

“The Boomerang Effect”: The back and forth, relentless debate over how to effectively manage grizzly bears in the Greater Yellowstone Ecosystem (GYE)

A Comprehensive Policy Analysis of the Endangered Species Act and 2016 Conservation Strategy for Grizzly Bear in the Greater Yellowstone Ecosystem

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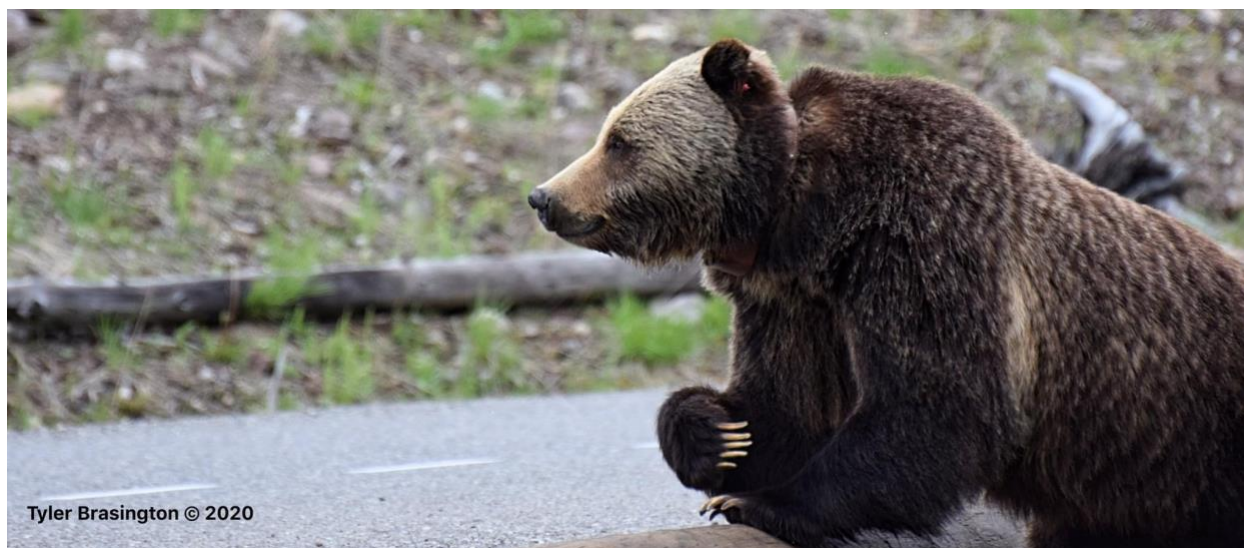
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1. Executive Summary

The Yellowstone grizzly bear population has been listed under threatened and endangered species protections since 1975. The recovery of grizzly bears in the Greater Yellowstone Ecosystem (GYE) is arguably one of the greatest conservation successes of our lifetime. The population has gone from a mere 136 bears back in the 1970s to roughly 800+ individuals in the ecosystem.

The intent and purpose of this document is to summarize and synthesize preceding research and analysis providing a comprehensive policy analysis of Yellowstone grizzly bears, the Endangered Species Act and 2016 Conservation Strategy for Grizzly Bear in the Greater Yellowstone Ecosystem. The goal for this document is: (a) to provide a policymakers with a complete but succinct overview and background on the Yellowstone grizzly bears, the Endangered Species Act (ESA) and the Conservation Strategy of 2016, and (b) provide convincing evidence that our proposed alternative and management recommendations are the best course of action.

Irrefutably, grizzly bears will eventually be removed from federal protections. However, in this analysis we ask, should the current strategy for managing grizzly bears in Grand Teton and Yellowstone and the Greater Yellowstone Ecosystem (GYE) be adjusted to compensate for legal harvest post-delisting? Should a discretionary harvest be permitted? Ultimately, we suggest our proposed *Alternative C*, which: (a) delists the Yellowstone grizzly bear from federal protections, (b) allows discretionary harvest, (c) no change in management strategy (d) re-evaluation of proposed hunting units or zones. We proposed this alternative, knowing that post-delisting state

wildlife and game agencies will be tasked with the management of Yellowstone grizzlies under the 2016 Conservation Strategy for Grizzly Bear in the Greater Yellowstone Ecosystem. A shift in management strategy would most likely not impact the ethics of an open season and legal harvest. A re-evaluation in hunting units and zones will allow for managers to potentially issue conflict or management tags on an as needed basis once further investigated.

2. Introduction

The Nixon administration established the Endangered Species Act (ESA) in 1975. Shortly after that, Yellowstone Grizzly Bears were listed as a "threatened species" under the ESA. Since 1975, grizzlies have made leaps and bounds, going from a mere 136 individuals to well over 800 in 2020. The GYE consists of Yellowstone and Grand Teton National Parks and a handful of national forest territory. The grizzly bear has been plagued by the "seesaw effect" in policy and federal protections. The most recent proposal to delist the Yellowstone grizzly bear population from the endangered species act (ESA) protections occurred during 2017, only to be relisted later in 2018. However, previous efforts had been made to delist the bears nearly a decade prior (2007, then relisted again in 2009). The "seesaw" effect, as we call it, will eventually cause the endangered species act to lose "its teeth." As we lean towards a day where bears are no longer protected, questions of values, ethics, and policy are contentious topics – set for extremely volatile debate.

Two important policies that manage the grizzly bear populations include the Greater Yellowstone Grizzly Bear Recovery Plan and the conservation management strategy. The recovery plan sets parameters that must be met in order for the species to be delisted. This is how the population is managed while under federal endangered species protections. The conservation management strategy guides the future management of grizzly bears in the Greater Yellowstone Ecosystem (GYE) after they have been removed from federal protections. The strategy allows for the legal harvest of grizzly bears, which is solely determined by the state wildlife or game management agencies of the tri-state area (Wyoming, Montana, Idaho).

