and respond in a timely and effective manner to impacts on private land if indeed increases in elk populations and concentrations on private lands correlate to reductions in feeding and/or other management strategies deployed to achieve the target range of 5,000 elk wintering on the NER. In other words that the USFWS is responsive and nimble as this iterative step-down process plays out.
- That if over the same five-year period in which the three-year rolling average of elk bison fed days remains <50% of baseline, heard mortality rates remain at or above the 5% identified upper estimate, the Step-Down plan is re-evaluated.
- That the USFWS participates with BCC, WGF, TCD and possibly other agencies in undertaking a detailed and extensive mapping of so-called "native winter range" and estimate the viability of the mapped range to sustain a target level of 11,000 elk while achieving goals outlined in the 2007 EIS and 2019 Step-Down Plan.
- And that if data, observations, and research suggest that available "native winter range" cannot support 11,000 elk and 500 bison a supplemental EIS to the 2007 EIS is undertaken.

In general, the BCC urges the USFWS to undertake extensive efforts to coordinate and work with Bridger-Teton National Forest, Grand Teton National Park, private, county and state interests to plan for and mitigate impacts on private lands. As well we urge the USFWS to undertake and fund efforts to aid private landowners interested in incentives to enhance winter forage.

The BCC respectfully proposes a workshop with the National Elk Refuge and local stakeholders to discuss possible impacts and ways to best mitigate those impacts before moving forward with the Step-Down Plan for Elk Management.



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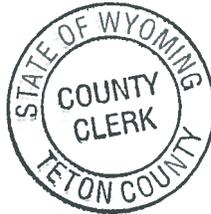
Natalia D. Macker, Chair
Greg Epstein, V-Chair
Mark Barron
Mark Newcomb
Luther Propst

We look forward to working together to craft the best possible elk management plan for the wildlife, residents and visitors of Teton County.

Sincerely,

A handwritten signature in blue ink that reads "Natalia D. Macker". The signature is written over a horizontal line.

Natalia D. Macker
Chairwoman



A handwritten signature in blue ink that reads "Sherry L. Daigle". The signature is written over a horizontal line.

Attest: Sherry L. Daigle
Teton County Clerk



**Teton
Conservation
District
Est. 1946**

U.S. Fish and Wildlife Service – National Elk Refuge
P.O. Box 510
Jackson, Wyoming 83001

To U.S. Fish and Wildlife Service,

Teton Conservation District (TCD) is a local government agency directed by five-member locally-elected Supervisors whose mission is to work with the community in the conservation of natural resources for the health and benefit of people and the environment. TCD would like to thank the U.S. Fish and Wildlife Service for the opportunity to provide comments on the 2019 Draft Bison and Elk Management Step-Down Plan (the Plan).

The four goals of the Plan, 1) habitat conservation, 2) maintaining sustainable elk and bison populations, 3) keeping specific numbers of elk and bison, and 4) the management of wildlife diseases, are well-suited to the needs of the denizens of our district. TCD is open to partnering with federal and state agencies to support the four goals of the Plan, specifically with regard to the conservation and/or improvement of wildlife habitat and at-will private landowner mitigations.

The intent of altering elk and bison behavior and distribution toward a greater reliance on free-standing forage, while maintaining population and herd ratio objectives by adjusting artificial feeding, is a complex and audacious environmental experiment. As stated repeatedly in the Plan, the outcomes are unpredictable and may have broad ramifications with potentially detrimental and/or undesirable temporary and perhaps permanent outcomes for various local interests and needs. Some outcomes may even impede conservation through the loss of viable agriculture and exacerbate habitat losses, thus flexibility is required.

The Plan appears to address the core of these undesirable outcomes through monitoring and a series of feedback loops to generate iterative artificial feeding, harvest and mitigation adjustments. TCD would like to emphasize that elk and bison distribution on private lands, the comingling of elk and bison with livestock, hunting harvest regimes, wildlife viewing opportunities, the prevalence of disease, and levels of wildlife mortality are all fundamental issues to our community. Therefore, it is imperative that the proposed monitoring be robust, and adaptive management actions be responsive. The U.S. Fish and Wildlife Service must predictably prioritize adequate allocation of resources to provide for the flexible management that will be required for success of the Plan. It is certain that doing otherwise will negate public

Teton Conservation District is a local government entity whose mission is to work with the community in the conservation of natural resources for the health and benefit of people and the environment.

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P.O. Box 1070
Jackson, Wyoming 83001

(307)733-2110
www.tetonconservation.org
tom@tetonconservation.org

support for the Plan, and perhaps thereby erode opportunities and trust necessary to implement future plans to avert other detrimental changes such as a prevalence of CWD.

In summary, TCD is open to partnering with government agencies and private landowners to help achieve the goals of the Plan. Implementing the constructive aspects of the Plan depends entirely upon the recognition of local natural resource, economic, and cultural values and supporting those values with rigorous monitoring regimes tied to responsive and effective adaptive management. The U.S. Fish and Wildlife Service and Grand Teton National Park bear responsibility to work with the Wyoming Game and Fish Department, local government, private landowners, and denizens to foster success of the Plan for the benefit of all concerned.

Sincerely,



Tom Segerström
Executive Director

October 30, 2019

National Elk Refuge
675 E. Broadway
P.O. Box 510
Jackson, WY 83001

Submitted electronically to: nationalelkrefuge@fws.gov

Re: Draft Bison and Elk Management Step-down Plan and Draft Environmental Assessment

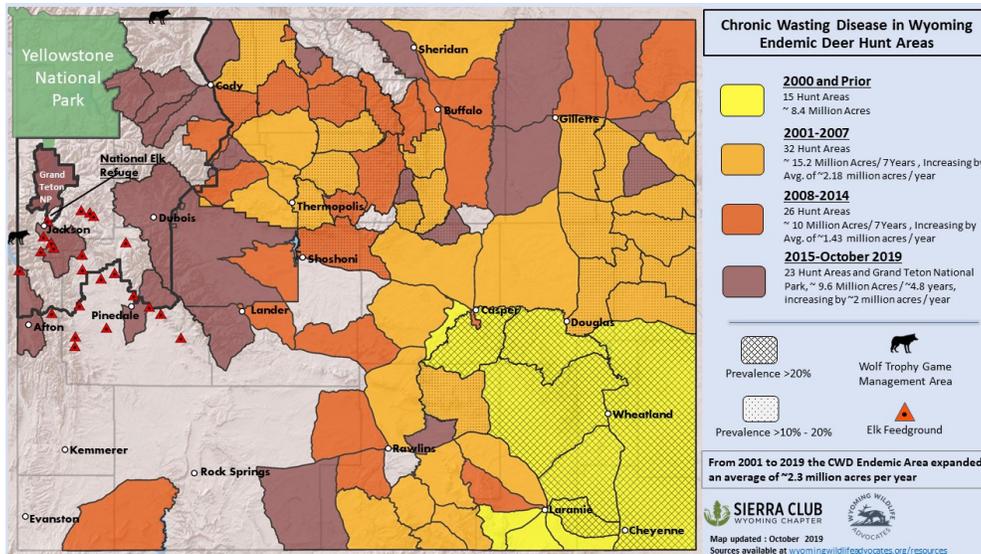
Dear Refuge Manager:

Thank you for the opportunity to provide comments on the National Elk Refuge (“NER”) Draft Bison and Elk Management Step-down Plan (“SDP”) and associated Draft Environmental Assessment (“EA”). These comments and attachments are submitted on behalf of Defenders of Wildlife, Sierra Club, and the National Wildlife Refuge Association.

Our organizations have a longstanding interest in the proper management of the NER, consistent with the National Wildlife Refuge Administration Act as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.) (“Improvement Act”), the mission of the National Wildlife Refuge System (NWRS), the purposes of the NER, and the 2007 Bison and Elk Management Plan (“BEMP”).

