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August 31, 2023

Wyoming Game & Fish
Department Headquarters
5400 Bishop Blvd.
Cheyenne, WY 82006

Subject: Draft Wyoming Elk Feedgrounds Management Plan

Dear Steering Committee:

During summer of 2023, the Wyoming Fish and Game Department released the Wyoming Elk Feedgrounds Draft Management Plan (WEFDMP) for comment. This is an issue that the Gallatin Wildlife Association of Bozeman, Montana has litigated and commented on for the last several years. This issue involves 22 winter elk feedgrounds in Teton, Lincoln, and Sublette counties; the National Elk Refuge, outside of this purview, makes 23 feedgrounds on public lands.

The continuation of supplemental feeding of wildlife is an issue that should be openly discussed by all state citizens as well as those interested parties of adjoining states for the practice circumvents long-held wildlife management practices. The Gallatin Wildlife Association believes there are ethical, philosophical, and conservational principles at stake. Because of this, in the world of ecological sciences, we know that negative actions will directly or indirectly begat more negative actions. For this reason, we believe GWA has an obligation to submit our comments as follows.

Gallatin Wildlife Association (GWA) is a local, all volunteer wildlife conservation organization dedicated to the preservation and restoration of wildlife, fisheries, habitat and migration corridors in Southwest Montana and the Greater Yellowstone Ecosystem, using science-based decision making. We are a nonprofit 501 (c) (3) organization founded in 1976. GWA recognizes the intense pressures on our wildlife from habitat loss and climate change, and we advocate for science-based management of public lands for diverse public values, including but not limited to hunting and angling.

The Greater Yellowstone Ecosystem:

The Greater Yellowstone Ecosystem (GYE) is reportedly one of the last remaining large and nearly intact ecosystems of the northern temperate zone on Earth. Many references (too many to mention) state that fact exactly that way. The landscape covers 2.2 million acres[1] (34,375 square miles) covering parts of Wyoming, Montana, and Idaho,

encompassing two national parks and five national forests. The map below from the WEFDMP indicates the location of existing feedgrounds and their relation within the GYE.

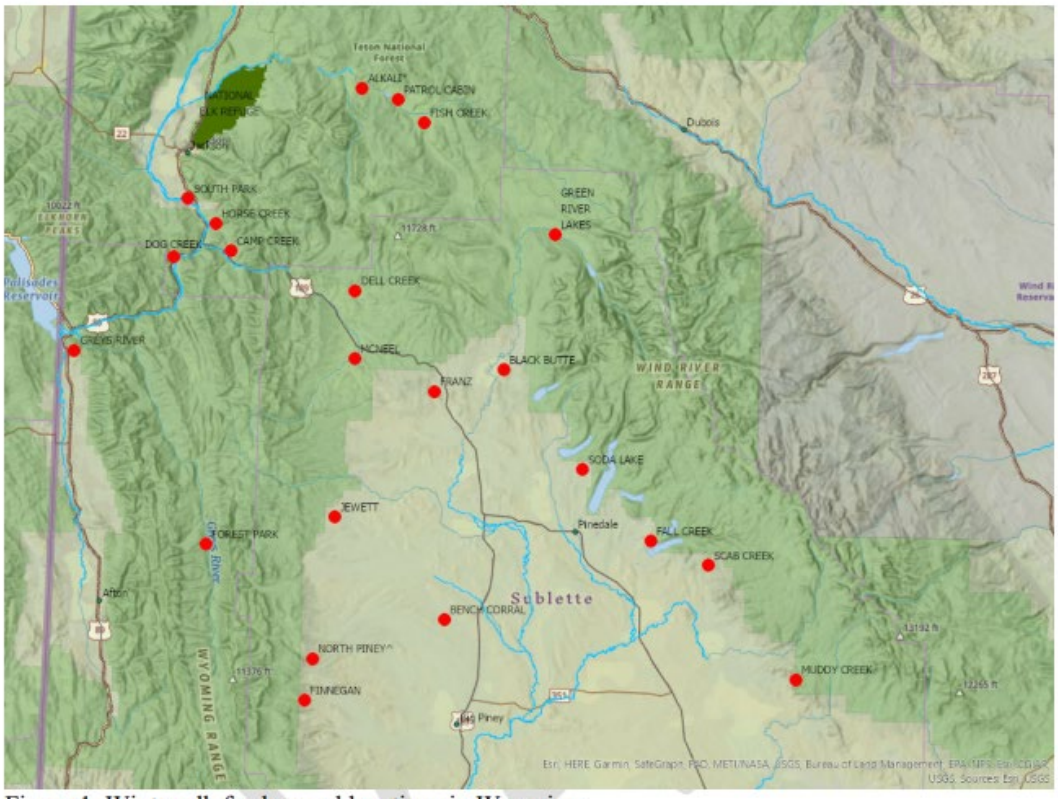
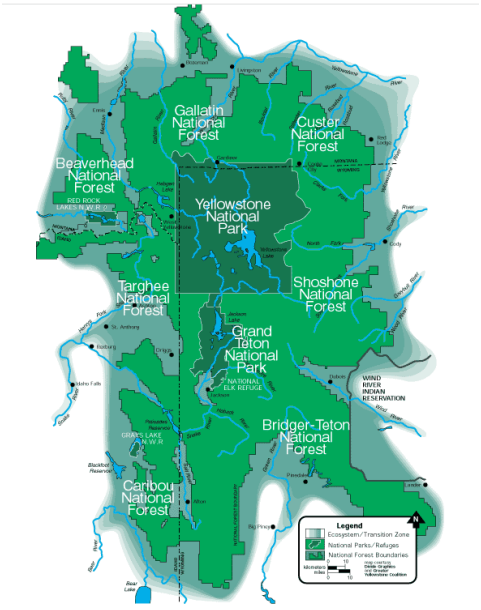


Figure 1. Winter elk feedground locations in Wyoming.
**The Alkali feedground was converted to emergency feeding only 2020-2024 and then will be terminated.*



Map of The Greater Yellowstone Ecosystem

Source: http://www.greateryellowstone.org

As shown in map of to the left, the GYE as depicted by the dark green[2]. The map above highlights existing feedlots as red dots. The map above encompasses nearly the southern half of the totality of the GYE.

Wildlife management of this portion of the GYE impacts a significant portion of the ecosystem. A large enough land mass that deserves comments from the entirety of the surrounding population of three western states.

As the message from the Director stated:

"Wyoming is blessed with incredible wildlife resources, vast landscapes and some of the healthiest big game herds in the world."

There might be a reason for that, but more on that in coinciding comments. But as we can see, these elk herds don't just belong to Wyoming; the resource is part of a much larger landscape. Wyoming Fish and Game Department may be charged with managing these herds, but the wildlife belongs to a much larger entity, an entity unto themselves and the land inside and outside the boundaries of Wyoming.

The Assertion that Science Supports Feedground Management:

GWA finds fault with the premise stated in the WEFDMP that science, not to mention, the best available science, supports supplemental feeding of wildlife, a promulgation of this plan. Several quotes, those listed below, are an example of the statements found in the excerpts of text in the WEFDMP. They highlight this assertion. GWA, an organization that strives to use science in our advocacy, challenges this premise.

> ***Message from Director***
>
> *"This plan was developed with significant input by stakeholders and takes a responsible and reasonable approach to feedground management by using the best and newest science."*
>
> *"Wyoming has a long-standing, successful track record of handling complex problems in an inclusive manner informed by science."*
>
> ***Executive Summary***
>
> *This plan was developed under the North American Model of Wildlife Conservation tenant that scientific management is the proper means for wildlife conservation. The best available science relevant to the topic is voluminous and generally corroborative with existing management. However, current management practices have artificially bolstered elk densities, which has current and future negative consequences for wildlife health due to elevated disease transmission.*
>
> ***Goals and Purpose***
>
> *As the Department looks toward our long-term objectives to combat disease, we must constantly look for opportunities to incorporate new ideas and current science into elk management in a way that will allow for the conservation of elk populations while reducing disease impacts.*

We simply ask, where is the wildlife science that supports the contention that operating a feedground is more beneficial for wildlife than having them partake of natural forage in their own habitat? We have found science admitting supplemental feeding can be beneficial to wildlife and man in some coexistence scenario, but not to any specific species itself, and certainly not to an ecosystem overall. If anything, we have found science admitting the controversy of supplemental feeding and questioning the rationale for it. But this brings us back to the belief GWA stated above - there are ethical, philosophical, and conservational principles at stake. What is the reason for the supplemental feeding – not the political rationale, but the science for it?

In the Abstract of the following online Science Direct magazine, a scientific article entitled, "*Behavioral correlates of supplementary feeding of wildlife: Can general*

conclusions be drawn?" by Sam M.J.G. Steyaert[3], et al, perhaps this article is the closest we could find that stipulates there are benefits to supplemental feeding.