However, the national parks have a long-standing management strategy and habituated tolerance with grizzly and black bears. This strategy has allowed bears to access and use habitats near areas of high human activity (i.e., roadsides), increasing habitat effectiveness levels (Herrero et al. 2005). Visitors, locals, and some managers cite concerns over the ethics of a proposed hunt on grizzly bears, especially near and on national park boundaries. An additional concern is the enormous amount of money spent on grizzly bear conflict and management in regions of the GYE. The potential to restructure and design a harvest that encompasses particular conflict areas may help reach a middle ground with those opposed to a grizzly bear hunt.

In the Greater Yellowstone Ecosystem (GYE), the conservation management strategy of grizzly bears and potential future delisting from endangered species act (ESA) protections presents a unique opportunity to reevaluate and reassess decades-old management strategies and practices which were conducive to a grizzly bear population in the Greater Yellowstone Ecosystem (GYE) with zero acceptable harvests. Should the current strategy for managing grizzly bears in Grand Teton and Yellowstone and the Greater Yellowstone Ecosystem (GYE) be

adjusted to compensate for legal harvest post-delisting? Should a discretionary harvest be permitted? Changing the framework within existing management and conservation plans may be vital to promoting long term viable populations of grizzly bears while enhancing ethical aspects of legal harvest, if and when applicable.

2.1 Context

- a. **Normative context:** Recently, scientists (Bruskotter et al. 2018) found that the vast majority of Americans, regardless of region or political ideology, support the endangered species act and that the legal back-and-forth on grizzly bear delisting seemed to have no discernible impact.

"That concern [that not delisting species hurts the Endangered Species Act] has been a threat that has been leveled for more than a decade, and we have not seen it been proven true," Bethany Cotton, wildlife program director for WildEarth Guardians, an environmental group that sued to keep grizzly bears listed.

Dan Ashe, former director for the U.S. Fish and Wildlife Service under the Obama Administration, says that the bears have reached carrying capacity for the Greater Yellowstone Ecosystem. "The question at this point around, about whether they [grizzly bears] should be delisted, is more of a values-based question. Ashe cites that delisting is more about questioning the ethics behind trophy hunting, and less about the endangered species act. Ultimately, injecting the conversation surrounding values into the delisting process fuels the fire for many that the Endangered Species Act is a broken piece of natural resource policy.

A common political approach and conservative viewpoint of the Endangered Species Act is that the policy is mostly flawed; animals listed are rarely delisted successfully. The history of the Endangered Species Act, spanning 45-years, less than two percent of species that have been listed have been successfully recovered, delisted, and removed. However, it is essential to note that the process of successful conservation takes an extremely long time. Many professionals and scientists agree that it is incredibly unreasonable to think a species would recover in a few mere decades.

Moreover, much of the criticism does not recognize the incredible success of the act's primary goal: preventing extinction. Close to 99% of species listed under the act are still in existence today. The longer the bears stay unnecessarily listed under federal protections, the more animosity and tension will build. For example, during 2010, a budget rider stripped endangered species protections from grey wolves in their home states, creating a relatively unpopular and perilous precedent.

Most professionals agree that unnecessarily keeping species [grizzlies] under federal protections will inherently force people and politicians to search for political answers. The controversy is not surrounding the endangered species act itself but broadly applies to trophy hunting and post-delisting management of grizzly bears by the tri-state (Montana, Wyoming, Idaho).

b. Legal Context: In 1975 the grizzly bear was listed as a threatened species in the lower contiguous 48-states under the Endangered Species Act (ESA) with an estimated population of approximately 136 bears remaining in the wild. In total, the grizzly bears range decreased to nearly two percent of its historic habitat in the lower 48. According to the ruling under the Endangered Species Act, grizzlies were listed as "threatened," making it "unlawful to kill, capture, harm, harass, import, or export a grizzly bear anywhere in the lower 48 states, or to sell any parts or products of grizzlies in interstate or foreign commerce." (Mott & Burnham 2019). However, notably and unbeknownst to most, one exception allowed sport hunting in Northwest Montana as long as no more than 25 bears were killed annually through either management removal or hunting. The ruling states the most critical factor in the grizzly's decline and recovery as conflicts with humans (Mott & Burnham 2019).

In 1982, the U.S. Fish and Wildlife Service enacted the National Grizzly Bear Recovery Plan; they revised the plan in 1993. "The grizzly bear is a symbolic and living embodiment of wild nature uncontrolled by man. Entering into grizzly country represents a unique opportunity – to be part of an ecosystem in which man is not necessarily the dominant species." (USFWS, 1993). The document modifications include formalizing the six different ecosystems for grizzly bears, which include: Great Yellowstone Ecosystem, Northern Continental Divide Ecosystem, Bitterroot Ecosystem, North Cascades Ecosystem, Selkirk Ecosystem, and Cabinet-Yaak Ecosystem. The Recovery Plan specifies how grizzly bears will be managed when protected under federal endangered species protections.

In 1983, the Interagency Grizzly Bear Committee was established. This committee was formed to oversee grizzly bear management. It consisted of state, federal, and tribal stakeholders directly involved in the management, research, and monitoring of grizzly bears in the Greater Yellowstone Ecosystem (GYE). (Mott & Burnham 2019; IGBC 2020)

It was not until 2005 that the U.S. Fish and Wildlife Service considered the Yellowstone grizzlies a distinct population segment. In 2005, the number of grizzly bears in the Greater Yellowstone was higher than 600. U.S. Fish and Wildlife Service proposed removing endangered species protections for GYE bears, stating that they are recovered. (Mott & Burnham 2019) Post-2005, the see-saw effect with federal protections began. In 2007, the Yellowstone grizzlies were removed from the Endangered Species list. Nearly 194,000 public comments preceded this action.

However, in 2009, the delisting was overturned. In a 46-page decision, a federal judge ruled that the U.S. Fish and Wildlife Service did not consider the impacts of the potential loss of whitebark pine due to climate change (whitebark pine is a critical food resource for grizzly bears which have access within their home ranges; it provides nearly 30% fat, one of the highest sources of fat bears may obtain naturally in the wild). (Mott & Burnham 2019) The Conservation Management Strategy (USFWS 2016) specifies how bears will be managed after delisted from federal endangered species protections.