In December of 2018 Earthjustice submitted a letter to NER on our behalf concerning the severe risks to the integrity of the refuge associated with supplemental feeding of elk on the refuge (Attachment 1 to these comments in entirety). In that letter we noted that the refuge must promptly develop and implement an ambitious management plan to phase out supplemental feeding on the refuge to address the existential threat that disease poses to the refuge, risks that have substantially increased with the detection of chronic wasting disease (“CWD”) on the doorstep of NER within Grand Teton National Park in November 2018.

As the map indicates clearly, since 2008, the CWD endemic area in Wyoming has increased ~19.6 million acres and now abuts the Elk Refuge to the north and south. (Sierra Club and Wyoming Wildlife Advocates map October 2019 Attachment 2)



Unfortunately, the SDP falls far short of prescribing the steps needed to responsibly and effectively address the supplemental feeding issue, respond to the severe threat of wildlife disease, and bring the Service into compliance with the Improvement Act. Indeed, a January 2018 email from Elk Refuge Manager, Brian Glaspell, to USFWS Assistant Regional Director, Will Meeks, says of the draft SDP being circulated within the agency at that time “It is my understanding that we have, through successive iterations of the plan, made numerous changes at the State’s request so that it is now (by some opinions) virtually toothless. I’m not sure there are any teeth left to pull” Manager Glaspell goes on to say, “I do think we should continue to emphasize at every opportunity that plan implementation will be a very slow, incremental process with numerous triggers that could slow it even more (private lands conflicts, unacceptably high mortality, etc.)” (Glaspell 2018 parentheses in original-Attachment 3) The version of the SDP that Glaspell was commenting on is virtually identical to the draft released for public comment in September 2019.

Attached to this letter are comments from Dr. Thomas Roffe, former Chief of Wildlife Health for the U.S. Fish and Wildlife Service (Attachment 4, “Step Down Plan Review”) (Dr. Roffe’s CV is included as Attachment 5). Our organizations fully endorse and include herein the comments of Dr. Roffe. Dr. Roffe clearly articulates the significant flaws of the SDP, supporting a conclusion that the SDP is insufficient to meet NWRS legal and policy requirements.

Dr. Roffe demonstrates that the SDP is insufficient to support adaptive management. The SDP has only one clearly defined quantitative trigger to initiate the sole measurable management action (later onset of feeding), only one quantitative assessment criterion (elk and bison feeding days), and only two acceptance criteria for success. The SDP offers numerous subjective parameters that fail to support effective adaptive management, “making it essentially useless and nearly impossible to apply in the field” (Roffe statement, p. 2).

One of Dr. Roffe’s principal points is that the scope of the SDP is insufficient to mitigate the risk of catastrophic disease outbreaks, the stated primary goal of the plan (SDP, page vi). For example, Dr. Roffe notes that the plan fails to include a single disease prevalence or transmission risk criterion for

assessing the effectiveness of the plan, because of the failure to address disease management as part of this planning process. Similarly, the SDP fails to address critical management alternatives that could significantly help reduce reliance on supplemental feeding, again citing constraints imposed by the BEMP and NEPA.

Ultimately this leads to a fatal flaw in the SDP, which is acknowledged by the Refuge: the phase 1 goal of reducing population of elk in the NER to 5000 is “no longer possible” given the prerogative to “maintain 11,000 elk in the overall Jackson herd” (SDP, pages 10 and 47).

According to the Refuge, the SDP and EA “tiers” to the BEMP and FEIS (EA, page 1). It is not clear that the Refuge is appropriately applying this concept for NEPA purposes. Tiering refers to a situation where the analysis of a narrower action is not necessary because the impacts have been identified and analyzed in the broader NEPA document. To do this it is necessary to make a supporting determination that the conditions and effects described in the broader NEPA documentation remain valid. The concept of tiering does not mean that the agency is constrained by previous decisions. In fact, the concept is used to apply prior analyses to contemporary decisions, including the analysis of other alternatives.

According to the SDP, “(t)he BEMP supported the State herd objectives of 500 bison and 11,000 elk due to NEPA requirements, any further consideration of reduced herd sizes by the NER or GRTE are beyond the scope of this plan” (SDP, page 31). The fact of the matter is that the BEMP FEIS *did* evaluate alternatives that considered fewer elk wintering on the NER and altogether ending winter feeding, without the constraint of the Jackson Elk Herd Objectives. Specifically, Alternatives 2 and 6 considered such alternatives:

- Alternative 2: *“The numbers of elk and bison on the refuge would fluctuate over time as the feeding program was eliminated within 15 years, but no specific numeric population targets would be set for elk or bison.”* (FEIS, page 44)
- Alternative 6: *“In the short term about 2,400-2,700 elk would winter on the refuge, but over time could increase to 2,800-3,200. . . . (W)inter feeding would be phased out within five years...Strategies to achieve population objectives would be developed in cooperation with the WGFD.”* (FEIS, page 52)

In fact, the FEIS ranked Alternatives 2 and 6 higher than the selected alternative (4), with regard to the goals of Sustainable Populations, Disease Management and the conservation of healthy fish and wildlife populations (FEIS, Table 2-7, page 84). Furthermore, the public overwhelmingly preferred the shorter term feeding phase out alternative, and far fewer elk wintering on the NER: “About 65% of the commenters expressed a preference for Alternative 6, while about 12% preferred Alternative 5 (fewer than 1% expressed support for alternative 4).” (BEMP FEIS: xxiii parentheses in original) Despite the more effective nature of feeding phase out Alternative 6, and the lack of public support for the chosen Alternative 4, the ROD simply determined that the phase out alternative would “not be acceptable for some stakeholder groups” (ROD, page 10).

As Dr. Roffe makes abundantly clear, the proposed SDP is highly unlikely to reduce the risks posed by supplemental feeding to the integrity of the NER. Yet, using the concept of tiering, the Refuge, rather than being constrained, had the opportunity to explore other alternatives to effectively meet the stated

goals of the plan. Unfortunately, it failed to do so in the SDP. Nevertheless, the Refuge has the decision-making latitude now to consider options that would deviate from WGFD's herd objective.

Indeed, recent action by WGFD concerning its Jackson elk herd objective – action that was overlooked by FWS in the SDP -- only confirms this latitude. In this regard, the FWS in the SDP appears unaware of or ignores the fact that the WGFD transitioned to a “Trend Based Objective (+- 20%)” in 2016 for the Jackson Elk Herd and determined that +-20% of elk above or below the objective number would suffice to “manage at objective”. (WGFD 2017 in the JCR_BGJACKSON_ELK_2017: 8- Attachment 6) “The Wyoming Game and Fish Commission approved the proposed mid-winter trend count objective 11,000 elk +- 20% in June 2016.” (Id: 13) Additionally, rather than manage this elk herd for specific numbers of elk on different winter ranges, the WGFD recognized that, “In recent years, elk winter distribution has changed significantly . . . and there are few management tools available to achieve these targets. . . . In recognition of the lack of management tools available to achieve these winter distribution goals, these winter range goals were removed during the herd unit objective review process in 2016.” (Id: 14) In sum, WGFD has recognized that the 11,000-elk objective for the Jackson herd is not a hard target. Accordingly, even accepting that FWS faced some requirement to adhere its SDP to WGFD's herd objective – which we dispute – the fact remains that FWS has substantial decision-making latitude that is ignored in the SDP.

It may be the case that a management strategy no longer constrained by outdated prescriptions may involve an amendment to the BEMP ROD, but it is highly disingenuous of the Refuge to argue that such alternative management approaches are outside the scope of this decisionmaking process. We therefore recommend that the Refuge address management alternatives that would better support the purpose of the action.