> *"Supplementary feeding is a common, but controversial, tool in wildlife management, because it can benefit both humans and wildlife (e.g., increased wildlife densities), but has certain downsides (e.g., increased disease transmission). For species that are often involved in human-wildlife conflicts, two opposing paradigms with respect to supplementary feeding exist, i.e., (i) that supplementary feeding is efficient to lure animals away from undesired places (i.e., diversionary feeding; hypothesis 1), and (ii) that supplementary feeding stimulates 'nuisance' behavior (i.e., increased tolerance for humans and selection for human facilities; hypothesis 2). We formulated an alternative hypothesis (hypothesis 3); i.e., that behavioral variation among individuals dilutes population-wide, general patterns with respect to supplementary feeding."*

Moving on into the Introduction of the article:

> *"Supplementary foods are provided to wildlife wherever humans and wildlife coexist (Beckmann & Berger 2003), either intentionally for management or recreational purposes, or unintentionally, for example as garbage. Supplementary feeding can influence wildlife behavior (e.g., movement patterns, reproductive strategies), demography (e.g., population growth), and life history (e.g., reproduction), and may alter community structures (e.g., species diversity) (Boutin, 1990, Robb et al., 2008). These potential influences can be applied to wildlife management and conservation. For example, supplementary feeding is used to increase the productivity and density of wildlife populations (Boutin 1990), or to support the recovery of endangered species, such as the kakapo (Strigops* habroptilus*) (Clout, Elliott, & Robertson 2002), or the Iberian lynx (Lynx pardinus) (López-Bao, Rodríguez, & Palomares 2008). Supplementary feeding is often used to redistribute wildlife populations (i.e., diversionary feeding) to reduce forest damage (Ziegltrum & Russell 2004) or traffic collisions (Rea 2003). Supplementary feeding is also applied for recreational and hunting purposes, i.e., to attract elusive species to specific places for observation or harvest (i.e., baiting) (Bischof, Fujita, Zedrosser, Söderberg, & Swenson 2008) or to improve trophy size (e.g., antlers in Cervidae) (Putman & Staines 2004)."*

The above state the reasons why supplemental feeding may exist, but they certainly don't condone the case for it. And they certainly don't address the ethical or conservational rationale for feedgrounds in Wyoming. Whether the reason is to improve trophy size individuals for recreational hunting, or to redistribute wildlife populations away from cattle herds for the sake of controlling disease from wildlife, or for increasing the population beyond acceptable limits, these are all manipulations by man on a wild herd for ulterior purposes. Is this really wildlife management or is it just wildlife manipulation for the benefit of man. There is a difference. This science does not approve of such action, but science stating why it is being done. The next paragraph states the undesirables.

> *"However, supplementary feeding can also have undesired effects on wildlife and habitats (Boutin, 1990, Robb et al., 2008), and is therefore considered as a controversial practice (Putman & Staines 2004). Undesired potential effects include elevated risk for disease transmission or parasite burdens (Putman & Staines 2004), altered sex ratios (Clout et al. 2002), potential risks to human health (Kavčič, Adamič, Kaczensky, Krofel, & Jerina 2013), concerns about selective harvest at bait sites (e.g. when certain sex and age classes make disproportionate use of bait sites) (Bischof et al. 2008), increased interspecific predation (Cortés-Avizanda, Carrete, Serrano, & Donázar 2009), and habitat degradation (Putman & Staines 2004). An additional concern is that animals may relate supplementary feeding with*

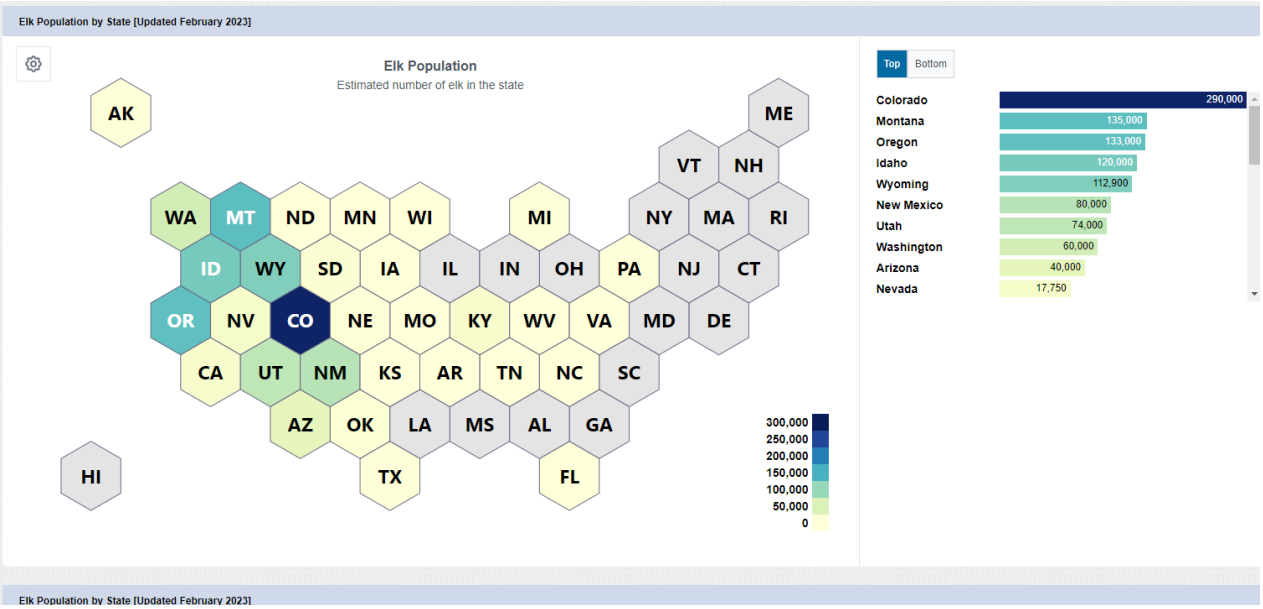
humans (i.e., become food-conditioned) and lose their 'normal' wariness (i.e., habituation) towards people (Woodroffe, Thirgood, & Rabinowitz 2005). Animals with increased tolerance towards humans may become a 'nuisance', and can—dependent on the species—be a threat to human safety. Such species include elephants (O'Connell-Rodwell, Rodwell, Rice, & Hart 2000), bears (Elfström, Zedrosser, Støen, & Swenson 2014), felids (Saberwal, Gibbs, Chellam, & Johnsingh 1994), and canids (Orams 2002). The potential to condition animals on certain foods and/or habituate them to humans also highlights the fact that supplementary feeding may cut both ways as a management tool, and raises the question: does supplementary feeding facilitate nuisance behavior, or can it efficiently redistribute wildlife in relation to humans?"

So once again, it comes down to the question, why is it being done? We found the best answer on page 9 of the WEFDMP.

"Elk were held in certain areas to control distribution, reduce conflicts, and feed was provided based on the nutritional needs of elk.

The goals of providing supplemental feed to elk during winter remain similar to when feedgrounds were initially established; feedgrounds reduce the potential for the starvation of elk (especially calves), elevate elk numbers beyond what available native winter ranges could support and help control elk distribution during winter to reduce damage to stored crops, elk-cattle co-mingling occurrences, and elk-vehicle collisions."

First question, do we really think that supplemental feeding of elk is more nutritious than what the natural landscape can provide? We seriously question the need for such elk management. Note the adjacent states of Colorado (Colorado, a state which has nearly 2.6 times more elk than Wyoming) and three other states, states which also have a higher population of elk than Wyoming have no supplemental feeding of elk, and yet, they have the same issues as Wyoming.



We must conclude then that elk is being subjected to supplemental feeding not for the benefit of the elk, but for the benefit of mankind, for the benefit of the wants and wishes

of an anthropogenic society. And for that, we cannot condone. Science does not support that rationale.

The Politicization and Manipulation of Wildlife:

With the absence of science support for feedground management, we must look at other aspects in mind to explain the need for supplemental feeding. One would think the natural objective would be to return elk back to the wild, not make them dependent upon society for feeding. But that is not happening. **Messages from the Director** and the **Executive Summary** paint a different picture.

Message from Director

"This plan is intended to chart a long-range path for feedground management."

"This plan creates a process and venue to discuss and analyze ways to reduce our reliance on supplemental feeding in places where it's feasible, and in a way that protects the values and objectives feedgrounds achieve today."

Executive Summary

"Thus, the Plan outlines the process for developing elk herd level Feedground Management Action Plans (FMAP). The goals of the FMAPs are to maintain cervid health by limiting disease transmission while providing supplemental feed and reduce or eliminate reliance of elk on supplemental feed over the long term."

There seems to be a conflicting mission as stated in these sections of the WEFDMP. On one hand, they hint at the need to reduce or eliminate the reliance of elk on supplemental feed, but on the other, they plan to chart a long-range path for feedground management. We ask, which is it?