In 2014, special regulation and policy were enacted, allowing for conflict management of grizzly bears; 4(D) Rule (50 CFR 17.40).

Again, in 2017, the Yellowstone grizzlies were delisted from the endangered species list. Wyoming finalized a hunt for up to 10 grizzly bears to be harvested in the state's core habitat and 12 to be harvested in other areas. Once a female is killed in the core habitat, no other harvest is allowed in that area. In Missoula, federal hearings placed the bears back under federal endangered species protections and stopped the planned trophy hunt in Wyoming and Idaho during 2018.

c. **Administrative Context:** There are various state, federal, and tribal administrative agencies involved in grizzly bear recovery. The administrative agencies and organizations involved include the following:

1. **Interagency Grizzly Bear Committee (IGBC)** -Established to help facilitate recovery of viable grizzly bear populations and their habitat in the lower 48 through interagency coordination, policy, planning, management, and research. IGBC has yielded proficiency and success in their model for working collaboratively and in cooperation over multiple jurisdictions coordinating recovery efforts (consists of members listed in 3-9) (IGBC 2020)
2. **Interagency Grizzly Bear Study Team (IGBST)** – The IGBST is an interdisciplinary group of scientists and biologists tasked with long-term monitoring and research efforts for grizzlies in the Greater Yellowstone Ecosystem. The IGBST serves as the technical and science advisor to the Interagency Grizzly Bear Committee (IGBC) and its Yellowstone Ecosystem Subcommittee (YES); however, the IGBST is not a voting member of either committee (consists of members listed in 3-9). (IGBST 2020)
3. **U.S. Fish and Wildlife Grizzly Bear Recovery Team National Park Service**
4. **U.S. Forest Service**
5. **Wyoming Game & Fish Department** – one of three state management agencies that will oversee the management of grizzly bears once they have been delisted from endangered species protections; they currently assist in the statewide management of conflict and research members of both the IGBC and IGBST.
6. **Idaho Fish & Game** - one of three state management agencies that will oversee the management of grizzly bears once they have been delisted from endangered species protections; they currently assist in the statewide management of conflict and research members of both the IGBC and IGBST.
7. **Montana Fish, Wildlife & Parks** - one of three state management agencies that will oversee the management of grizzly bears once they have been delisted from endangered species protections; they currently assist in the statewide management of conflict and research as a member of both the IGBC and IGBST.
8. **Eastern Shoshone & Northern Arapaho Tribes, Wind River Fish & Game** – native tribes will have full control over how grizzly bears are managed on their lands post-delisting from federal protections. Native tribes also have representatives and members for the IGBC and IGBST.

3. Alternatives

[1] Re-evaluating proposed hunting zones and units for grizzly bear harvest in the Greater Yellowstone Ecosystem (GYE): During the last attempt to delist grizzlies from endangered species act (ESA) protections, bears were successfully delisted for nearly 1-year. During this time, Chapter 68 (WYGF 2018) was developed by Wyoming Game and Fish for Grizzly bear Hunting Seasons. This provided guidance and instruction to the authority in Wyoming State Statute to authorize a grizzly bear hunt, provided definitions and outlined grizzly bear licensing and issuance list specifics, with calculated allowable mortality per hunt area. The state of Wyoming had the most developed and comprehensive plan for a grizzly bear hunt within the tri-state area (Wyoming, Montana and Idaho). They designated eight hunting zones (units) permitted for grizzly bear harvest. Collective female mortality was set at (1) bear and not to exceed (1); collective male mortality was set at (10) and not to exceed (10) for hunt areas 1-6. Hunt areas 7, 8 may harvest a total of (12) grizzly bears (any sex) (WYGF 2018) (*see Appendix D*).

Regulations for the proposed hunt included that hunters could not take/harvest a grizzly bear with the use or aid of dogs, snares or traps, and no hunter may take any grizzly bear with dependent young. There are strict reporting procedures for when a grizzly bear is harvested. No baiting is permitted in areas 1-6. However, the department may issue authorization permits for bear baiting in areas 7, 8 if it is determined to meet management objectives and prevent depredation or present grizzly bear-human conflict.

The regulations set forth by Wyoming Game and Fish (WYGF) establish harvest/allowable mortality for hunt areas 1-6 (inside the defined demographic monitoring area) and hunt areas 7, 8 (outside the demographic monitoring area). However, in total each year, the budget for grizzly bear recovery spends nearly \$2.2 MIL on conflicts (relocation, removal etc.) out of a budget of approximately \$3.4 MIL (USFWS 2016) annually. The opportunity to increase harvest limits, or take for high/special conflict areas could be evaluated as a potential alternative to hunting inside the demographic monitoring area. A re-evaluation of whether tags and permits could be issued on the grounds of conflicts in given units, accompanied by acceptable harvest, could provide a useful tool in helping improve public support, and moral, simultaneously reaching the middle ground (*see Appendix D*).

A large portion of the general public is outraged and torn over a potential trophy hunt for Yellowstone grizzly bears. A potential alternative to “management removals” of bears by wildlife managers, would be allocating harvest tags to local landowners for designated “management harvest” tags. Specific provisions could be in place for use/waste laws (hunter would have to use the animals meat, hide) The money generated by the tags could go back into the state wildlife fund, or it could be placed in the livestock loss fund (compensate livestock owners who lose cattle, sheep throughout the year). Re-evaluating the current breakdown of hunting units and zones, wildlife managers would be given the opportunity to distribute conflict permits/tags to residents and landowners in known high conflict areas which have grizzly bear issues (property damage, livestock depredation) to harvest grizzly bears. Incorporating

management harvest tags as a means to remove conflict bears without expending tax dollars for relocation, removal through wildlife management agencies would save state agencies money.