The EA is similarly flawed in that it fails to consider a sufficient range of alternatives to address the problem and fulfill the purpose of the SDP. The purpose and need to support WGFD's objective is also flawed and imposes an unnecessary constraint on the decisionmaking process (EA, page 4). In fact, the adherence to this outdated and no longer relevant purpose completely undermines the decisionmaking process in that it is likely not feasible to “provide a path for progressively transitioning from winter feeding ...while maintaining population and herd ratio objectives” (EA, page 5). Again, see the above citations of the WGFD's own determination not to rigidly adhere to a static herd population nor to prescribed apportionment of subherds to specific winter ranges.

The weaknesses of the proposed action are evident in the effects analysis. On page 6 of the EA the Refuge states that it “*believes*” that delayed and early termination of feeding “will decrease the probability that elk...will discover feeding grounds” (EA, page 6, emphasis added). Elsewhere the EA states that “(o)ver time, reduced reliance on supplemental feeding *should result* in a greater percentage of elk using native winter range... and that “Reduced supplemental feeding *could reduce* CWD transmission...” (EA, page 15, emphasis added). For native habitat, the EA concludes that the proposed action “could result in increased height and cover of woody plant communities on the refuge” (EA, page 27). For water resources, the EA concludes that the SDP “may result in less fecal matter getting into the Marsh and eventually Flat Creek (EA, page 28). Clearly the SDP may also *not* lead to these effects. As Dr. Roffe makes abundantly clear, there is little justification to put forward these conclusions within the EA based on the weaknesses of the SDP. The NEPA effects analysis must examine the effects of these things *not* happening, in terms of risks to refuge resources as mandated by the Improvement Act.

The EA also cites, apparently as effects, “potential actions” that “may be implemented by others” (EA, page 7). It is not defensible to rely on hypothetical actions as part of the effects analysis for this decision.

In sum, we remind the FWS that,

“(T)he court left “no doubt that unmitigated continuation of supplemental feeding would undermine the conservation purpose of the National Wildlife Refuge System.” (Defenders of Wildlife 651 F.3d at 117) And, the court said, “[i]t is highly significant and indeed dispositive to us that the agencies are committed to ending supplemental feeding.” (id.) Indeed the court cautioned, “the plan might well have been unreasonable had the agencies categorically refused to phase out the winter feeding program in spite of all the evidence in the record about the dangers of supplemental feeding.” (Id.) Further, the court directed that the Service “must proceed on a manner that is consistent with the science and accounts for the risks posed by supplemental feeding.” (id.) (quoted in the December 2018 Earthjustice letter to Glaspell)

For the reasons set forth above and in the attached report from Dr. Roffe, FWS has failed to respond to these mandates in the SDP. We urge FWS to modify its proposed action to meet its statutory mandates and to conserve the Refuge and its elk as the law requires.

Sincerely,

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References:

1. Defenders of Wildlife v. Salazar. 651 F.3d 112 (D.C. Cir. 2011)
2. US Fish and Wildlife Service. 2007a. Final Bison and Elk Management Plan and Environmental Impact Statement. Jackson, WY.
3. US Fish and Wildlife Service. 2007b. Record of Decision National Elk Refuge Grand Teton National Park Final Bison and Elk Management Plan and Environmental Impact Statement. Jackson, WY.
4. WGFD 2017: JCR_BGJACKSON_ELK_2017 Job Completion Report-Big Game-Jackson-Elk 2017. Jackson, WY.

Attached:

1. 2018-12-04 Letter to Glaspell (Letter from Earthjustice to Brian Glaspell, December 4, 2018)
2. Chronic Wasting Disease in Wyoming Endemic Deer Hunt Areas map. Sierra Club Wyoming Chapter and Wyoming Wildlife Advocates. Updated October 2019.
3. 20180108 1141_EM_re_call with Scott (Email from Brian Glaspell to Will Meeks, January 08, 2018).
4. Step Down Plan Review by Thomas J. Roffe-Oct 2019-Final (Draft Step-Down Plan Bison and Elk Management: A Review by Thomas J. Roffe, PhD, DVM. October 28, 2019).
5. Thomas J. Roffe-Curriculum Vitae-October 2019.
6. JCR_BGJACKSON_ELK_2017 (Job Completion Report-Big Game-Jackson-Elk 2017).



October 30, 2019

U.S. Fish and Wildlife Service, Mountain-Prairie Region,
NWRS/Planning,
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134 Union Blvd.,
Lakewood, Colorado 80228-1807

Submitted Via Email to: NationalElkRefuge@fws.gov

Please accept these comments on the on behalf of Greater Yellowstone Coalition (GYC) and our over 90,000 supporters. GYC is a conservation organization formed in 1983 with the mission of "people protecting the lands, waters, and wildlife of the Greater Yellowstone Ecosystem (GYE), now and for future generations." GYC works to ensure that a thoughtful and holistic approach is taken to managing the natural resources in harmony with people and compatible development. We have a long history of advocating for better management of the Jackson elk herd including reducing artificial concentrations of elk and the phaseout of supplemental feeding. We have routinely advocated for changes in the management of elk to reduce the threats of disease transmission to Wyoming's elk populations. Our organization envisions and works toward a GYE which supports a healthy and thriving elk population with intact migrations between their native summer and winter ranges.

Overall, we support the general direction articulated in the step down plan "to begin to reduce supplemental feeding on the National Elk Refuge (NER) under a dynamic, structured framework as decided in the 2007 Bison and Elk Management Plan (BEMP) and associated Environmental Impact Statement (EIS)." Supplemental elk feeding has contributed to significant changes in natural elk distribution and migrations. The step-down plan represents a critical and necessary step in a phased approach toward ultimately eliminating the need for supplemental feeding of elk on the NER. We recognize the set of management challenges that this step represents and generally support this much-needed move by the NER.

We generally support the adaptive and flexible approach taken here. We would appreciate the NER attempting to clearly specify thresholds related to feeding initiation and ending, and how to redistribute elk on the landscape in a manner that maintains population objectives without exacerbating conflicts – it would provide greater certainty for the public in understanding NER

decisions. However, we recognize the need for managers to maintain reasonable flexibility in decision-making. Delaying feeding could increase elk movements that then could have unforeseen impacts. We support and encourage the NER and other stakeholders working collaboratively to find solutions to increase social tolerance of elk and reduce conflicts between elk and people, including the targeted use of exclusionary fencing. We also support the NER working collaboratively with our state agencies to plan elk hunt seasons, especially area and timing decisions, as tools to manage the distribution of elk under a delayed feeding initiation scenario.

Feeding of elk also has resulted in overgrazing and negative impacts to wetlands and related willow habitats on the refuge. We hope that this small step of reducing the number of elk fed days will have positive impacts on habitat particularly wetlands in the NER. One element of local management of elk and habitat that is glaringly absent is how to manage adjacent public lands to improve elk redistribution. In the past wildlife managers partnered on what was known as JIHI (Jackson Interagency Habitat Initiative) to use prescribed burns and management of natural fire incidents to benefit in particular winter-range for elk. Similarly, we encourage the continued support of the NER in managing winter-closures on public lands to benefit wintering wildlife. It is concerning that lands that are closed to human access specifically to provide habitat for wintering wildlife in Cache Creek and around Snow King are labeled “high-potential for conflict” in Figure 12. Creating, maintaining and expanding opportunities for elk to utilize public and private land suitable winter ranges is critical to reducing the numbers of elk on the NER, while maintaining population objectives.

In addressing conflicts, we urge the NER to also engage with Teton County and local wildlife interests in implementing the Teton County Wildlife Crossing Master Plan to address conflicts on local highways. We disagree that the NER or by default WGFD should consider elk conflicts with residential developments as a “trigger” or criteria for feeding. Our local county Comprehensive Plan supports permeability of our landscape for movements of wildlife including elk and allowing elk movements on and through residential development may be a critical step to redistribution of elk on the landscape. The conflicts with private agricultural interests are different and may have significant impacts of disease transmission, that are challenging to mitigate. We encourage the continued work to address these conflicts by creating spatial and temporal separation of elk and livestock.