On page 7 of the WEFDMP, there is this following passage:

> *"This Plan provides overarching long-term guidance and direction for the Department to manage elk populations that utilize winter feedgrounds in western Wyoming."*

This plan does not ensure the phase out or even the need to phase out elk feeding grounds over the long term. For on page 3 in the Message from the Director, the plan explicitly states the following:

> *"It (meaning this plan) is not a feedground closure plan".*

This simple statement condemns any forward progress on phase-outs and closures. The wordsmithing back and forth between reducing the reliance of elk on feeding grounds and protecting the value and objectives of feedgrounds creates confusion for stakeholders and the general public. One thought seems to be clear, however, there is no real long-term plan to phase out or to close the feeding grounds. For if that were to be the case, now is the time to begin implementing those plans, but instead the WEFDMP perpetuates the process. GWA believes this is a missed opportunity, one that needs to be taken advantage of, but one missed just the same.

Instead, the state of Wyoming has politicized the issue of feeding grounds. Instead of making it easier and less cumbersome, the state of Wyoming has made the process more complicated by adding politics to the equation. For now, as stated on page 12, the following is stated:

> *"Under W.S. 23-1-305, feedgrounds can only permanently cease operations upon order of the Governor. To close a feedground, the Commission is required to concurrently provide its recommendation to the Governor and Wyoming Livestock Board. Under this statute, the livestock board will provide its opinion to the governor on whether the board believes the closure of the elk feedground is appropriate."*

Then we were shocked to find the following statement on page 12 of the WEFDMP.

> *The Commission recognizes the importance of supplying supplemental feed to elk at existing State feedgrounds and the NER and recognizes that without such feeding, the elk populations would have to be decreased to levels that could be supported by the limited native range forage.*

This is just **shocking, stunning**. GWA must strongly disagree with the purpose of supplemental feeding used by the state of Wyoming. Given the fact, this is one reason stated in the science above as to why societies may justify supplemental feeding, we have to ask to what end? Why would the state of Wyoming intentionally upset the balance of the well-respected ecosystem? To gain more tourist/hunters to visit the state, for more out of state money, to increase hunting opportunities?

This is an appalling set of manipulations of a natural system. And to think this is being done in one of the most diverse, vibrant, and intact temperate zone ecosystems on earth. The state of Wyoming is intentionally manipulating and manufacturing the population of elk to feed the appetite of the hunting community? This is a vicious cycle that the state of Wyoming has precipitated, one that again, GWA cannot condone. This is an ecological nightmare being run by the state of Wyoming. It is unethical, unscientific, and provides a good example of why states should not be managing wildlife.

Further on page 12 of the WEFDMP, there are these statements that provide a legal basis for action taken.

> *"The Department is statutorily charged with managing and protecting all Wyoming wildlife (W.S. 23- 1-103) and the Commission is directed and empowered to make suitable provisions for the feeding of elk as may be deemed necessary (W.S. 23-1-302(a)(ix))."*
>
> *"While the Commission has the statutory authority to feed elk, the Department is directed not to develop and operate any additional feedgrounds without pre-approval. The supplemental feeding of elk and wild bison is outlined in Commission policy (Wyoming Game and Fish Commission Policy VII D July 13, 2006)."*
>
> *"The Commission directs the Department to provide adequate supplemental feed to support healthy and productive elk at State-operated feedgrounds and work*

cooperatively with the USFWS to provide adequate feed to support healthy and productive wintering elk/wild bison on the NER."

GWA believes there is an obvious contrast in the statute as written. The charge to protect and manage all Wyoming wildlife appears in contradiction to the Commission being directed and empowered to make decisions to provide provisions to feed elk. Isn't this an oxymoron? The artificial feeding of any species to the degree that is above and beyond the normal carrying capacity of their natural range is not based upon science or ethics; therefore, it is not managing, or protecting the species. GWA believes the statutes as written have seriously missed the mark of using the best available science in wildlife management, let alone in wildlife protection.

Elk Herd Ecology and Management:

It was enlightening to see the following admission on page 14 in the WEFDMP:

"Upon settlement and associated human development, conversions of native habitats to crops, and the importation of domestic livestock all likely contributed to the cessation of long-distance migrations of elk in western Wyoming by the early 1900s."

GWA states that for one reason. It is good to see the acknowledgement human development has converted much of the native landscape over to anthropogenic uses, depriving wildlife from their native habitat. There must be an acknowledgement of the obvious before management places the corrective policies in place. But we emphasize acknowledgement is only the first step, there must be an understanding and appropriate knowledge of applied sciences in our management. This WEFDMP barely recognizes the former.

There seems to be an obsession with maintaining population objectives of elk. As stated on page 14 and on the following page 15

"Field managers review all Wyoming big game herd population objectives every five years. If an objective change is proposed, public meetings are held in the region, and then Commission approval will be sought.

Wildlife managers are responsible for setting and maintaining elk population objectives in their respective regions, and hunting has been the primary management tool used to meet population objectives."

The latter quote above was captured under the title **Elk Harvest Strategies**. It is easy to gain the opinion after reading this far into the WEFDMP, the sole purpose of all the manipulation of elk is twofold:

1.) To increase the population of elk for hunting opportunities.
2.) To redistribute elk populations from lands associated for domestic livestock grazing.

The latter quote above also states the obvious:

"hunting has been the primary management tool used to meet population objectives."

Predator-Prey Relationship: This explains why the state of Wyoming has demanded the delisting of wolves and other predators, because the state does not want to see predation upset the so-called management of wildlife.

"Since the reintroduction of grey wolves into the GYE in 1994, their interaction with and impacts on elk populations have been of considerable interest to wildlife managers throughout western Wyoming.

Wolves frequent elk feedgrounds during winter months, and variable levels of predation are documented annually. Wolves can displace elk to and from feedgrounds. In some cases, this displacement is temporary, while in others, it has been a long-term trend. For example, elk have historically frequented three feedgrounds in the Gros Ventre drainage. Increased wolf presence since the early 2000s resulted in elk abandoning two feedgrounds and only frequenting one feedground in large aggregations during some winters."

What is being described above is known as your typical predator-prey relationship, a typical relationship found in nature. However, the state of Wyoming is so ingrained with this idea that "*wolf predation is bad and harvesting by hunters is good";* there is very little room for natural processes to play out. Perhaps this is a harsh and oversimplification of reality on the ground, but the sentence below truly highlights the root of the problem; the Wyoming Fish and Game Department is being manipulated or managed by the livestock industry.

"A change in elk and wolf distribution could complicate private livestock operations with additional predation on livestock in the vicinity."

This provides proof there is more concern over the role the livestock industry has on public lands in Wyoming than the role public land is supposed to serve the multifaceted functions the Multiple Use -Sustained Yield Act of 1960. All of this manipulation of the elk population, for what we will call selfish purposes, has created a vicious cycle of endless interference of the predator-prey relationship, spread of disease, and above normal mortality level of a species in one of the most famous and intact temperate ecosystems in the world.

Concerns of Social and Economic Values:

The first sentence in this section of the WEFDMP makes an underlying assumption that is not true.

"Elk populations in western Wyoming are managed with the use of elk feedgrounds to support current population numbers. The current social and economic benefits of feedgrounds are of value to all wildlife interests."

The fact that the state of Wyoming admits they are using feedgrounds to support current population numbers may be true, but that statement alone underlies the totality of the problem of wildlife management in Wyoming. This is not wildlife management, it is wildlife manipulation, plain and simple. It is the second sentence that constitutes the falsehood. GWA will go on the record and state that feedgrounds are not of value to our organization or our membership.

GWA seeks elk to be a species with an inheritable right to the landscape; a species that fulfills its place in the ecosystem without manipulation of man and a species with an intrinsic value unto itself, bestowing biodiversity and biological integrity to the landscape. Our goal is to see maximum elk populations based upon the sustainability of the native habitat and forage without environmental degradation. In other words, GWA would like to see elk fulfill their ecological niche. This is something that is not happening now. This would be of value to GWA and our membership.

We noticed much of the time and verbiage in this section of the WEFDMP is spent on talking about the number of hunter days, number of outfitters, not to mention the dollars generated. It is obvious Wyoming is concerned about the amount of revenue dollars the hunting industry brings into the state. We're sure other states have the same concern and track that industry much like Wyoming. But perhaps Wyoming is obsessively so.

Wildlife Related Tourism - non-consumptive uses: GWA has long said that state fish and game departments (across this country) need to listen more to those outside of the outfitter and hunting interests. For fish and game agencies work for the non-consumptive user as well. Their mission usually contains goals that the general public support, not just the hunting community. The non-consumptive user has a voice, and their voice should be heard in the management of wildlife, no matter the state. In this case, the WEFDMP provides a small little paragraph to this topic.

> *"Tourism in Wyoming is an important financial resource in Wyoming, and wildlife-related tourism is no exception, especially in western Wyoming. Wildlife-related tourism brings substantial funding and jobs to Wyoming (Taylor 2017). When combined with hunting and fishing, wildlife-related tourism contributes an estimated 9,600 jobs, $788 million in expenditures, and a total economic benefit of up to $1 billion in business activity (Taylor and Foulke 2016). Wildlife-related tourism accounts for about half of the aforementioned revenue and jobs added to the state's economy."*

The state should learn from this factoid. There is just as much revenue to be gained in promoting the non-consumptive uses of wildlife viewing and preservation that those uses that are not. The state is taking a risk in their elk feedground management plan, a risk in further spreading of disease that could adversely affect not only elk but other species in the ecosystem.