[2] Management Shift from Habituated Tolerance Strategy in Grand Teton and

Yellowstone National Park: Prior to 1970, bears were food conditioned in Yellowstone, often begging for food handouts from visitors on the roadsides. In 1970, Yellowstone National Park developed a new bear management strategy in an attempt to prevent bears from obtaining anthropogenic foods and garbage (Meagher & Phillips 1983). Nearly a decade later (1979) most bears that were food conditioned had been removed from the park. However, in the 1980s, park staff encountered another problem: as populations of grizzly and black bears increased, along with rising visitation, bears were foraging in nearby roadside meadows, habituated to people, but not food conditioned (Gunther & Wyman 2008; Haroldson & Gunther 2013). Initially the park responded with zero tolerance, and these bears were hazed, trapped, or relocated away from the roadside areas. Their efforts failed, and habituation was not prevented. In 1990 the park developed their new strategy (Gunther et al. 2015) which focused on habituated tolerance; park personnel were regularly deployed to manage “bear jams” or vehicles and people at the roadsides stopping to view the bears. In the national parks, visitors must remain 100 yards or greater away from bears and wolves. This directly plays into the strategy: remaining consistent with viewing distances is important with specific regards to maintaining a predictable and frequent exposure to human presence, and not creating an unpredictable situation which may instigate or enhance the potential for an innate behavioral flight/fight response.

In the national parks, where development is minimized, food storage is strictly enforced by park personnel, and there is no hunting, grizzly and black bears may flourish even with the highest human densities (Gunther et al. 2015). The fact that grizzly bears and black bears can survive in such high human densities, speaks to their opportunistic lifestyles, behavioral plasticity, adaptability and intelligence (Gunther et al. 2015). The behavioral component of adaptability, which is interesting yet concerning surrounding future delisting, is habituation. In general, habituation refers to the waning or diminished innate flight response to people (McCullough 1982; Jope 1985). The reduction in the bears innate flight response, makes habituation an adaptive behavior through a means of conserving energy (McCullough 1982; Smith et al. 2005). The national parks represent a place where there are hundreds of thousands if not millions of people that visit annually. The strategy of habituated tolerance works in national parks because of the frequent, and predictable exposure to humans on a regularly occurring basis. However, it presents ethical concerns if discretionary harvest is permitted with heavily habituated bears inhabiting the fringes of the national parks.

With these two factors in mind, we developed four separate alternatives for continued effective management of grizzly bears in the Greater Yellowstone Ecosystem (GYE):

- 1. Alternative A:** Delist Greater Yellowstone Ecosystem grizzly bears and allow harvest with a change in management strategy [1] and re-evaluation of hunting zones and units [2].

Under this alternative, Yellowstone grizzly bears would be delisted from federal protections and management would be turned over to the tri-state area (Wyoming, Montana, Idaho). A shift in management strategy, away from habituated tolerance in the National Parks would take place

accompanied by a re-evaluation of hunting units and zones, so managers may accommodate management, and high conflict areas for additional permits/tags.

[1] The current management strategy of habituated tolerance may be an ethical and ecological dilemma with bears residing close to or on our national parks' boundary. However, the number of bears that are habituated near and around the park boundaries and fringes are limited. In Yellowstone National Park alone, roads make up less than one percent of the total park area. The potential to harvest a habituated grizzly bear is possible, however, not widespread.

[2] Re-evaluating the current breakdown of hunting units and zones, wildlife managers would be given the opportunity to distribute conflict permits/tags to residents and landowners in known high conflict areas which have grizzly bear issues (property damage, livestock depredation) to harvest grizzly bears. Incorporating management harvest tags as a means to remove conflict bears without expending tax dollars for relocation, removal through wildlife management agencies would save state agencies money.

- 2. Alternative B:** Delist Greater Yellowstone Ecosystem grizzly bears and allow harvest with a change in management strategy [1] and no re-evaluation of harvest zones or units [2].

Under this alternative, Yellowstone grizzly bears would be delisted from federal protections and management would be turned over to the tri-state area (Wyoming, Montana, Idaho). A shift in management strategy, away from habituated tolerance in the National Parks would take place accompanied by no re-evaluation or changes to hunting units and zones.

[1] The current management strategy of habituated tolerance may be an ethical and ecological dilemma with bears residing close to or on our national parks' boundary. However, the number of bears that are habituated near and around the park boundaries and fringes are limited. In Yellowstone National Park alone, roads make up less than one percent of the total park area. The potential to harvest a habituated grizzly bear is possible, however, not widespread. A change may provide enhanced ethical perceptions of legal harvest amongst the general public

[2] Without re-evaluating the current breakdown of hunting units and zones, wildlife managers would not be given the opportunity to distribute conflict permits/tags to residents and landowners in known high conflict areas which have grizzly bear issues (property damage, livestock depredation) to harvest grizzly bears. No management harvest tags as a means to remove conflict bears would mean state wildlife and game agencies would continue operations as normal, with relocations and removals performed by state officials.

- 3. Alternative C (proposed):** Delist Greater Yellowstone Ecosystem grizzly bears and allow harvest with no change in management strategy [1], but changes and re-evaluation of harvest zones and units [2].

This is the most preferred policy alternative. Under this alternative, Yellowstone grizzly bears would be delisted from federal protections and management would be turned over to the tri-state area (Wyoming, Montana, Idaho). No shift in management strategy in the National Parks would take place (habituated tolerance strategy will continue) accompanied by a re-

evaluation of hunting units and zones, so managers may accommodate management, and high conflict areas for additional permits/tags.

[1] "Visitor surveys indicate that if bears were no longer allowed to stay along with roadside habitats, spending in the local economy by Park visitors could decrease by about \$10.1 million, resulting in a loss of 155 jobs. Results from a nonmarket valuation survey question indicate that, on average, visitors to Yellowstone National Park are willing to pay around \$41 more in Park entrance fees to ensure that bears are allowed to remain along roads within the park." (Richardson et al., 2014). The current management strategy of habituated tolerance may be an ethical and ecological dilemma with bears residing close to or on our national parks' boundary. However, the number of bears that are habituated near and around the park boundaries and fringes are limited. In Yellowstone National Park alone, roads make up less than one percent of the total park area. The potential to harvest a habituated grizzly bear is possible, however, not widespread.

Considering the economics, if the management strategy were to change, a significant impact on local economies would be felt, and decreases and staffing cuts within the National Parks would follow. This is why it is preferred that no shift away from habituated tolerance.