The concentration of elk on feedlines in the NER does represent a significant potential for increased disease transmission particularly of CWD. We are afraid that that delaying feeding is only a small step toward reducing elk densities on the refuge and lowering the potential for disease transmission. We are supportive of NER continuing the increased surveillance and monitoring, prompted by the recent discovery of CWD in mule deer in Grand Teton National

Park. We encourage the NER to continue to work with local agency partners in a safe carcass disposal system. Finally, if CWD is detected on the NER it should necessitate a rapid response plan for any immediate modifications in elk management. We ask the NER to specify within the step-down plan what actions would be taken rather than continue to ignore the looming threat of CWD. Because of this threat, we encourage the consideration of the potential human risks of CWD be included in any action framework, as determined by best-available science.

We are also similarly concerned with how the NER has characterized elk-wolf interactions as a detriment to achieving the goals of the EA. "Therefore, if the prevalence of wolves begin to adversely affect the elk population on the refuge below these numbers, the Service will adapt its own management strategies to ensure that reducing reliance on supplemental feeding doesn't have an adverse cumulative impact on elk populations." Instead we encourage the NER to revisit the best-available science on elk-wolf interactions and how they may benefit the reduction of density dependent disease transmission. To imply that the NER would increase feeding to artificially inflate populations to prevent the natural predator-prey interactions from occurring seems to undermine the goal of healthy, free-ranging elk populations and would be severely inconsistent with the management of elk in GTNP.

We commit to working with our federal and state agency partners, private landowners and stakeholders to ensure a thoughtful approach to reducing the need for supplemental feeding of elk. We see this EA by the FWS as a much-needed step in the right direction. While there are many important details around managing a reduced feeding schedule, we appreciate the positive step the FWS has taken here and look forward to continued work to manage the NER.

We sincerely appreciate the direction that the Fish and Wildlife Service is proposing and will continue to participate in the public process concerning the management of elk and bison on our federal public lands in western Wyoming. Thank you for the opportunity to comment.

Sincerely,



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Working to protect and restore Western Watersheds

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COMMENTS ON THE STEP-DOWN-PLAN AND EA

October 30, 2019

“FYI, Matt Hogan called me this morning and suggested that I not continue trying to contact Scott, but instead work through the WGF D regional manager (Brad Hovinga). I’ll try to pin him down on what is remaining in the step down plan that the State may find objectionable.

It’s my understanding that we have, through successive iterations of the plan, made numerous changes at the State’s request so that it is now (by some opinions) virtually toothless. I’m not sure there are any teeth left to pull, but we’ll see what Brad has to say.

I do think we should continue to emphasize at every opportunity that plan implementation will be a very slow, incremental process with numerous triggers that could slow it even more (private lands conflicts, unacceptably high mortality, etc.).”

Brian Glaspell – National Elk Refuge Manager, January 8th, 2018

It is highly significant and indeed dispositive to us, as it was to the district court, that the agencies are committed to ending supplemental feeding. Should the agencies act unreasonably in establishing criteria for the transition or in otherwise carrying out the plan, that will be a different issue for another panel.”
At 11. U.S. Court of Appeals, D.C. No. 1:08-cv-00945, 2011

“the Secretary has assured us in his briefs and at oral argument that the language confers no veto.... (“[F]ederal management and regulation of federal wildlife refuges preempts state management and regulation of such refuges . . . where state management and regulation stand as an obstacle to the accomplishment of the full purposes and objectives of the Federal Government.”). We take the

Secretary at his word that Wyoming has no veto over the Secretary's duty to end a practice that is concededly at odds with the long-term health of the elk and bison in the Refuge." Ibid at 12.

"There is no doubt that unmitigated continuation of supplemental feeding would undermine the conservation purpose of the National Wildlife Refuge System," Ibid at 10.

"The Refuge can hardly provide such a sanctuary if, every winter, elk and bison are drawn by the siren song of human-provided food to what becomes, through the act of gathering, a miasmatic zone of life-threatening diseases." Ibid at 9.

Dear Ms. Spomer,

What is plainly evident from the above quotes from the Refuge Manager and from the D.C. Circuit Court of Appeals is that the Fish and Wildlife Service has repeatedly lied to numerous federal judges over many years.

What is clear, from the above and a review of various documents received through FOIA is that 1) the Refuge has granted the State of Wyoming veto power over the management of the Refuge and 2) the resultant Step-Down-Plan (SDP) has been rendered toothless and so filled with loopholes as to render it meaningless at fulfilling the Refuge's duties under the National Wildlife Refuge System Improvement Act (NWRISA).

While nothing further than the Refuge Manager's own words are needed to point out the fatal flaws in the SDP, we provide the following comments.

There are a wide range of fatal flaws to the SDP and the EA. These include:

- 1) Granting veto power to the State of Wyoming
- 2) In doing so, filling the SDP with so many loopholes that the status quo can be maintained for the indefinite future
- 3) Falsely assuming that the NER has to abide by the Wyoming's herd objectives as a requirement
- 4) Incorrectly assuming that an elk feedlot with 5,000 animals being fed significantly reduces disease transmission opportunities over an elk feedlot with 7,000 animals being fed
- 5) Conflating fed-days (under high density feedlot conditions) with disease transmission risk
- 6) Using the unsupported assumption that winter mortality greater than 3% is unacceptable

The SDP fails to comply with the duties under the NWRISA or the promises made in court over the last decade, or even the BEMP. The SDP, with its many loopholes, allows for the continuation of the status quo indefinitely, fails to address the disease issue and fails to eliminate artificial feeding.

On the ground, the no action is nearly identical to the SDP, with current numbers of animals being fed remaining essentially unchanged, through various loopholes such as those discussed by the Refuge Manager, above. The supposed 'goal' of the SDP is to supply about the same amount of feed as the current average.

“By delaying the start of the supplemental feeding season, the Service believes that it will decrease the probability that elk using native winter range or state feeding grounds will discover refuge feeding grounds. Because elk and bison use of feeding grounds is a learned behavior, over time this could increase the proportion of elk that winter on native winter range, reduce the number of elk that move from the Gros Ventre drainage to the NER, and decrease the refuge wintering elk population.” EA at 6.

The logic here is beyond comprehension. It makes no sense whatsoever that delaying feeding by a few days would somehow cause animals to not “discover” the same feedlots they have been using for generations. The EA sheds no light on this unsupportable assertion. In fact, the EA, itself, destroys this specious logic.

“The attraction of highly nutritious, easily accessible food during the winter months is powerful to both elk and bison, and their knowledge of NER feeding grounds has been passed down through generations. As a result, elk and bison have been strongly conditioned to seek supplemental food on the refuge, even during winters when natural forage is available and even abundant.” EA at 13.

The feedlot system is akin to passing out addictive drugs. As long as drugs are continued to be handed out, you will attract takers and you generate all the problems that come along with handing out those drugs.

Entirely missing from the SDP are goals, objectives and actions needed to end the feedlot operations as promised to the court nearly a decade ago.

“Significantly reducing the daily ration that elk receive below 8 lbs. would likely result in higher winter mortality among elk calves.” EA at 9.

Assuming this statement is true, what it admits is that the WY G&F population objectives, which the NER assumes as a given, exceed the carrying capacity of the ecosystem and that feeding in perpetuity it required to artificially support these numbers. This also points to the false assumption, adopted to appease the WY G&F, that anything above 3% winter kill is unacceptable and requires increasing feedlot operations. It is classic arbitrary decision-making that such unnatural winter mortality rates are assumed.

Strikingly, the EA fails to examine the SDP in light of law, regulation and policy. Merely reciting the names of statutes fails to examine compliance of the proposal with the specific requirements laid out in law, regulation and policy. This fails NEPA’s ‘hard look’ requirement and is arbitrary and unsupported decision making.