Agricultural Operations: Page 17 describes the concern the agricultural industry has with elk. That concern stems from the spread of disease, but also includes, as stated below, damages to private property. The threat of disease will be discussed shortly, but it is obvious the livestock concerns are driving much of the policy of feedground management.

> *"Wyoming Statute § 23-1-901 and Commission Regulations, Chapter 28, require that the Department investigate and consider damage to land, growing agricultural crops, stored crops, seed crops, extraordinary damage to grass and/or improvements such as fences and windbreaks caused by big game animals, and provide a means to compensate landowners for verified damage claims."*

> *"Department personnel dedicate a significant amount of time to reducing and/or preventing damage caused by elk and co-mingling of elk and cattle. Brucellosis*

transmission concerns related to elk/cattle co-mingling are precisely addressed and strictly prohibited during winter months in local producers USDA APHIS VS livestock herd management plans and thus require immediate Department mitigation and is a greater concern than traditional crop damage."

It is interesting the state of Wyoming is so overly concerned about the comingling of elk with livestock and all the other damages that might entail from an over population of elk, yet they are promoting the very same actions that increase the population of elk. How do you reconcile that?

"When elk damage does occur, significant resources, including manpower, equipment, and associated costs, can be directed at mitigating the situation. Methods employed include hazing elk away from the damage/co-mingling situation (sometimes to a nearby elk feedground), emergency feeding of the offending elk to provide separation between elk, livestock, and livestock feed, and lethal removal of offending elk. Wyoming state statute and Commission regulation require the Department to pay for any verified elk damage."

"Maintaining the number and extent of elk damage claims to a minimum requires substantial personnel time, equipment, and in the case of emergency feeding, substantial financial costs. The costs of operating feedgrounds are somewhat offset by a reduction in the number and total costs of elk damage claims."

Wyoming Game and Fish Department is caught in a vicious cycle, one that it created for itself, and yet the state shows no signs of self-admission, let alone interest in finding a pathway out. Earlier this year, complaints were made and heard in the Joint Agricultural, State and Public Lands and Water Resources Committee, complaints about the over population of elk and how the overpopulated herds are eating grass, busting fences and as the newspaper article states[5]: giving Wyoming ranchers headaches.

Again, one of the goals of supplemental feeding according to the state was to increase population of elk herds to support and enhance hunting opportunities in the state. Yet here we have citizens and lawmakers complaining about too many elk. Over time, GWA does not see how this practice is self-sustainable.

In a hunting and outfitters online publication entitled, Outfitter and Guides SNS[6], there is an article entitled "*Critical Wyoming Elk Feed Grounds"* dated June 14, 2023. There is this statement:

"Its estimated 80% of the elk herds in these areas rely on supplemental feed with the remaining 20% surviving on natural forage. With approximately 22,500 elk requiring supplemental feed each winter this equates to approximately 20% of Wyomings elk population being dependent upon feed for survival."

To which the author immediately responds: "*This is an eye-opening number!"* Twenty percent of the state elk's population dependent upon supplemental feed is an extraordinary number. Immediately following that declaration, the author goes on to say this:

"If Wyoming were to quit feeding these elk, hunting opportunity in western Wyoming would be drastically reduced or completely disappear. While this is extremely important to the outfitting community, it has a colossal impact on Wyoming residents and general public

hunters as well. The hunt areas that contain these elk herds are almost exclusively on public land."

GWA disputes that assertion. No doubt hunting opportunities would decline, but we contend, those opportunities would become more ethical and add the element of fair chase back into the equation. We seriously doubt hunting opportunities will disappear. To be honest, GWA is not sure what the state of Wyoming is trying to accomplish. The state has a wish list, but the goals within this WEFDMP are not going to help the state accomplish what they seek.

Elk Feedground Disease Management:

The WEFDMP does a fairly good job in explaining the diseases found upon the landscape and feed grounds of Wyoming. GWA will pull out texts from the overview found on page 20 of the draft management plan.

"Biologically, the benefit of artificial feeding of free-ranging elk is reducing winter mortality due to malnutrition, which is especially true in areas without adequate available winter range. However, the prolonged congregation of wildlife, repeated over time, increases the likelihood and risk of infectious disease transmission and potentially increases stress. For this management document, we will be focusing on "infectious" diseases, particularly those of current concern (brucellosis, CWD, necrobacillosis, psoroptic mange) and one due to potential risk that is not currently found in Wyoming's elk populations (bovine tuberculosis 'bTB')."

"Several factors can play a role in the transmission and occurrence of disease. The three main areas to know and understand are the host, agent/pathogen, and the environment (Figure 2.). These areas are not equal across time and space and can all interact to contribute to the prevention or development of disease. Conditions encountered on feedgrounds are different than those found in native winter range settings; fully understanding factors that can play a role in disease occurrence and transmission is critical for effective management."

"While host and agent/pathogen are critically important, the area of environment and its impacts cannot be dismissed and will continue to be a critical factor regarding disease management on feedgrounds, especially in the future. Environmental change can create stress in an individual and population, and depending on how quickly that change occurs will determine what kind of stress is produced."

One of the impacts of a warming world is the spread of disease. In a publication entitled "*Effect of climate change on disease spread in wildlife"* by Hofmeister, Erik K., and Van Hemert, Caroline R[7]., the Abstract points this out distinctly.

"Shifts in temperature or other climatic factors may directly affect the incidence of disease in wildlife by altering host-pathogen interactions, promoting vector populations or allowing new ranges for vectors, or reducing development times for parasites."

This should come as no surprise to those in the biological or ecological arena, this common knowledge should be the premise for the future phaseout of feedgrounds. It cannot be understated. GWA will once again state that the perpetuation of feedgrounds

in this environment is dangerous, risky, and threatening to herds of elk and other species of wildlife. In the case of Brucellosis, it is even threatening to humankind.

On pages 21-31 in the WEFDMP, there is a serious and scientific discussion of the five (5) diseases found on the landscape in the vicinities of feed grounds: Brucellosis, Chronic Wasting Disease (CWD), Necrobacillosis, Psoroptic mange, and Tuberculosis. Of these five diseases, only Tuberculosis has not been found in Wyoming or the GYE. Even though that is the case, we found the discussion on Tuberculosis interesting, and we will provide brief comments on the issue.

Brucellosis: Without going into great detail about each disease, GWA will confine our discussion to brief comments about prevalence, management issues, and policy options moving forward.

Brucellosis has been a hotbed of conversation and controversy in and around the GYE, specifically in Montana. The issue has arisen pertaining to the management of bison on public land. Even though it is well proven this disease has been spread to elk and elk can and would transmit the disease back to cattle, there has not been one proven case of bison transmitting the disease to cattle. Yet, it has garnered overwhelming concern. On page 22 of the WEFDMP, there is this overview statement pertaining to Brucellosis.

> *"Due to the widespread occurrence of bovine brucellosis in the United States and its importance as a disease of humans, the Cooperative State-Federal Brucellosis Eradication Program was initiated in 1934. This generally successful program has nearly eliminated brucellosis in domestic livestock, but the disease continues to be of large economic and management concern in the GYE, where wildlife serves as the last remaining reservoir of the disease in the country."*

With that said, the following statement rings of a dumbfound statement in light of conditions of today in the GYE. Have we not learned anything from the practices we as a society employ?

> *"An increasing trend in brucellosis seroprevalence in non-fed elk herd units east of the Continental Divide in the GYE has been observed since the mid-2000s and may be due to feedground-like elk densities created by burgeoning elk populations and management practices on private lands (Cross et al. 2010)."*

Page 23 of the draft management plan goes into specific detail of recent and current management practices to mitigate the transmission of Brucellosis. We will not elaborate or copy those practices here for time. Suffice it to say, most of the mitigation practices consisted of vaccines, cattle-elk segregation, fencing, drones, etc. The following statement shown below piqued our interest.

> *"Assisting land management agencies with the implementation of habitat enhancements to improve the palatability of native forage to reduce elk dependence on supplemental feed in late winter/early spring has shown utility in redistributing elk and reducing the duration of high elk densities."*

We would like to hear more about the results of this test. The following paragraph also piqued our interest. It is good to see that WGFD acknowledge a role for predators.

"Predators play both beneficial and complicating roles with respect to disease on elk feedgrounds. Wolves can create an additional elk feedground management dynamic by disrupting feeding operations and increase the potential for elk damage and commingling with cattle (Dean et al. 2003), but can also improve management by moving elk away from elk feedgrounds to spring transitional ranges. Additionally, predators can play an important role in reducing disease transmission by scavenging aborted fetuses and removing a source of brucellosis transmission (Maichak et al. 2009). In recognition of this, the removal of predators such as coyotes and foxes is not permitted on Department elk feedgrounds."