[2] Re-evaluating the current breakdown of hunting units and zones, wildlife managers would be given the opportunity to distribute conflict permits/tags to residents and landowners in known high conflict areas which have grizzly bear issues (property damage, livestock depredation) to harvest grizzly bears. Incorporating management harvest tags as a means to remove conflict bears without expending tax dollars for relocation, removal through wildlife management agencies would save state agencies money.

In this specific alternative, to account for ethical concerns for the potential harvest of a habituated grizzly bear, managers would enact a safe zone buffer on the boundaries of Yellowstone and Grand Teton National Park. This would further reduce the chance of a habituated grizzly bear being harvested during a hunt.

4. Alternative D: Delist Greater Yellowstone Ecosystem grizzly bears and not allow acceptable harvest [1], no change in management strategy [2], and no necessity to re-evaluate or consider hunting zones and units [3].

This is the least preferred policy alternative. Under this alternative, Yellowstone grizzly bears would be delisted from federal protections and management would be turned over to the tri-state area (Wyoming, Montana, Idaho). No harvest would take place and no shift in management strategy in the National Parks would take place. In addition, no re-evaluation or changes to hunting units and zones.

[1] No legal harvest for grizzly bears would be permitted under this alternative. While this is appealing to anti-delisting stakeholder groups (p. 13) it would further breed resentment and create a larger divide amongst all stakeholder groups. However, post-delisting, no legal harvest would be a directive coming from state wildlife and game agencies, not the federal government. Allowing acceptable mortality at the discretion of the tri-state area is contentious. Acceptable

and allowable mortality may increase resentment, and lack of social tolerance towards bears, and lead to increased cases of poaching, and illegal take (Treves 2009).

[2] "Visitor surveys indicate that if bears were no longer allowed to stay along with roadside habitats, spending in the local economy by Park visitors could decrease by about \$10.1 million, resulting in a loss of 155 jobs. Results from a nonmarket valuation survey question indicate that, on average, visitors to Yellowstone National Park are willing to pay around \$41 more in Park entrance fees to ensure that bears are allowed to remain along roads within the park." (Richardson et al., 2014). The current management strategy of habituated tolerance may be an ethical and ecological dilemma with bears residing close to or on our national parks' boundary. However, the number of bears that are habituated near and around the park boundaries and fringes are limited. In Yellowstone National Park alone, roads make up less than one percent of the total park area. The potential to harvest a habituated grizzly bear is possible, however, not widespread.

[3] There are other methods to the management of large carnivores and apex predators which do not utilize lethal removal as a battering ram to handle conflict. Previous reviews and scientific literature demonstrate that scientific measures of public support for carnivore-hunting policies are almost completely lacking. This is particularly true in terms of measuring attitudes among hunters and sportsman. Importantly, previous data has shown that illegal killing and poaching of large carnivores does not diminish or become reduced if they are designated as a game species (Treves 2005, 2009).

Without re-evaluating the current breakdown of hunting units and zones, wildlife managers would not be given the opportunity to distribute conflict permits/tags to residents and landowners in known high conflict areas which have grizzly bear issues (property damage, livestock depredation) to harvest grizzly bears. No management harvest tags as a means to remove conflict bears would mean state wildlife and game agencies would continue operations as normal, with relocations and removals performed by state officials.

4. Policy Recommendations

Based on our evaluation, we recommend *'Alternative C: Delist Greater Yellowstone Ecosystem grizzly bears and allow harvest with no change in management strategy, but changes and re-evaluation of harvest zones and units.'*

With everything considered, grizzly bears in the Greater Yellowstone Ecosystem have met all the recovery criteria set forth by the U.S. Fish and Wildlife Service for now over a decade. Seeing that only two percent of species listed under federal endangered species protections are delisted, I think it is essential to consider that (a) conservation takes time, but (b) that if the species is recovered and near or at carrying capacity, we are doing the species and policy disservice by not taking appropriate action. However, social intolerance of large carnivores (i.e., grizzlies and wolves) is vital to recognize and address. Some research even indicates that hunting or imposing harvest limits and seasons may exacerbate social intolerance, poaching, and illegal take (Treves & Laundre 2020)

The proposed course of action for Greater Yellowstone Ecosystem grizzlies should entail the following:

[a] The U.S. Fish and Wildlife Service proposes delisting the species from endangered species protections. U.S. District Court approves the motion after judicial review

[b] Tri-state area assumes control of grizzly bear management and enacts a plan for legal harvest of grizzly bears. Harvest totals are based on population monitoring and metrics gathered via the Interagency Grizzly Bear Study Team (IGBST). Cumulative allowable mortality at 22 grizzly bears in the entire area (Wyoming). Collective female mortality set at (1) bear and not to exceed (1); collective male mortality was set at (10) and not to exceed (10) for hunt areas 1-6. Hunt areas 7, 8 may harvest a total of (12) grizzly bears (any sex) (WYGF 2018). Additional mortality may be included as a provision [d]

- Refer to Chapter 68 of Wyoming Hunting Regulations (*see Appendix D*)

[c] The National Park Service continues the current habituated tolerance management strategy

[d] Tri-state wildlife and game agencies re-evaluate previous hunting zones and units, looking at high conflict areas, where additional conflict tags or permits may be allocated or distributed

[e] Tri-state area and the National Park Service design a safety zone buffer around the National Parks boundaries to account for ethical concerns for the potential harvest of a habituated grizzly bear (Yellowstone and Grand Teton National Park). This would further reduce the chance of a habituated grizzly bear being harvested during a hunt.

5. Stakeholders

When the U.S. Fish and Wildlife Service first proposed the formal action to delist the Yellowstone population of grizzly bears from federal endangered species protections, stakeholder participation in the entire delisting debate increased. Eliminating federal oversight for grizzly bear management in the Greater Yellowstone Ecosystem (GYE) was concurrent with an intensifying worry from some groups & scientists about the direct and indirect consequences of climate change on species' and species' habitats. Previous research has indicated that climate change's ecological impacts have been documented (Parmesan & Yohe, 2003; Parmesan, 2006; Intergovernmental Panel on Climate Change, 2007).