“Supplemental feeding has occurred in all but 10 winters on the refuge since 1912, and although the program minimizes winter elk mortality from starvation, contributes to the WGFD elk herd objectives, eliminates commingling with livestock, and keeps elk off adjacent roadways, elk occur at numbers and densities well in excess of carrying capacity (Smith et al. 2004, Lubow and Smith 2004).” EA at 13.

Again, the NER admits herd objectives are in excess of carrying capacity and can only be sustained through continued feedlot operations, yet the EA repeatedly defers to the

WGFD, knowing full well that the SDP's loopholes will allow continued status quo feeding in perpetuity.

The EA's cursory glance at the central problem of CWD fails to take the 'hard look' required under NEPA. Firstly, tiering to the superficial analysis from the nearly decade old EIS is woefully inadequate, setting aside the dramatic increases in scientific understanding of prion diseases since the BEMP EIS was written. The current scientific understanding regarding the transmission of prion agents and their methods of entry into the environment and subsequent spread through soils, plants and bodily fluids, etc was poorly understood back in the mid-2000's. EA fails to examine the issue of CWD in light of current understanding. This violates NEPA's 'hard look' requirements and is arbitrary and capricious.

The SDP fails to comply with 601 FW 3.

We attach two reviews of the disease issue, pertinent to the NER, Smith, 2005 and Peterson, 2005. We also request the NER review and incorporate its own Infectious Agents of Concern for the Jackson Hole Elk and Bison Herds: An Ecological Perspective." Report for the National Elk Refuge, Jackson, WY. Peterson, M. J. 2003.

The EA states that the goal of the SDP is "minimizing winter mortality in elk." EA at 15. But the EA and SDP are silent on the legal, regulatory and policy basis for this goal. It appears to have been manufactured by WGFD and swallowed whole, without examination, by the NER. As discussed early on, the adoption of a <3% winter mortality trigger to return to status quo feedlot operations appears to have been created out of thin air. The adoption of this arbitrary, unsupported and unnaturally low winter mortality level guarantees, in itself, a loophole whereby status quo feedlot operations can continue in perpetuity. Again, the adoption of this invalid assumption violates NEPA as well as renders the SDP arbitrary and unsupportable.

The EA, itself, admits to the arbitrariness of the loophole, when it states just 4 pages later that "The problem is compounded by unusually low winter mortality, which has affected predators and other species and has required intensive hunting programs to mitigate these impacts."

What is clear here is that WGFD has set a population objective that is far too high and the NER is the sucker, doing the WGFD's bidding by pumping out elk for the WGFD to sell tags to kill.

The NER has, for decades, ignored its own duties under law, regulation and policy in its supplication to the State of Wyoming. This EA and SDP show that this spineless deference continues unchanged.

On page 31 of the EA we see that "One of the primary reasons the refuge has engaged in supplemental feeding is to keep elk and bison on the refuge so they do not interfere with local cattle operations." Yet the EA is entirely silent on these "local cattle operations" actually are. There is no map of where they are located, number of livestock on these private lands and when or what actions have been taken to fence out these private lands. The EA and SPD also fails to examine if the NER has a legal duty to keep wildlife off private lands.

So the validity of the primary reason for the feedlot operations remains unsupported and unexamined.

On page 36, we were stunned to see the absurd and unsupportable assertion that “There are no irreversible or irretrievable resource commitments identified by this assessment, except for a minor consumption of fossil fuels for routine operations.”

CWD has exploded across Wyoming over the last 15 years. It is not a question of if CWD will enter these feedlot elk populations but when. Given the pace of expansion it is likely that CWD will enter these fed populations in the next few years, if they are not already incubating the disease. This pathetic SDP has no goal or timeframe to end artificial feeding with the result that it is extremely likely that CWD will enter this fed population while feedlot operations continue.

CWD entering a fed population is akin to a spark thrown into a pool of gasoline. The essentially permanent contamination of the GYE with infectious prions is the direct result of this pathetic SDP. That is the irreversible and irretrievable commitment being made by the NER’s capitulation to WGFD whims.

The EA fails examine this commitment that is made by the SDP. Further, the NEPA document is silent on how this wildlife crisis, aided and abetted by the NER, would not be a “significant impact” under NEPA requiring an EIS.

The EA likewise fails to examine the cumulative effects of the NER feedlot operations with the network of WGFD run feedlots throughout western Wyoming.

The assumption, articulated in the SDP and echoing throughout the EA that “Few options for manipulating elk hunting are currently available because the Jackson elk herd is at or near the 11,000 WGFD objective.” is false and unsupportable. This vitiates the entire analyses and plan.

The EA and SDP are silent on the issue of animal density. These two documents incorrectly conflate reductions in fed-days with reductions in animal density. The SDP fails to do anything to reduce animal density, which is the key factor in disease transmission.

The EA and SDP regularly hide behind “public support” but, as documented in the BEMP EIS, there is major public support for ending feedlot operations. “public support” is actually just code for WGFD’s veto power granted by the NER. The other loopholes for delaying action such as maintaining WGFD’s herd objectives has been determined by NER to make phase out impossible. That is arbitrary decision-making.

The EA and SDP also pretend that wildlife feedlot closures have never been attempted and that this is uncharted territory, as an excuse to put forward a plan that is “toothless” in the words of the Refuge manager and filled with do-nothing loopholes. Again, this fails the honesty and “hard look” requirements of NEPA. While Wyoming is the holdout on wildlife feeding after everywhere else has entered at least the latter half of the 20th century understanding of wildlife management, many other areas had extensive wildlife feeding operations which were shut down after it was understood how damaging these feedlot operations were. The failure to examine these successful examples of efficiently ending large scale feeding violates NEPA.

In the 12 out of 15 years, in the BEMP to phase out feeding, the NER has done virtually nothing to eliminate private land issues despite the admission that this is the central reason that feeding continues. The SDP continues on this decade of delay by, essentially, putting no resources into this problem. Without solving that problem, this will always be trotted out as an excuse to do nothing. That is a fatal flaw of the SDP.

Our review of materials obtained through FOIA show virtually no actions taken to address this problem despite the passage of over a decade.

The SDP admits as much when it states ““(W)e anticipate that (shortening the length of the feed season) will also result in an increase in elk conflicts on surrounding private land in the town of Jackson and the Spring Gulch areas, potentially including large groups of elk.” If you don’t eliminate these problems as the first step and the SDP continues its current loophole then, as by design, status quo feedlot operations will continue in perpetuity.

The EA and SDP are utterly silent on the budget allocations in the BEMP for conflict reduction actions. Again, this is a failure of NEPA’s ‘hard look’ requirement. In our years of FOIA’s for all documents related to the BEMP we have found no evidence that this money has been allocated or spent in the 12 years since the BEMP ROD was signed.

While the EA and SDP harp on the private lands conflict issue as an excuse and a loophole to do nothing, the documents are quite silent on what the conflicts actually are, at the site-specific level and fail to provide mapping of the conflict area or provide any actual information as to what actions have been taken since 2007. Again, this is a failure of NEPA’s ‘hard look’ requirement.

In closing, the foundational flaw in the SDP is a vague promise to have a “greater reliance” on natural forage, but this utterly fails to actually end feeding operations or significantly reduce density dependent disease transmission potential. As such, the SDP fails to implement the requirements of the NWRSA.

Thank you,

A handwritten signature in blue ink, appearing to read "Jonathan B. Ratner". The signature is stylized and cursive, with the first name "Jonathan" written in a larger, more prominent script than the last name "Ratner".