With all the variable attempts to minimize transmission from elk to cattle, the problems remain as shown below in the paragraph found on page 24.

Despite the numerous brucellosis management efforts described above, occurrences of brucellosis in cattle herds of Sublette and Teton Counties were linked to elk from nearby feedgrounds in 2003, 2004, 2008 (Rhyan et al. 2013), and 2015, resulting in increased testing requirements, movement restrictions, reduced marketability and economic losses for cattle producers. Debate continues among stakeholders over appropriate management for both species (Galey et al. 2005, Roberts et al. 2012).

Brucellosis Management Action Plans (BMAPs): According to the draft management plan, there is this final response in relation to Brucellosis management.

"In response to brucellosis outbreaks in cattle herds and the loss of Wyoming's brucellosis-free status in 2004, Wyoming Governor Freudenthal established the Wyoming Brucellosis Coordination Team (BCT) in 2005."

"The BMAPs identified nine management options, many of which the Department had long used as management strategies, that could be considered tools to manage brucellosis on the feedgrounds within each herd unit. Those options included feedground relocation, feedground phase-out, elk population reduction, providing incentives for changes in private cattle operations, game-proof fencing, elk test and slaughter, habitat enhancement, habitat acquisition, and elk vaccination."

Here is a list of 9 viable options for the Brucellosis Management Action Plan. We note two of them here: feedground phase-out and elk population reduction. But in the next paragraph there is this statement.

"Most options were not widely pursued as action items".....With the last statement as follows:

"The BMAPs were updated every five years, with the final update occurring in 2016. Essentially, little change in elk brucellosis management occurred as a result of BMAP development."

The only question that we must ask is why? The state of Wyoming had a list of alternative actions that it could have taken, but it did not. Again, stakeholders and the state looking out for their own special interests have brought them to this point. There needs to be a serious *"look in the mirror."*

Chronic wasting disease (CWD): Not only is this disease 100% fatal, but it is widespread across our country as well as internationally. According to the WEFDMP, there is a 92% occurrence rate in the state's mule deer herds and 42% of the elk herds and this disease generally occurs wherever white-tailed deer occur in Wyoming. As described on page 26, the state has an ongoing statewide CWD surveillance program. Of particular interest is the following.

> *"The Department conducts additional CWD surveillance work related to feedgrounds in the Pinedale and Jackson regions. In northwest Wyoming, considerable effort is put into monitoring for CWD. Road-kill, targeted, and hunter-harvested cervids are all tested, in addition to animals that perish on and near elk feedgrounds during the feeding season. Grand Teton National Park and the NER have implemented mandatory CWD sampling requirements for hunter-harvested elk. This mandatory sample submission in the Jackson elk herd unit provides sufficient samples to detect CWD occurring at 1% prevalence with 95% confidence."*

The following map, Figure 3 as labeled in the WEFDMP, found on page 27, shows the distribution of CWD across the state of Wyoming.

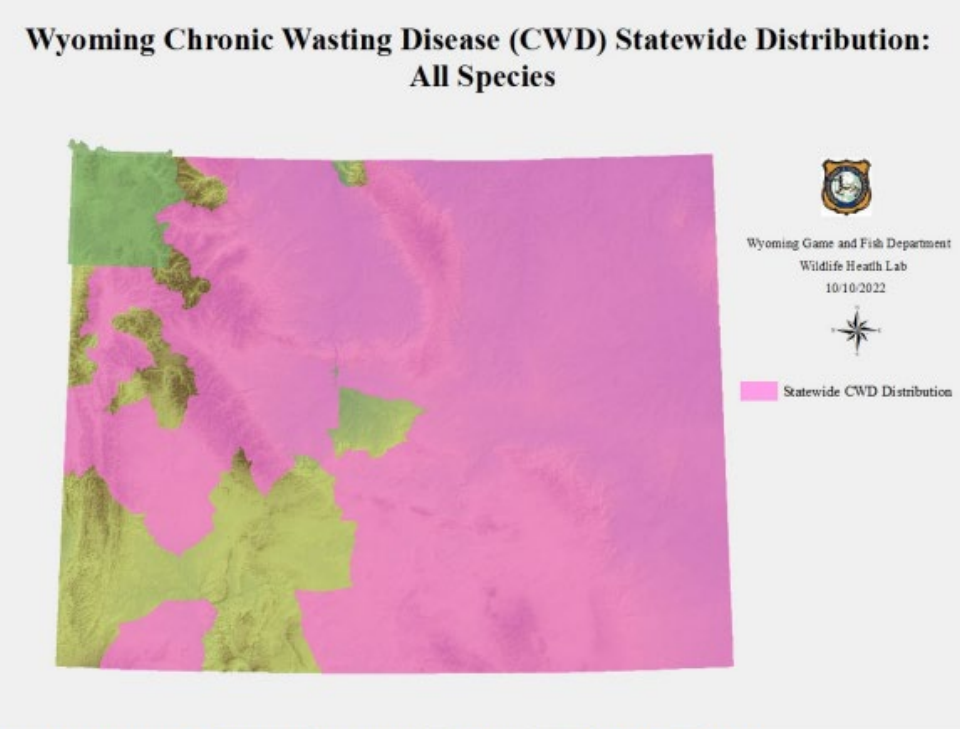


Figure 3. Distribution of CWD in all cervids in Wyoming, October 10, 2022

In case of this discussion, the following statements are of particular concern.

> *"While the specific impacts of CWD on feedground elk populations are unknown, based on our understanding of CWD epidemiology, it is likely that CWD prevalence among feedground elk will likely exceed that of unfed elk. The prevalence of CWD in captive elk and deer has been found to be much higher (59-100%) than for free-ranging animals. This is*

thought to be due to an increased opportunity for animal-to-animal transmission and/or exposure to an increasingly contaminated environment."

Everything in this statement found in the WEFDMP is reason enough to rethink the utilization of feedgrounds. The following statement also adds to this conclusion.

"There is a concern that CWD in elk on feedgrounds may mimic CWD in captive elk, resulting in an elevated CWD prevalence that leads to population declines. Although possible, the understanding of CWD in elk is less developed than that of the disease in mule and white-tailed deer, and predictions come with uncertainty."

We advise the state of Wyoming not to use that last sentence as a copout, as a reason not to do the right thing. The draft management plan goes into detail over the use of models. Specifically, there are three models mentioned in the plan, but the following statement provides a brief statement or summary.

"There are three published models that forecast how CWD may affect feedground populations. Although there are many differences among the models, they all predict that hunting and mortality from CWD will act additively, resulting in higher mortality than would be present in the absence of one or the other."

The three models will be listed below with a general summary statement depicting the results of each. GWA will be using the summaries and the draft management plan's own words to summarize these models.

1.) *Supporting adaptive management with ecological forecasting: chronic wasting disease in the Jackson Elk Herd (Galloway et al. 2021):*

This model forecasts that CWD prevalence would reach a mean prevalence of 12% in the population in six years, but there is a large amount of uncertainty in this prediction, and the authors could not rule out a prevalence as high as 20%. Using recruitment rates observed during the last two decades in the Jackson herd, the model predicted that a CWD prevalence of 7% in females would cause a decline in the population, even without female harvest. The authors could not rule out prevalence as high as 23% before population decline.

2.) *CWD model of genetic selection favoring prolonged survival in elk (Williams et al. 2014):*

Using the survival time for elk with the MM genotype (1,568 days) and the ML genotype (2,882 days), along with the demographic data from the Pinedale elk herd, the model predicted that populations would decrease by ~62% but stabilize in approximately 90 years, assuming antlered harvest only. The model predicted the frequency of the MM genotype to decrease by 91%, and the LL genotypes would increase 20 times by year 100.

3.) *CWD undermines efforts to control the spread of brucellosis in the Greater Yellowstone Ecosystem (Maloney et al. 2020):*

In these populations, CWD prevalence was expected to reach 4.1% and 2.7%, respectively. The model predicted that continuation of feeding, with the current elk population management, could see prevalence exceed 75% and would cost the Pinedale area $19 million over 20 years once CWD is detected in the study area.

Once again, we can see the trend of the evidence. Even though it is as stated, the science may not be exact at this time, but we know the direction the evidence points, and we know what our common knowledge should tell us; the use of feedgrounds is exacerbating the problem of disease spread and transmission. The models are trending in that direction as well and the decision depends upon us as a society to make the right decision.

Necrobacillosis: A disease that perhaps doesn't get the attention that it needs, as the pictures below will tell, should foreworn us as a society that feedground management is not conducive to healthy herds of wildlife. So, the question then is: why do we still put our wildlife in harms way? This is another example of mismanagement and manipulation of our society upon a natural system. Page 29 states this about the disease Necrobacillosis.