Stakeholder groups would include but are not limited to the following: Public (visitors to national parks and national forests), Outfitters & Guides (sporting guides/hunting), tourism guides (wildlife), property owners/residents, agricultural operations (cattle, sheep, etc.), natural resource managers (National Park Service, Bureau of Land Management, U.S. Forest Service,

U.S. Fish, and Wildlife Service, Wyoming Game and Fish, Idaho Fish & Game, Montana Fish, Wildlife & Parks), political parties & representatives (Senators and Representatives)

Main interests, including *values*, *goals*, *positions*, and *preferred policy direction* for achieving goals:

[1.] Public (*visitors to National Parks & National Forests*): Research has demonstrated that 'protection-use' and 'appreciation' orientations are useful in predicting hunting, fishing, and wildlife viewing participation (Fulton et al., 1996)

Protection-use orientation is strongly correlated with attitudes and intentions via wildlife management proposals (Bright, Manfredo & Fulton, 2000; Manfredo & Fulton, 1997; Manfredo et al., 1998, 1999; Manfredo & Zinn, 1996; Whittaker, 2000). Research implies that utilitarian value orientations are associated with more drastic responses to wildlife (e.g., destroying nuisance wildlife, hunting for urban wildlife, and wildlife trapping). Research led by Manfredo & Zinn (1996) suggests that the U.S. public is moving away from this traditional, utilitarian focus and becoming more protection-oriented concerning wildlife.

Theory and empirical research suggest that progressing affluence and education (Inglehart, 1997), urbanization (Bell, 1973; Hays, 1987), and diminishing residential security (Eriksen, 2001; Smith, 1997) initiative value shift. A shift from materialist values (focused on physical security and economic well-being) toward post-materialist values (focused on the quality of life, self-expression, and self-esteem). Prognostication is that these changes in societal-level conditions have also initiated a gradual shift away from traditional wildlife value orientations, emphasizing the use and management of wildlife for human benefit. These results should be viewed as preliminary; only six states were included in the analysis and did not represent a random sample of all the United States or all the states in the western region of the U.S.

[2.] Outfitters & guides (*Sheep USA, Safari Club International, Ohio Sportsman*): pro-delisting

[3.] Tourism guides (*Snowmobile Alliance of Western States, The Wild Side LTC., EcoTours, BrushBuck Wildlife Tours, Jackson Hole Wildlife Safaris, Buffalo Roam Tours, Yellowstone Tours, WolfWatcher, Grizzly Country Wildlife Adventures*): pro & anti-delisting

[4.] Property owners/residents: (*Town of Wilson, Jackson, Teton Village, Moose, Moran, Colter Bay, Flagg Ranch, Blackrock, Hoback, Lander, Pinedale, Cody, Island Park, Powell, Gardiner, Jardine, West Yellowstone, etc.*)

[5.] Natural resource managers (*National Park Service, Bureau of Land Management, U.S. Forest Service, U.S. Fish, and Wildlife Service, Wyoming Game & Fish, Idaho Fish & Game, Montana Fish, Wildlife and Parks*): pro-delisting

[6.] Environmental Advocacy Groups (*Sierra Club, Earth Justice, Natural Resources Defense Council (NRDC), Defenders of Wildlife, Humane Society of the United States, Grizzly People, Alliance for the Wild Rockies, Greater Yellowstone Coalition*): anti-delisting

[7.] Political parties (*Liz Cheney, John Barrasso, Mike Enzi, Steve Daines, Jon Tester, James Risch, Mike Crapo, Greg Gianforte, Mike Simpson, Russ Fulcher, etc.*): pro-delisting

[8.] Agricultural Operations and Groups (*National Cattlemen's Beef Association, Wyoming Farm Bureau Federation*): pro-delisting

[9.] Private environmental/academic research groups, institutions (*Craighead Environmental Research Institute, Teton Institute, Universities (Wyoming, Montana, Idaho, etc.)*): anti-delisting

Rhetoric amongst stakeholders falls into three main categories: **authority, ethics, and identity** (Parker & Feldpausch-Parker, 2013). Most arguments directly relying on this rhetoric were responsible and contributed to unfavorable communication between stakeholder groups. These various rhetorical strategies define belief systems within stakeholder groups and further elucidate exclusionary customs. Overall, rhetorical analyses can further expand preferred social control frameworks specific to individual stakeholder groups.

Stakeholder comments were categorized into 12 elements within the three main rhetoric categories:

[A] Authority –

- [1] Government or policy reform
- [2] Purpose of the Endangered Species Act (ESA)
- [3] Authority or distrust of authority
- [4] Science or research
- [5] Global climate change

[B] Ethics –

- [1] Issues with mortality
- [2] Stewardship
- [3] Environmental ethics

[C] Identity –

- [1] Public sentiment
- [2] National pride or icon
- [3] Schism of environmentalists
- [4] Resource use

[A][4] Authority concentrates on the continuum between knowledge providers and decision-makers; notions of authority are primarily descended from social frames and beliefs about how society should be managed (Peterson, 2003).

Anti-delisting groups feel that the potential adversarial impacts surrounding climate change on the grizzly bear population bolster and further advance their argument to keep bears listed under federal protections. On the contrary, pro-delisting groups do

not bring climate change to the table and fail to mention; legitimacy and authority are afforded to science given its reputation being an objective source for information (Parker & Feldpausch-Parker, 2013).

[B][1,3] Ethics is agreed upon as the good that leads to a demand in action (Critchley, 2007).

Specifically pertaining to Yellowstone grizzly bears, this means preventing the unnecessary mortality of female grizzly bears and their cubs or promoting conservation tenets. Pro-delisting groups, such as cattle ranchers, want to actively engage in species recovery efforts, as opposed to being forced to change the way they handle their herds "because of federal mandates." However, anti-delisting groups argue that ESA protections are critical to grizzlies because of violations of personal, organizational code of environmental ethics.

[C][1,3] Identity is categorized explicitly by a sense of unity with other "fellow humans" (Peterson, 1997) and a means to which humans identify themselves within society (Feldpausch-Parker et al. 2009).