Jonathan B Ratner
Director – Wyoming Office



October 25, 2019

U.S. Fish and Wildlife Service
National Elk Refuge
Acting Refuge Manager Ketti Spomer
P.O. Box 510
Jackson WY 83001

Dear Acting Refuge Manager Ketti Spomer:

Introduction

On behalf of Wyoming Wildlife Advocates and our members in Wyoming and across the United States, please accept these comments on the Environmental Assessment (EA) for the Bison and Elk Management Step-down Plan for the National Elk Refuge (NER). The proposed action is for the NER “to begin to reduce supplemental feeding on the [NER] under a dynamic, structured framework as decided in the 2007 Bison and Elk Management Plan (BEMP) and associated Environmental Impact Statement (EIS)” (USFWS, 2019a). The goals of habitat conservation, sustainable populations, numbers of elk and bison, and disease management as stated by the BEMP are not met by the proposed action alternative. The current proposed action alternative does little to provide progress toward these goals and certainly maintains the status quo which endangers the health and perpetuity of the Jackson Hole Elk Herd.

1. Step-down actions need to be on a speedier timeline.

Considering that the original BEMP was released in 2007 with specific guidelines for reducing reliance on supplemental feed and we are now in 2019 with little to no progress, we suggest a quicker and more focused step-down plan that will immediately reduce densities of elk, not just lower the population. In light of chronic wasting disease (CWD) being found in mule deer directly adjacent to the NER to the north and south (Appendix A), the window of time until the disease reaches the NER is closing fast. Already brucellosis, septicemic pasteurellosis, psoroptic mange, necrotic stomatitis, necrotizing pododermatitis (foot rot), and helminth and lungworm parasitism are found at high levels of prevalence on the NER (USFWS, 2019a). These diseases kill scores of elk each year but are just a small factor of mortality compared to what the effects of CWD will be if allowed to reach high levels of prevalence (>5%).

2. Densities must be lowered in order to sufficiently lower disease transmission risk.

The EA states “Considerable evidence suggests that Chronic Wasting Disease transmission and prevalence are density dependent (Peters et al. 2000, Williams et al. 2002). Monello et al. (2014) found that elk densities of 15-10/km² (0.06 to 0.45/ac) in Rocky Mountain National Park were associated with 13% CWD prevalence, and they predicted elk population declines when CWD prevalence exceeded 13%. NER elk densities range from 77-16,850/km² (0.31-68/ac; NER unpublished data), which suggests that the introduction of CWD to NER elk would have significant negative population effects over time.” Further it states, “when current cow elk harvest levels are included as a source of mortality in the population, the model predicts that the Jackson elk population will decline at any level of CWD prevalence” (USFWS, 2019a). Considering that any level of CWD prevalence will have an impact on the population of the Jackson Hole Elk Herd, the above data suggests that CWD will likely have extremely significant impacts on the herd.

Chronic wasting disease is a density-dependent disease. Therefore, densities must be greatly reduced in order for the disease to stay at low prevalence levels. Simply reducing reliance on supplemental feed and continuing to feed up to 5,000 elk for fewer days each year for years to come as the plan calls for will not have the desired effects of one of the main goals of the plan which is to “Contribute to elk and bison populations that are healthy and able to adapt to changing conditions in the environment and that are at reduced risk from the adverse effects of non-endemic diseases” (USFWS, 2019b). Reducing the total population of elk will not lead to reduction in densities of animals congregated throughout the winter, especially if they are still being fed. The BEMP states that the strategy is “not to reduce the overall elk populations, but rather redistribute elk to native winter range” (USFWS, 2019b). This would seem impossible considering the current proposed action. Continuing to feed elk at levels of up to 5,000 individuals for the coming years (no timeline of how long it will take to have all elk off of supplemental feed) will definitely reduce the overall elk populations as disease sets in, prevalence rates increase, and elk continue to perish.

3. Irrigation of NER land still contributes to higher densities of elk similar to feedlines.

Irrigation of the NER for natural forage reserves sets up a similar problem as supplemental feed provides: attractants for elk which leads to unnatural congregations and high densities. Irrigation should also be scaled back to leave the NER in a natural state with a much more reasonable carrying capacity. This will provide for natural dispersal of elk throughout the Jackson valley and the Gros Ventre Mountains which will lead to lower risk of disease transmission by reducing densities. The current proposed action alternative in the EA does not provide for low enough densities in order to lower the risk of disease transmission.

4. Other species are suffering because of the severe degradation of the NER land.

The EA focuses on the impacts of the proposed action to other species and the BEMP specifically states, “(H)igh animal concentrations have...resulted in damage to and loss of habitat due to browsing of willow, cottonwood, and aspen stands and thereby reducing availability of these habitats to other wildlife” (USFWS 2019a&b). The overgrazing of both elk and bison on the refuge have left little in the way of habitat for other species such as song birds, beavers, fish, and small mammals. Streambanks have been denuded of vegetation leaving no cover for birds or fish and deteriorating the water quality by heightened erosion. In order to provide for all wildlife species, not just large mammals like elk and bison, the reduction of densities of elk must be expedited to begin the process of revegetation along Flat

Creek and in other part of the NER. Congregations of elk on natural forage does not lead to reductions in threats to other species and/or an increase in overall habitat quality.

5. Private landowner conflicts should not take precedence over the “wildlife first” mandate of the National Refuge System.

While we are not unsympathetic to surrounding ranchers who may see some conflicts with elk, we have at stake here the future of an iconic elk herd that has existed for hundreds of thousands of years and is a key component of the Greater Yellowstone Ecosystem: one of the largest intact ecosystems left in the world. The very few ranchers that continue to operate in or near Jackson Hole should be required to protect their forage reserves and haystacks from elk similar to what is required in other states. The Wyoming Game and Fish Department (WGFD) has money set aside for depredation of hay by elk and continues to help ranchers statewide. As of yet, the NER and the WGFD have done little to educate and prepare private landowners to implement mitigation measures to protect private forage reserves and haystacks. We’d like to see both of these agencies (with the potential help of NGOs) engage with landowners in order to proactively provide assistance to prepare landowners to be empowered to protect their own resources. This will be an integral part of the step-down process, especially if the NER follows our recommendations and institutes a quicker phase-out of feeding for the health of both the bison and elk herds and the habitat of the NER.

The EA states, “One of the main reasons for taking a slow, conservative approach to reducing reliance on supplemental feeding is the ability to monitor the response of elk and bison to the reduction, and implement sufficient mitigation measures to offset any impacts to local landowners and the local cattle industry.” With all due respect to the local cattle industry (a very small subset of citizens in the valley) and the NER, the NER is not responsible for continuing to endanger the health of native wildlife to support private industry. The National Wildlife Refuge System Improvement Act of 1997 (NWRISA) mandates that “each refuge shall be managed to fulfill both the mission of the Refuge System and the individual refuge purposes.” This serves to underscore that the fundamental mission of the Refuge System is wildlife conservation.” Further it states, “each national wildlife refuge...must be managed to...consider the needs of fish and wildlife first.” We ask that you put the needs of elk first and discontinue the feeding of this species within two to three years at most.

The BMEP provides for “several strategies [to] be employed to mitigate likely changes in bison and elk distribution, including providing incentives for non-breeding cattle operations, increased fencing in limited areas to separate elk and bison from livestock feed lines, hazing elk and bison away from livestock feed lines, and purchasing private lands easements or leases to prevent co-mingling” (USFWS, 2019b). These strategies can be effective but need to be implemented immediately and should have already begun when the original plan was produced in 2008.

6. Predators should be an integral part of a reduction in disease prevalence of prey species both inside the boundaries of the NER and outside considering that wildlife have large home ranges that overlap with both U.S. Forest Service land, National Park land, Bureau of Land Management land, private land, and the NER.