> *"The anaerobic bacterium Fusobacterium necrophorum typically infects animals through the feet or mouth. After initial infection, the bacterium can then infect the rest of the body, particularly targeting the liver, and as the species name suggests, endo- and exotoxins produced by the bacteria cause tissue necrosis that can lead to death."*

> *"This disease typically occurs sporadically in individual animals and is known to cause major outbreaks in large groups of congregated animals (Allred et al. 1944, Rosen et al. 1951, Wobeser et al. 1975, Leader-Williams 1982). The stress of crowding, inadequate nutrition, heavy contamination of local environments with feces, presence of domestic ruminants, and highly abrasive food material that traumatizes the oral mucosa increase the risk of disease for individual animals and populations."*

For distribution and prevalence, this statement says it all and this is the full text from the WEFDMP.

> *"Found worldwide and is presently found in Wyoming, specifically on feedgrounds in western Wyoming."*

Pictures above provided By Lloyd Dorsey[8] of Wyoming taken at Camp Creek in May of 2014 showcasing elk deaths by Necrobacillosis. Pictures truly show the excruciating pain and death these individuals must have gone through. And we ask for what? Is or was this truly necessary. As an advocate for wildlife, we cannot condone any further use of feedgrounds. This should be evidence enough that the operations of feedground management must come to an end.

Again, we make the statement, it seems as if the state of Wyoming is intentionally placing elk and other wildlife in harms way for ulterior motives. This is unethical, not science-based, and unsustainable.

Psoroptic mange: This is the fourth and last mention of a list of diseases found in western Wyoming. Only a brief mention of this disease is stated in the WEFDMP and therefore very little coverage will be given here, primarily because this disease is less

critical and lethal than the others stated above. This disease is caused by mites, and can be very irritable to individuals even though it is highly transmissible.

Tuberculosis: Understanding that this disease is not found on the landscape currently in the state of Wyoming or the GYE (page 31), as stated in the text, cases have been found in domestic cattle in Montana and Colorado. The disease has also been found in provinces in Canada and in white-tailed deer in Michigan. The concern is warranted for as stated on page 30:

> *"bTB is spread through inhalation; high-density or artificial concentrations of animals is thought to exacerbate the spread. This bacterium tends to cause pulmonary lesions but can spread to other organs, resulting in emaciation and, eventually, death. Similar to CWD, bTB can be difficult to spot, especially early in the disease process. There is no proven vaccine for wildlife, and treatment would be almost impossible in a wildlife setting due to the requirement of long-term antibiotic administration."*

> *"It should be noted that while reducing and/or eliminating feedgrounds would not reduce the risk of introduction of bTB into western Wyoming, the presence of feedgrounds could result in increased transmission (on and off the feedgrounds) and result in the establishment and maintenance of bTB in Wyoming."*

With the seriousness of the disease as stated, that is confirmed on page 36 and 37 of the WEFDMP, why is the WGFD willing to play with fire?

One of the proposed actions taken if bTB was found in a feedground would be to cease feeding (if possible), not sure what that means, but we ask the question, why wait? By then wouldn't it be too late for a highly transferrable disease in a crowded environment? This type of action or reaction is the classic example of what is wrong with the state of Wyoming policy in wildlife management. You won't act until it is either too late or until politics allows you to act. This is not wildlife management; it is mismanagement, and the state of Wyoming needs to be held accountable for it.

Habitat Enhancement:

GWA is glad to see the following admission and practice being implemented near feedgrounds in western Wyoming. The question is and it is not answered here in this format, but the question is how much energy is being devoted to this activity? How many dollars are being spent on this type of habitat enhancement? Those questions are not answered, but we believe they should be as they would be very telling in the priorities of the state of Wyoming. On page 31, there is this acknowledgement.

> *"If habitat improvements are completed near feedgrounds or between summer range and feedgrounds, the enhanced forage produced may decrease the dependence of elk on artificial feed, snow conditions permitting. Reduced feeding durations and lower elk concentrations on feedgrounds may decrease the probability of intraspecific disease transmission events. Habitat enhancement projects also create age class and species diversity and can improve forest and range conditions for myriad species."*

GWA agrees with this approach.

"Habitat enhancement projects can be employed to mimic natural disturbances and restore habitat to a properly functioning condition. The Department works with other agencies and private landowners to implement habitat enhancement projects that improve elk transitional and winter ranges and habitat for many other wildlife species. These projects include several consistent steps, including identifying potential treatment locations based on wildlife use, inventory of existing habitat conditions, determining the habitat objective for the project area, developing a prescription or a management action to modify existing conditions, completing NEPA if occurring on federal land, securing funding, implementing the management action and post-treatment monitoring. In all cases, planning habitat enhancements requires time and resources to implement successfully."

Again, GWA agrees with this commonsense approach to restore natural conditions to the range. For dollars spent, we would think this would be much more sustainable and inexpensive in the long term for this kind of range rehabilitation. This must be an approach that should be continued into the future.

Elk and Feedground Management Direction:

This issue is at the heart of the purpose and mission of this draft management plan. Where do we go from here. Until now, we understand the history, the policies of the past, and the problems of the future, but the whole purpose of this plan is to determine how do we make things better. It is frustrating because in so many cases, the answer is right before us, but either we don't act, or we act not according to science, but according to our own self-interest.

The opening paragraph of this section of the WEFDMP on page 32 states this:

"Elk feedgrounds have been utilized in the management of elk populations in western Wyoming for over a century. Feedgrounds have proven instrumental for wildlife managers in maintaining elk populations to provide hunting opportunities that meet public expectations, minimizing damage to private property, reducing disease transmission to livestock, and limiting interspecies competition. However, elk feedgrounds present significant challenges when considering disease and localized habitat management issues."

But it is the following paragraph that we find interesting.

"The overall goal of this plan is to encourage managers to continue to explore opportunities for elk to winter away from feedgrounds by increasing tolerance for elk on private, state, and federal lands while reducing reliance on supplemental feeding. These actions will, in turn, decrease disease transmission on feedgrounds."

We are encouraged to read this. Yet this seems to be in contrast with segments in the early part of this WEFDMP. We find this confusing. We understand that the agency can and has to do more than one thing at a time, but the question again is, will it, or can it? The following texts gets to the heart of the draft management plan as currently described.

"Under this Plan, the Department will also publicly review herd unit objectives every five years and provide the public with updated herd demographic data and disease prevalence."

During the review, if public support for a population objective change for a given herd unit exists, managers will present an objective change proposal at a subsequent Commission

meeting. The Department must strive to achieve this goal while staying within clearly established sideboards. The Department shall:

- *Maintain publicly supported elk population objectives*
- *Maintain hunting opportunity*
- *Limit any increase in damage to private property*
- *Limit any increase in disease transmission to livestock*
- *Limit any increase in interspecies competition with other wildlife species*

The actual feedground management direction is described on pages 32-47 of the WEFDMP. We will list in the broadest of terms here for focusing on the goals of each.

Elk harvest strategies:
Goal: Maintain elk numbers in herd units with feedgrounds at publicly-supported, Commission approved population objectives using hunting as a primary tool.

Public Education/Outreach
Goal: Public outreach will be critical to managing elk feedgrounds into the future.

CWD and feedground management
Goal: Prevention/early detection of CWD from entering the feedgrounds should be the Department's primary strategy. If detected, the Department's strategy would change to attempting to manage the disease on the feedground to limit incidence and spread of CWD off of the feedgrounds.

Necrobacillosis and feedground management
Goal: Prevent necrobacillosis from occurring on feedgrounds. If an outbreak occurs or is detected, the Department's strategy would change to attempting to control the disease.

Psoroptic mange and feedground management
Goal: Prevent psoroptic mange from occurring on feedgrounds. If an outbreak occurs or is detected, the Department's strategy would change to attempting to control the disease.

Tuberculosis and feedground management
Goal: Prevention of bTB from entering the feedgrounds should be the Department's primary strategy. If detected, the Department's strategy would change to attempting to eradicate the disease on the feedground and preventing the spread of bTB off of the feedgrounds.

Disease research and coordination
Goal: To better understand the complex nature of feedgrounds, disease, and their economic value, the Department will promote and actively engage in research opportunities and partner with appropriate entities to pursue research funding.

Elk habitat acquisition, access, and land use
Goal: Cooperatively pursue access to habitat currently unavailable for elk use in order to increase opportunities for elk to winter away from elk feedgrounds while considering inter-species competition and conflicts with agricultural producers.

Livestock producer coordination and cooperation
Goal: Work cooperatively with agricultural producers on voluntary livestock management strategies designed to reduce conflict and disease transmission.

Federal, state, and private land management coordination
Goal: Work cooperatively with the USFS, BLM, Office of State Land and Investments, and private landowners to increase elk occupancy off elk feedgrounds onto native winter ranges.

Non-governmental organization (NGO) coordination
Goal: Work cooperatively with various NGOs to raise funding and support for increasing elk occupancy off elk feedgrounds onto native winter ranges.

Wildlife crossings and wildlife-vehicle collision reductions
Goal: Work cooperatively with NGOs and the Wyoming Department of Transportation to limit elk vehicle collisions while providing native elk winter range opportunities.