Definitions of how people identify themselves may arise from their occupation, recreational activities, socioeconomic status, and political affiliation.

Anti-delisting groups view themselves as defenders of the unblemished remnant wilderness. Pro-delisting groups identified themselves as either wildlife advocates within the system's realm, which is outlined by the managing authority, or proponents for human livelihood and well-being over non-human species.

[a] Stakeholder Elements & Categories

Authority: *Government/policy reform, the purpose of ESA, authority or distrust, science/research, global climate change*

Anti-delisting groups viewed the ESA as a tool implemented and executed to recover and protect endangered and threatened species until all threats had been depreciated or even eliminated (to include future threats, i.e., climate change). Research conducted by Parmesan & Yohe (2003) indicates that climate change modifies global ecosystem parameters and locations, directly reshaping wildlife & other species' critical habitat. Anti-delisting groups also declared that pro-delisting groups ignored the climate change factor in their proposals to delist the Yellowstone grizzly from federal protections. The decision made by the U.S. Fish and Wildlife Service failed to consider the changes of climate [natural or anthropogenic]. The criteria for delisting have been met; however, the argumentative question is how climate change will impact the long-term recovery for grizzly bears in the GYE.

Pro-delisting groups view or believe that the ESA's purpose was to recover threatened and endangered species under current present threats. Grizzly bears have met recovery criteria, so, therefore, they were a candidate for delisting. This does not include any reference to future or potential threats such as climate change. Anti-delisting groups yielded a preference for control

frameworks, which would allow for higher levels of public participation and involvement in management and policy decision-making (Peterson, 2003). Ironically, anti-delisting groups supported the hierarchical framework and authority by indicating that USFWS has expertise in grizzly bear management. However, they rejected the agency's authoritative push for grizzly delisting; this indicated their egalitarianism beliefs (Parker & Feldpausch-Parker, 2013). Pro-delisting groups had a hybrid of preferences; some were partial to deregulated, individualistic strategies for managing natural resources. Others took point in hierarchical control structures, which exhibit more dependence on the authority of technical expertise.

Ethics: *Issues with mortality, stewardship & environmental ethics*

Arguments over ethical considerations were also a critical component in the grizzly delisting debate. There were arguments for preserving ecosystem functions and species diversity on one side of the aisle and humanity's need for increasing and additional space on the other. Environmental ethics between stakeholder groups varied to the highest degree. Anti-delisting groups' ethical foundations were principally formed from the belief that stewardship of grizzly bears in the ecosystem was predominantly distinguished by preventing grizzly bear mortality and protecting grizzly habitat. Pro-delisting thinking was the more dominant outlook; active management was seen as critically important and should allow humans and users to utilize the land and its resources. However, this was not a universal belief amongst all pro-delisting stakeholder groups (Parker & Feldpausch-Parker, 2013).

Identity: *Public sentiment, national pride/ icon, a schism of environmentalists, resource use*

Nature was commonly intertwined and synonymous with stakeholders' identities or perceptions of themselves. For instance, grizzly bears were not just bears but rather an iconic depiction of national strengths, individualism characterizing American ideals (Clarke, 1999). Resource-use advocates, including agriculturists affiliated with pro-delisting groups, most regularly identified themselves in the "text-based" on their livelihoods or preferred recreation; they pushed for social control that would give the upper hand to local or state governments over federal control. Anti-delisting groups and the remaining few pro-delisting groups shared common identities as either conservation or preservationists, supporting the decision-making process, yet disagreeing on the end decision (Parker & Feldpausch-Parker, 2013).

To its end, anti-delisting groups saw grizzly bear recovery as inadequate and fragmentary. Pro-delisting groups argued the contrary, that the bear was fully recovered under the laws of the U.S. government and that recurrent review of grizzly bear status post-delisting would prevent a decrease or decline in population. The requisite discrepancies at hand between stakeholder groups are less about grizzly bears and their management and more about western U.S. land management policies, which the great bear is only a fraction and part.

The debate of delisting cannot be settled simply by listing or delisting the species alone; it rests in the hands of policymakers and those with decision making authority to assure that they manage other essential and associated related conflicts (i.e., oil and gas exploration, timber extraction, private property rights). Concurrently, these issues should be acknowledged, along

with delisting, so that policymakers may maximize stakeholder "buy-in" for grizzly bear management (Parker & Feldpausch-Parker, 2013).

5.1 Public Engagement

Pro and anti-delisting groups exhibited diverse views of authority, contending social frames; their beliefs about what constitutes a legitimate decision-making process. Many stakeholders challenge the USFWS not as a scientific entity or authority but as an authority figure in the decision-making process. Also, stakeholders dissent on the idea of grizzly delisting, in succession with the interpretation, understanding, and veracity of the information on population estimates and the pertinence of climate change. The interpretation and the purpose of the Endangered Species Act (ESA) were ferociously debated amongst stakeholder groups. Anti-delisting groups tend to push for higher public participation levels and involvement in management and policy decision-making (Peterson, 2003). Pro-delisting groups had a blend of preferences; some were partial to deregulated, individualistic strategies for managing natural resources. Others took point in hierarchical control structures, which exhibit more dependence on the authority of technical expertise.

5.2 Power Dynamics & Disputes

The delisting debate surrounding the Yellowstone grizzly is similar to other environmental issues (O'Connell-Rodwell et al., 2000; Treves et al., 2002; Brook et al., 2003) as it manifests an apparent and stringent division between environmental conservation groups and other interest groups and organizations (agriculturists, production-oriented advocates (Clarke, 1999). A preponderance of the differences and dispute exist from varying interpretations and understanding of available scientific data and the underlying and overarching purpose of the Endangered Species Act (ESA) (Parker & Feldpausch-Parker, 2013).