The NER “cooperatively monitors wolf populations with WGFD and Grand Teton National Park” (USFWS, 2015). Wolves are known to prey upon the sickest and weakest prey in order to reduce their risk of injury during hunting and secure resources for their continued survival. According to Dr. Doug Smith, lead wolf biologist with Yellowstone National Park, wolves key in on infirm animals and are

“predisposed, by instinct and learned behavior, to focus first on animals that are easier to kill rather than those living at the height of their physical strength” (Wilkinson, 2017). Krumm et al. (2010) found that mountain lions selectively sought out adult mule deer and could detect signs and symptoms of CWD in mule deer long before they showed any outwardly noticeable symptoms. In order to further reduce the prevalence of diseases in elk on the NER, wildlife biologists should be urging the WGFD to conserve native populations of carnivores like wolves and mountain lions. The liberal hunting seasons of wolves during both 2017-2018 and 2018-2019 in hunting areas adjacent to the NER have nearly eradicated wolves from the Gros Ventre mountains and the Teton Wilderness where a large number of elk that winter on the NER spend the summers. Wolf packs have been disrupted and are split resulting in less efficient hunting and fewer prey species consumed. The NER can take the lead on allowing native carnivores to inhabit the refuge and let natural predator/prey interactions occur. Communicating with the WGFD on the importance of predator species to disease mitigation in prey should be of utmost importance.

The BEMP states that wolves could be one of the “other factors outside of the scope of this plan” that “could reduce the effectiveness of the strategy” to have feeding delays extended to encourage a redistribution of elk and bison to native winter range” (USFWS, 2019b). Wolves increase the fitness of herds and should be properly recognized and managed as a benefit to the ecosystem instead of a potential hindrance to achieving the goals of the BEMP and the vision of the NER.

7. The NER should stop deferring to the WGFD when the Department is clearly not interested in fostering healthy herds by continuing to feed elk and set the population objectives for the Jackson Elk Herd too high.

An objective of 11,000 elk for the Jackson Elk Herd (JEH) is not sustainable given the carrying capacity of the land the herd currently inhabits, especially during the winter. According to the BEMP, “based on current elk distribution it is no longer possible to winter 5,000 elk on [the Refuge] and maintain 11,000 elk in the overall Jackson Elk Herd.” Why then is the NER agreeing to help achieve the herd population objective of 11,000 elk for the JEH when it contradicts the management directives for the plan? The JEH cannot be sustained at 11,000 animals without supplemental feeding. Therefore, as soon as possible the population objective for the herd should be lowered to accommodate for more natural dispersal and fewer elk overall wintering on the NER. Because “the proportion of the JEH that winters on the NER has increased in the past 2 decades” (USFWS, 2019b), the NER has great interest in lowering the JEH population objectives and should be working with the WGFD to do so. This could be achieved through increases in hunting licenses and allowing natural mortality to occur including from predation by native carnivores.

8. Natural elk mortality rates should be allowed to occur on the NER just as they are within the National Parks and other public lands in Wyoming.

All wildlife experiences natural mortality due to winter severity, forage availability, habitat quality, predation, and disease. The BEMP points out that “Yellowstone National Park suggested an average elk calf winter mortality of 28%, with the majority of cases caused by malnutrition (Singer et al. 1997). Similarly, Smith and Anderson (1998) found unfed winter elk calf mortality of 29% compared to 11% for elk calves using feeding grounds.” However, the plan states that any mortality that exceeds 3% may trigger “adaptive management.” If Yellowstone is considered an ecosystem with elk dispersing naturally and mortality rates are around 28% for calves, why wouldn’t that same level be allowed to exist on the NER with naturally dispersing elk? In the outreach topics (Appendix C) (USFWS 2019b), it is stated that a

communication goal is to explain the goal of “[c]hang[ing] elk behavior and distribution while avoiding increased mortality.” However, above that in Appendix A it is stated that “Average winter mortality on the refuge would increase from 1%–2% annually to an estimated 1%– 5%.” This seems to be conflicting information that is still ecologically incorrect as naturally occurring elk herds without supplemental feed have mortality rates of up to 28%. In the above statement, even elk on feedgrounds have up to 11% mortality rates. What is the true level of mortality that is acceptable for elk calves wintering on the NER? Anything less than 10% seems to be highly unreasonable and unrealistic based on the observed natural mortality rates in other elk herds.

Conclusion

In light of the imminent threat of CWD infecting the JEH and being found on the NER, the USFWS needs to act expediently to phase out all supplemental feeding of elk and bison. It’s been longer than 10 years since the BEMP was produced with little progress toward the stated goal of reducing reliance on supplement feed for bison and elk. Reduced reliance on feed is not going to be enough to sufficiently mitigate the effects of diseases on the JEH. The population objective of 11,000 animals is too many to begin with and will be completely unrealistic if prevalence rates of CWD increase to 10-20% in elk on the refuge. The NER and all National Wildlife Refuges have a mandate to “ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans” as per the National Wildlife Refuge System Improvement Act. Continuing the current paradigm of artificially feeding elk populations that are much too high for the carrying capacity of the land does not meet this mandate. If the JEH is infected with CWD at rates of up to 20% or more, what kind of legacy is this leaving behind for future generations of Americans, or future generations of elk? The USFWS has a responsibility for the National Elk Refuge to make sure that it is fostered in perpetuity in a healthy state for current and future generations. The USFWS must comply with legal directives and implement changes in current management in short order to ensure this national treasure is properly stewarded.

Sincerely,

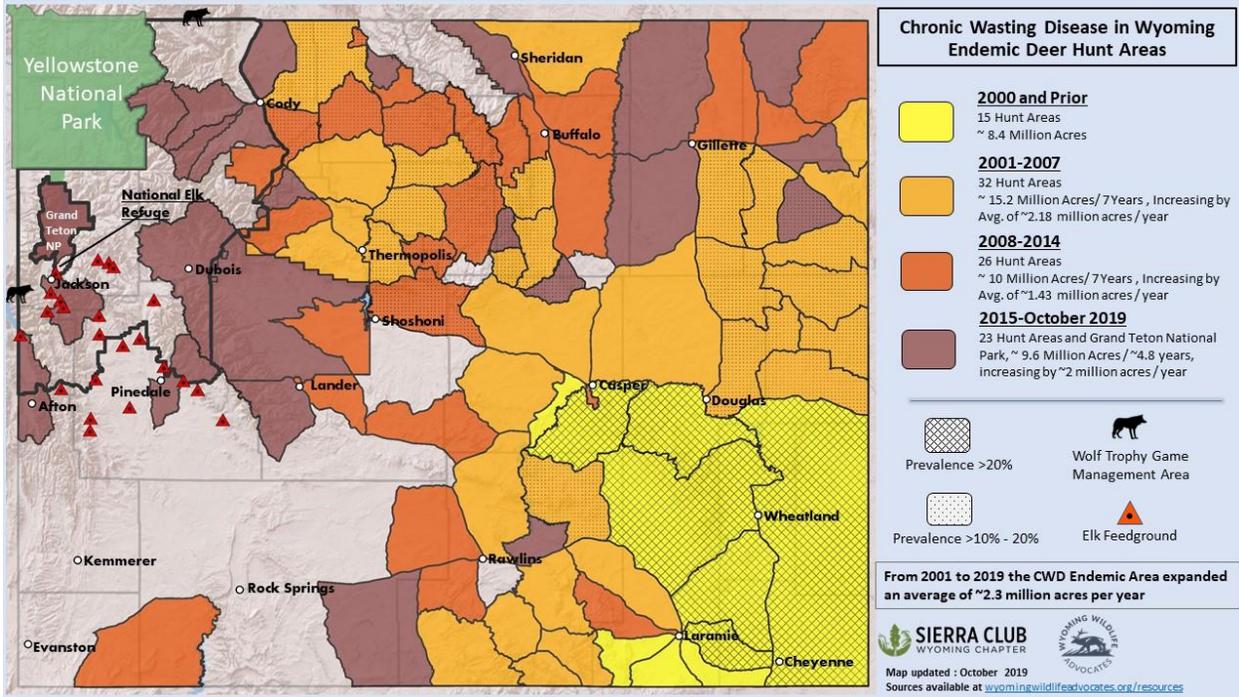


Kristin Combs
Executive Director

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Appendix A





JACKSON, WYOMING
www.mtnpursuit.org

October 29, 2019

To: National Elk Refuge

Fm: Rob Shaul, Mountain Pursuit

Subj: Comments to the Environmental Assessment for the Bison and Elk Step Down Plan

Sir/Ma'am,

Mountain Pursuit is a new non-profit (501 (c)(3)) hunting advocacy organization headquartered in Jackson, Wyoming.