Feedground management alterations
Goal: The Department will actively implement the latest science and technology to improve management of feedgrounds, decrease disease transmission, and improve animal welfare and health.

Habitat enhancements
Goal: Implement treatments that increase forage production in native elk winter ranges.

Feedground phase-outs

GWA will cover the discussion on feedground phase-outs after a brief discussion over the above remaining strategies. It is not enough to simply say prevent the spread of disease at feedgrounds, there needs to be more proactive steps taken at this point. We've stated before, there seems to be a presumptive nature about the future of feedgrounds, the thinking being this process will continue years into the future. Based upon this premise, the state most likely doesn't view any reason for urgency to move away from the concept of feedgrounds. With this mindset, the maintaining and continuance of feedgrounds will remain in place.

To change the dynamics of feedground policy, there needs to be a change in the paradigm. We've already stated in these comments, we do not see that happening in this WEFDMP. There is an acknowledgement that the state will have to wean themselves from the feedground practice at some point in the future, but we are not sure how sincere that desire is or will be.

Having criticized the policy of maintaining feedgrounds, we do see a few goals worthy of continuance in their management direction. They are in the order of appearance:

1.) Elk habitat acquisition, access, and land use
2.) Wildlife crossings and wildlife-vehicle collision reductions
3.) Habitat enhancements

Elk habitat acquisition is a good tool to reduce reliance on supplemental feeding. Increased opportunities for elk to feed on lands and forage outside of feedgrounds is optimum as it presents wildlife and managers more options for forage. The draft management plan suggests options for acquisition, leasing, conservation easements, and steps to identify elk wintering range. Simply put, GWA supports this option for phasing out feedground operations.

Wildlife crossings and infrastructure to reduce wildlife/vehicle collision is another option that has not been talked about in this context of the WEFDMP, but GWA supports this option. GWA is actively engaged in similar actions in the state of Montana. GWA recognizes that many migrating corridors and winter ranges have been cut off from native landscapes by roads and other byways. There must be connectivity for wildlife to move freely upon the landscape. These steps will also reduce stress and allow elk to search out previous landscapes with nutritional forage.

Habitat enhancements are needed and should be part of an overall plan to reduce feedground operations. The more habitat that is available for wildlife, especially in the case of elk, the more elk can be maintained on the landscape and diversify themselves across the landscape. The WEFDMP lists several methods to enhance the habitat for elk. Our organization is in favor of most of those options, but we have some reservations on some others. We understand the use of prescribed fire, deferment, reseeding, and wildfire, but we have questions on a couple of those mentioned, such as herbicide and mechanical treatments.

Feedground phase-outs: In the very first sentence under this structured title, there is the following statement found on page 47 of the draft management plan.

> *"The long-term implementation of the Plan **may** allow for feedground phase-outs in the future."*

To that statement, GWA is glad to see there ***may*** be a willingness to phase-out feedgrounds, but the big red flag is that three (3) letter word "may". We could simply ask, what is stopping the state from doing that now? To that end, the draft plan may have answered in the following sentence.

> *"A feedground phase-out would require significant planning, effort, and coordination, in **addition to approval from the Governor."***

We understand the need for planning and coordination. We surely do. And we agree with the statement below.

> *"During and after the completion of feedground phase-out, increased monitoring of the elk population would be required to minimize damage to private property and prevent elk-cattle co-mingling."*

But our sentiment on this; there is no time like the present to begin that movement. We agree that there needs to be planning, organizing, and cooperation for this to be successful. But the state needs to initiate the process to make phase-outs a reality. Even the WEFDMP admits what GWA, and others have been saying for years. And that is:

> *"The advantage of implementing feedground phase-outs, in addition to obvious economic benefits, is that the dense aggregations of elk associated with feeding would cease, reducing incidence of brucellosis, CWD, necrobacillosis, and other diseases in elk and potential disease spill-over to other domestic or wildlife species."*

This has been ours and many bones of contention for a long time. We believe there is not the political will to follow through on what we all know needs to be done. It is the logical step forward, the ethical step forward, and the appropriate, scientific, and applicable step forward. The last sentence under this discussion states the disadvantages.

> *Disadvantages of feedground phase-out would include increased risk of elk damage and elk-cattle brucellosis transmission and associated damage control costs, increased elk winter mortality, reduced elk populations and associated hunter opportunity, increased potential for vehicle-elk collisions, and a potential increase in competition of native range with other wildlife species.*

The disadvantages are not unexpected and should not be surprising. Although many of those listed can be used as an excuse not to do anything. And we believe that has been the case for too long. Perhaps some of the rationale is overblown, perhaps not, but that would be the purpose of organizing and planning for phase-out, is it not, to mitigate those negative impacts? On the other hand, these are the reasons why it is dangerous to artificially manage a species above the natural carrying capacity to begin with.

Feedground Management Action Plans (FMAP):

GWA will begin our comments concerning the FMAP, a plan formulated as the draft says at the herd unit level. FMAPs hold out a ray of sunshine in that they present in serious terms the need and the acknowledgement of phasing out the use of feedgrounds. We would not want to see the FMAPs perpetuate the use of feedgrounds. Phase III includes discussions of the next steps, and those next steps gets into the fundamentals of implementation: Funding, public support, and personnel.

In that first template discussion of funding, there is an important admission.

> ***Funding:*** *We must acknowledge the role of budgetary constraints. Current feedground management is driven by funding, and future monitoring and modifications proposed in FMAPs will require significant funding increases to incorporate some proposed recommendations. The Department should expect annual funding requests to support this effort and should explore non-traditional funding sources in order to support the future of elk management.*

GWA has been stating the money spent on this type of wildlife management is not sustainable. The WEFDMP seems to recognize that, but then makes a statement that the department should expect annual funding to continue but should explore non-traditional funding sources. Not sure what to read into that if anything, but this seems to signify the perpetual continuance of the feedground process and operation. Perhaps having funding sources dry up would be one way to halt a horrible tool being used in wildlife management.

We realize science fundamentals can be used in feedground operations, but we question the science that justifies the use of feedgrounds as the better management tool for wildlife. We don't know of any and there were none presented in this draft management plan.

The goal specifically states the following:

"Goals: Develop individual Feedground Management Action Plans (FMAP) at the herd unit level that provide Department direction based on the best available science and expertise on how to 1) maintain cervid health by limiting disease transmission while providing supplemental feed and 2) reduce or eliminate reliance of elk on supplemental feed (in accordance with W.S. § 23-2-305) while maintaining both publicly-supported populations and acceptable levels of elk damage and elk-cattle co-mingling on private lands."

Science is necessary in developing protocols to limit disease transmission, but in stating that, we know of "no" science that recommends supplemental feeding as a better nutritional regimen for wildlife. To state the need to reduce or eliminate a program, but then offer no real attempts to do so, but instead, offer ideas to perpetuate that very same program is counterproductive and hypocritical. The better alternative to limit disease transmission is not to participate in the practice of artificial feeding at all.

Under the second bullet point of *"Process"*, found on page 50 of the WEFDMP, there are two goals under that bullet point. This bullet point describes FMAP obstacles and then solutions to those obstacles.

Goal 1: maintain cervid health by limiting disease transmission while providing supplemental feed.

Goal 2: reduce or eliminate reliance of elk on supplemental feed (in accordance with W.S. § 23-2-305).

While these goals may seem contrary to each other, it is not only reasonable but imperative to maintain cervid health while reducing reliance of elk and other cervids on supplemental feeding. If this WEFDMP truly was a draft to phase-out supplemental feeding, we would expect to see more detail in how that would be implemented. The WGFD is asking the right questions in this mindset, but we just don't see the willingness to do that work. And we don't expect to if we see the continued entrenchment of special interests controlling the state agencies and the Governor's office.

Conclusionary Remarks:

We bring our remarks to a conclusion. Overall, we are saddened to learn there is no real definitive plan to phase out feedgrounds across western Wyoming. There is talk about the need, but we see no real evidence of intent. This is discouraging and frustrating. Frustrating, because scattered throughout the WEFDMP, there is an acknowledgement by scientists and wildlife managers knowing this would be the better option, but no road map to make that plan come to fruition. The following sentence states all we need to know.

"This plan is intended to chart a long-range path for feedground management."

For wildlife advocacy groups and we hope for most of society, this is not only discouraging, but immoral and unethical. To place wildlife intentionally in peril is beyond unthinkable. Yet it is being done under the flag of special interests for political power.

GWA has brought up many differences that we have had with the WEFDMP. But one not discussed previously in these comments is the role that supplemental feeding has on the

genetic makeup in wildlife over time. The WEFDMP has not discussed this either, so we will mention it here and now in our conclusionary remarks.

In the Abstract of scientific journal entitled "*Artificial selection in human-wildlife feeding interactions"* by Griffin, Laura L[9]., et al, found in The Journal of Animal Ecology dated Aug. 4, 2022, there are numerous statements which we will present here.

1. *The artificial selection of traits in wildlife populations through hunting and fishing has been well documented. However, despite their rising popularity, the role that artificial selection may play in non-extractive wildlife activities, for example, recreational feeding activities, remains unknown.*
2. *If only a subset of a population takes advantage of human-wildlife feeding interactions, and if this results in different fitness advantages for these individuals, then artificial selection may be at work. We have tested this hypothesis using a wild fallow deer population living at the edge of a capital city as our model population.*
3. *In contrast to previous assumptions on the randomness of human-wildlife feeding interactions, we found that a limited non-random portion of an entire population is continuously engaging with people. We found that the willingness to beg for food from humans exists on a continuum of inter-individual repeatable behaviour; which ranges from risk-taking individuals repeatedly seeking and obtaining food, to shyer individuals avoiding human contact and not receiving food at all, despite all individuals having received equal exposure to human presence from birth and coexisting in the same herds together. Bolder individuals obtain significantly more food directly from humans, resulting in early interception of food offerings and preventing other individuals from obtaining supplemental feeding.*
4. *This is the first time that this consistent variation in behaviour and its potential link to artificial selection has been identified in a wildlife population and reveals new potential effects of human-wildlife feeding interactions in other species across both terrestrial and aquatic habitats.*

As far as we can tell, this may be the first time this issue has arisen, but it is one that needs to be discussed and managers need to be made aware. To this we ask, what are we doing to our wildlife? GWA's belief is that we are obviously making our wildlife less wild. We contend there is an immoral or unethical conditioning in that.

We understand the history and beginnings of wildlife feeding in Wyoming. According to the WEFDMP, the severe winters of 1909-11 took a toll on wildlife and caused severe immortality. The supplemental feeding back at that time may have been well-intentioned during a severe winter, but through the years, that well intentioned rationale has turned into a different mindset. The following statement found on page 3 points out the difference over time.

> *"Agriculture was an important land use as it is today, but the manner in which domestic livestock was produced was different. It is important for all to note the fact that the actions and decisions that resulted in our current state are measured in decades rather than years."*

Understanding that it took generations over time to get where we are today, we want to make sure this mindset is not used as an excuse to delay implementation of a phase out policy. The very last sentence in the WEFDMP states the following.

"The Wyoming way worked before and it can work again as we attempt to make good decisions for the future of feedground management."

We are not sure what the "*Wyoming way"* means, but we urge the state of Wyoming not to get into a prideful stance when it comes to wildlife management. For even though much of the GYE ecosystem is within the state of Wyoming, it is much more extensive than that. Other national forests across two other states have a vested interest in the condition and the preservation of the GYE.

GWA will conclude with the remarks from an Abstract from another science journal published by The Royal Society Publishing entitled Philosophical Transactions of the Royal Society (Series B) – Biological Sciences dated March 12, 2018. The article is entitled, "*Winter feeding of elk in the Greater Yellowstone Ecosystem and its effect on disease dymanics*", by Cotterill, Gavin G[10], et al. Because of its content, GWA will include the Abstract in its entirety and highlight the important passages in yellow.

"Providing food to wildlife during periods when natural food is limited results in aggregations that may facilitate disease transmission. This is exemplified in western Wyoming where institutional feeding over the past century has aimed to mitigate wildlife–livestock conflict and minimize winter mortality of elk (Cervus canadensis). Here we review research across 23 winter feedgrounds where the most studied disease is brucellosis, caused by the bacterium Brucella abortus. Traditional veterinary practices (vaccination, test-and-slaughter) have thus far been unable to control this disease in elk, which can spill over to cattle. Current disease-reduction efforts are being guided by ecological research on elk movement and density, reproduction, stress, co-infections and scavengers. Given the right tools, feedgrounds could provide opportunities for adaptive management of brucellosis through regular animal testing and population-level manipulations. Our analyses of several such manipulations highlight the value of a research–management partnership guided by hypothesis testing, despite the constraints of the sociopolitical environment. However, brucellosis is now spreading in unfed elk herds, while other diseases (e.g. chronic wasting disease) are of increasing concern at feedgrounds. Therefore experimental closures of feedgrounds, reduced feeding and lower elk populations merit consideration."

In the same article in the Introduction, there is this opening statement.

Central to many host–pathogen systems is the relationship by which infectious contacts increase with increasing host density. In wildlife, local aggregations often occur at sites of food provision, exemplified by winter feeding of elk (Cervus canadensis) at 23 locations across western Wyoming, USA.

*"They facilitate wildlife viewing and enhance sport-hunting opportunities (important sources of revenue), limit competition on winter ranges with other ungulates, mitigate some aspects of livestock conflict and locally offset winter starvation by elk. They are, however, implicated in disease concerns. Each feedground draws a herd of elk that congregates for weeks or months when individuals are perhaps most vulnerable to acquiring new infections. That feedgrounds facilitate disease transmission [**3**] has in itself created an additional reason for feeding elk—to separate them from cattle. Thus a cycle is perpetuated whereby feeding creates and mitigates the same problem: it enhances transmission among elk [**3**–**6**] while also limiting contact between elk and livestock in winter [**7**]. The way forward is murky and stakeholders should weigh the problems of feedgrounds maintaining disease against the opportunities of using them to adaptively manage disease."*

Finally in the conclusion and future directions of the article, there is this.

> *Feedgrounds are poised to concentrate infectious material and spread the disease among elk and other susceptible ungulates that use or pass through those areas. CWD probably represents a much bigger threat to cervid populations in the GYE than brucellosis, but has not yet been shown to infect cattle [73] or humans [74], although the possibility cannot be ruled out. Unless an efficacious vaccine against CWD becomes available, the only useful applications of feedgrounds to CWD management could be surveillance and removal of infected animals, the benefits of which would probably be outweighed by the risks of concentrating and spreading CWD.*

So, this issue has gained international attention. Basically, the research has been saying the same thing as GWA and those in opposition to the continuation of feedground management. These scientific papers may not get into moral or ethical consideration as we have raised in this format, but they are giving the scientific judgement based upon continuous research. This is not a science that compares the benefit of supplemental feeding over elk using natural forage, as to which is best for the ecosystem ecology. For we do not know that science exists. But it is minimizing the use of feedgrounds as an experiment to see how elk under natural conditions would adapt.

But GWA does not see elk and other species of the GYE as an experiment wishing to be conducted over the supplemental feeding of elk. GWA views the GYE and all its inhabitants as an ecosystem worth protecting for it is the world's largest temperate ecosystem, with an intrinsic value not to be used as a guinea pig. The state of Wyoming has gotten itself into a firestorm over time and they should have seen it coming, but the special interests and politicians weren't listening to science, but to the almighty dollar. It is time to put this nightmare behind us and to phase out supplemental feeding once and for all. The state of Wyoming is taking a huge risk, one not worth taking. Unfortunately, it is the elk and other wildlife paying the price.

Sincerely,

Clinton Nagel

Clinton Nagel, President
Gallatin Wildlife Association

Literature Cited:

1. National Park Service, https://www.nps.gov/yell/learn/nature/greater-yellowstone-ecosystem.htm

2. Source map of the Greater Yellowstone Ecosystem provided by the Greater Yellowstone Coalition. http://fs-web.sefs.uw.edu/classes.esrm.459/yellowstone/wildland/maps.htm

3. Steyaert, Sam, M.J.G., et al., *Behavioral correlates of supplementary feeding of wildlife: Can general conclusions be drawn?,* Science Direct. December 2014. https://www.sciencedirect.com/science/article/pii/S1439179114001339

4. https://worldpopulationreview.com/state-rankings/elk-population-by-state

5. Koshmrl, Mike, "*Elk Wars: Inflated herds spur committee duel, radical proposals*", Wyofile.com, June 20, 2023. https://wyofile.com/elk-wars-inflated-herds-spur-committee-duel-radical-proposals/

6. *"Critical Wyoming Elk Feed Grounds*," Outfitter and Guides SNS, June 14, 2023. https://www.huntwyo.com/blog/elk-feed-grounds-are-critical/#:~:text=Its%20estimated%2080%25%20of%20the,dependent%20upon%20feed%20for%20survival.

7. Hofmeister, Erik K., and Van Hemert, Caroline R., *Effect of climate change on disease spread in wildlife,* https://pubs.usgs.gov/publication/70198103#:~:text=Shifts%20in%20temperature%20or%20other,reducing%20development%20times%20for%20parasites.

8. Dorsey, Lloyd, pictures taken at Camp Creek, Wyoming, 2014.

9. Griffin, Laura L., et al, "*Artificial selection in human-wildlife feeding interactions"* The Journal of Animal Ecology, Aug. 4, 2022. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9546373/

10. Cotterill, Gavin G., et al, *Winter feeding of elk in the Greater Yellowstone Ecosystem and its effect on disease dymanics,* The Royal Society Publishing entitled Philosophical Transactions of the Royal Society (Series B), March 12, 2018. https://royalsocietypublishing.org/doi/10.1098/rstb.2017.0093