We strongly support the *No Action Alternative* for the Environmental Assessment for the Bison and Elk Step Down Plan.

Our primary concern is elk herd health, which is best measured by population.

All big game in Teton County are under threat from rapid community growth, rapid real estate development, increased traffic, increased backcountry recreation, industrial front country recreation, and climate and other factors.

As a result, Each of the six non-bison big game herds in the Jackson region are below the Wyoming Department of Game & Fish Population Objective accord to the agency's 2018 Job Completion Reports:

Herd	Population Objective	2018 Population Estimate	Percent Below Objective
Jackson Elk Herd	11,000	9,627	-12.5%
Fall Creek Elk Herd	2,200	1,867	-15.1%
Jackson Moose Herd	800	258	-67.8%
Jackson Big Horn Sheep Herd	400	363	-9.2%
Wyoming Range Mule Deer Herd	40,000	30,200	-24.5%
Sublette Pronghorn Herd	48,000	37,500	-21.9%

One of the goals of the step down plan is to manage elk numbers in accordance with the Game & Fish population objective of 11,000 for the Jackson Elk Herd. However, the Environmental Assessment acknowledges that the Jackson Elk herd population has recently declined from 13,000 animals to the current 9,627 estimate without any reduction in feeding.

Mountain Pursuit believes any reduction in feeding will further reduce Jackson Elk Herd numbers, likely result in elk deaths from starvation, and not be in accordance with the goal of the Step Down Plan to maintain the 11,000 elk herd population objective.

We are also concerned that in addressing this decreasing population issue, the Step Down Plan does not clearly acknowledge a likely outcome of a significant reduction of the the Jackson Elk Herd Population.

The Step Down Plan seems to indicate that this is acceptable, and will be managed by “adjusting’ the Jackson Elk Herd Population Objective down. See below from the plan:

“If efforts to encourage increased use of native winter range are unsuccessful, agencies will collaborate with the WGFD in the public process of reviewing and adjusting the future Jackson elk herd population objective. “

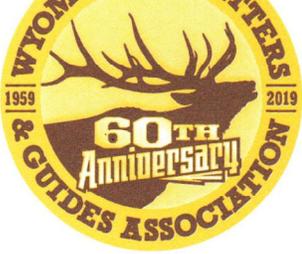
Again, Mountain Pursuit is strongly against any action which will reduce Jackson Elk Herd numbers, which are already declining (for 7 years) and below the current population objective.

CWD: While we understand and appreciate the threat from CWD to western-Wyoming’s elk herds, and the increased damage the disease could cause possibly due to feeding on the National Elk Refuge, the fact is little is known about how this disease spreads and it’s ultimate impact on Elk in western Wyoming. We know feeding reduction will reduce elk numbers. We don’t know if and how CWD will. Overall, we feel reducing feeding to combat the spread of CWD is a red herring argument - especially given that environmental groups have argued to eliminate feeding long before CWD was a threat.



Respectfully,
Rob Shaul
President, Mountain Pursuit
rob@mtnpursuit.org
307 200 1968





October 30, 2019

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Ketti Spomer
Acting Refuge Manager
National Elk Refuge
675 E. Broadway
Jackson, WY 83001

**RE: U.S. Fish and Wildlife Service Draft Environmental Assessment
Bison and Elk Management Step-Down**

Dear Ms. Spomer:

On behalf of the Wyoming Outfitters & Guides Association, we would like to take this opportunity to express our thoughts and concerns regarding the draft Step-Down Plan for Bison and Elk Management on the NER that was recently presented for review. Please see our comments below:

- It's imperative that the Jackson elk herd that winters primarily on the NER maintain its population of 11,000 elk. There are a greater number of predators i.e. grizzly bears and wolves than there was 12 years ago when the EIS was written. The Jackson elk herd is key in providing a prey base for the stability of the grizzly bear population.
- The NER is subject to significant snow crusting and depth, which makes natural forage unavailable on many years. Climate change is playing a role in weather patterns affecting the availability of natural forage on the NER. This lack of available forage makes it essential to have a feeding program in place on the NER into the future.
- Winter range outside of the NER can be inadequate on many years. Wolf predation often causes the elk to seek refuge on the NER, thus increasing the number of elk that need to be fed.
- CWD does not currently exist in the Jackson elk herd.
- The step-down plan as presented will not be adequate to maintain the herd objective of 11,000 elk as set by the Wyoming Game and Fish Commission. Failure to properly feed elk on the NER will expose these animals to private lands and push them into other state feed grounds.

In closing, we strongly urge the U.S. Fish and Wildlife Service to set aside the EA and write an entirely new EIS. The original was written 12 years ago and is not relevant to the actual factors affecting the bison and the Jackson elk herd.

Sincerely,



Sy Gilliland, President for WYOGA

cc: Governor Mark Gordon
Brian Nesvik, Director, WG&F
David Rael, President WG&F Commission
Senator John Barrasso
Senator Mike Enzi
Congresswoman Liz Cheney
Senator Ogden Driskill
Representative David Miller



[EXTERNAL] NER Step-down Plan

1 message

Robert Wharff <rawharff@gmail.com>
To: nationalelkrefuge@fws.gov

Wed, Oct 30, 2019 at 2:39 PM

In behalf of our organization, Wyoming Sportsmen for Fish and Wildlife (WY SFW), I am responding to the National Elk Refuge Step-down Plan (EA).

Wyoming's Sportsmen have long stood in support of Wyoming being the best source for wildlife management.

WY SFW is in support of Alternative A. No Action Alternative.

While there are some who continue to share the message that Chronic Wasting Disease (CWD) is catastrophic, there is no evidence that supports these claims.

There has been no area which has seen whole scale elimination of deer, elk or moose from CWD that has occurred in the wild.

The basis for our support of Alternative A, No Action Alternative, is that history has already shown that when conditions exist that require elk to receive a supplemental offering, they must receive it.

Under the current process, elk do not receive any supplemental feed when conditions are such that elk are able to winter out on their own. Historically, this has seldom happened but when they occurred, no supplement was provided.

More often than not, conditions exist which require supplemental feed to be provided. The historical records clearly demonstrate this to be the case.

All other Alternatives will only increase the cost of the supplemental elk feeding program and places Wyoming's wildlife resources at risk of starvation and serious disease issues. The supplemental feeding program has allowed elk to maintain their overall fitness while allowing other ungulate wildlife species free reign on the use of what very limited winter range exists in Teton County. Starving elk will result in increased conflict with private landowners, add stress to the limited amount of winter range available for other competing wildlife species, further increase the spread of disease which are normally present in wildlife populations but not exhibited by healthy wildlife.

Furthermore, eliminating the supplemental feeding program, for which the NER was created, would have cascading impacts on the State of Wyoming and significantly reduce the number of elk and other ungulates available for hunting and viewing in Wyoming. This would bring with it significant economic impacts to Wyoming's hunting activities and the tourism industry. It would also severely impact the ability of the Wyoming Game & Fish Department to effectively manage Wyoming's wildlife and would have a significantly negative impact to their budget.

Please accept our comments regarding the Step-down plan and take the No Action Alternative.

Respectfully,

Robert Wharff
Executive Director
Wyoming Sportsmen for Fish and Wildlife