The resulting public pressure and ruthless stakeholder rhetoric differentiate belief systems amongst involved groups and suggest exclusionary practices (Moore, 1993; Clarke, 1999; Clark, 2001). Typically, problems surrounding endangered species conflicts are generally complex, displaying varieties of tension; freedom, individuality, tradition, and culture form the very framework for these differences (i.e., view of public v. private property; the role of traditional land-use ethics; wise-use v. aesthetic valuation of nature) (Moore, 1993; Peterson, 1997; DeLuca, 1999). Among the most divisive and polemical tensions is individual belief about legitimate decision-making [social component] (Peterson, 2003).

Often, stakeholders present absolute fidelity and loyalty to their views and beliefs encompassing social constructs and arrangements, which often limits and serves as an instantaneous detriment to group cooperation and problem-solving amongst other stakeholders (Hamilton, 2004). In order to obtain ground and expedite the management of such conflict situations, a cooperative and conducive environment is required, where stakeholders accept their opponents as legitimate and their ideas relevant (Mouffe, 2000). Interestingly, endangered

species debates sometimes pit the species in question at the center of the debate, when in reality, it is genuinely human-human conflict at the leading cause of cultural, economic, and environmental rifts and convergent management objectives (Moore, 1993; Marshall et al., 2007). Additional conflict may also arise from such a wide-ranging perspective of symbolism. There is a particular local perception of inequality due to local stakeholders enduring decision-making and policy implementation ramifications at the national level (i.e., predator conservation and management strategies) (Dickman et al., 2011).

An ecosystem wildlife management specialist believes there are existing tensions between involved [stakeholder] groups. Some groups have broken relationships with the federal government, interacting and getting along better with the state agencies [wildlife management]. “At the same time, other groups ask more for us to be involved. The stemming distrust and brokenness exist with a lack of open communication with these groups; if we actively listened and engaged more with these user groups, we may see a difference in perceptions.” They also believe we can do better about communicating with these various stakeholder groups. When asked how can resource managers and wildlife management specialists bridge the gap between science and the public? They replied “more effective means of communication; better outreach and active listening [actually hearing what is being said] does not just go in one ear and out the other. Getting on the general public level and establishing sound and meaningful relationships with stakeholders involved in the management and other decision-making processes.”

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Appendix B: Mortality Threshold Calculations

	Total Grizzly Bear Population Estimate*		
	≤674	675–747	>747
Total mortality rate for independent FEMALES .	<7.6%	9%	10%
Total mortality rate for independent MALES .	15%	20%	22%
Total mortality rate for dependent young.	<7.6%	9%	10%
<i>Total mortality:</i> Documented known and probable grizzly bear mortalities from all causes including but are not limited to: management removals, illegal kills, mistaken identity kills, self-defense kills, vehicle kills, natural mortalities, undetermined-cause mortalities, grizzly bear hunting, and a statistical estimate of the number of unknown/unreported mortalities.			

*using the model-averaged Chao2 estimate

Process for Determining Annual Mortality Limits

Each year the IGBST will calculate the model-averaged Chao2 population estimate for the DMA. This population estimate will be used to set the mortality limits for the following year within the DMA. [REDACTED] These mortality rates will be on a sliding scale to ensure a recovered population in accordance with the established recovery criteria. The mortality rate that resulted in population stability 2002–2011 was 7.6% for independent females, 7.6% for dependent young, and 15% for independent males (IGBST 2012). The higher rate for independent males is biologically sound since population growth is less sensitive to independent male mortality than to independent female mortality. In order to ensure that the grizzly bear population remains recovered in accordance with the Recovery Criteria, inside the DMA, a sliding scale of mortality rates will be applied to the model-averaged Chao2 population estimate from the year before [REDACTED] Mortalities are tracked and reported annually using data

Management Framework	Background and Application Protocol			
1. Area within which mortality limits apply	49,928 sq km (19,279 sq mi) Demographic Monitoring Area (DMA) (Figure 1).			
2. Conservation Strategy Goal/Recovery Criteria	To ensure the continuation of a recovered grizzly bear population in accordance with the established Recovery Criteria: Criterion 1 (p. 34) Criterion 2 (p. 35) Criterion 3 (p. 35)			
3. Population estimator	The model-averaged Chao2 population estimator will be used as the population measurement tool for the foreseeable future. The model-averaged Chao2 population estimate for 2002–2014 was 674 (average lower 95% CI = 600; average upper 95% CI = 747).			
4. Mortality limit setting protocol	Each fall the IGBST will annually produce a model-averaged Chao2 population estimate for the DMA. That population estimate will be used to establish the mortality limit percentages for each age/sex class for the following year as per #7, #8, and #9 (below).			
5. Allocation process for managed mortalities	Per Appendix O, the States will meet annually in the month of January to review population monitoring data supplied by IGBST and collectively establish discretionary mortality within mortality limits per age/sex class available for regulated harvest for each jurisdiction (MT, ID, WY) in the DMA, so DMA thresholds are not exceeded. If requested, the Wind River Reservation will receive a portion of the available mortality limit based on the % of the WRR geographic area within the DMA. Mortalities outside the DMA are the responsibility of each State and do not count against mortality limits.			
6. State Regulatory Mechanisms specific to discretionary sport take	For specific state regulatory mechanisms, please reference the Tri-state MOA found in Appendix O.			
7. Management review by the IGBST	A demographic review will be conducted by the IGBST every 5–10 years at the direction of the YGCC. This management review will assess if the management system is achieving the desired goal of ensuring a recovered grizzly bear population in accordance with Recovery Criteria (pp. 34–35). The management review is a science-based process that will be led by the IGBST (which includes all State and Federal agencies and the WRR Tribes) using all recent available scientific data to assess population numbers and trend against recovery criteria. Age/sex-specific survival and reproductive rates will also be reevaluated using the most recent data to adjust mortality levels as necessary.			
8. Mortality limit % for independent FEMALES	Pop. size	≤674	675–747	>747
	Mort. %	<7.6%	9%	10%
9. Mortality limit % for independent MALES	Pop. size	≤674	675–747	>747
	Mort. %	15%	20%	22%
10. Mortality limit for % of dependent young	Pop. size	≤674	675–747	>747
	Mort. %	<7.6%	9%	10%

Appendix C: Greater Yellowstone Ecosystem Maps

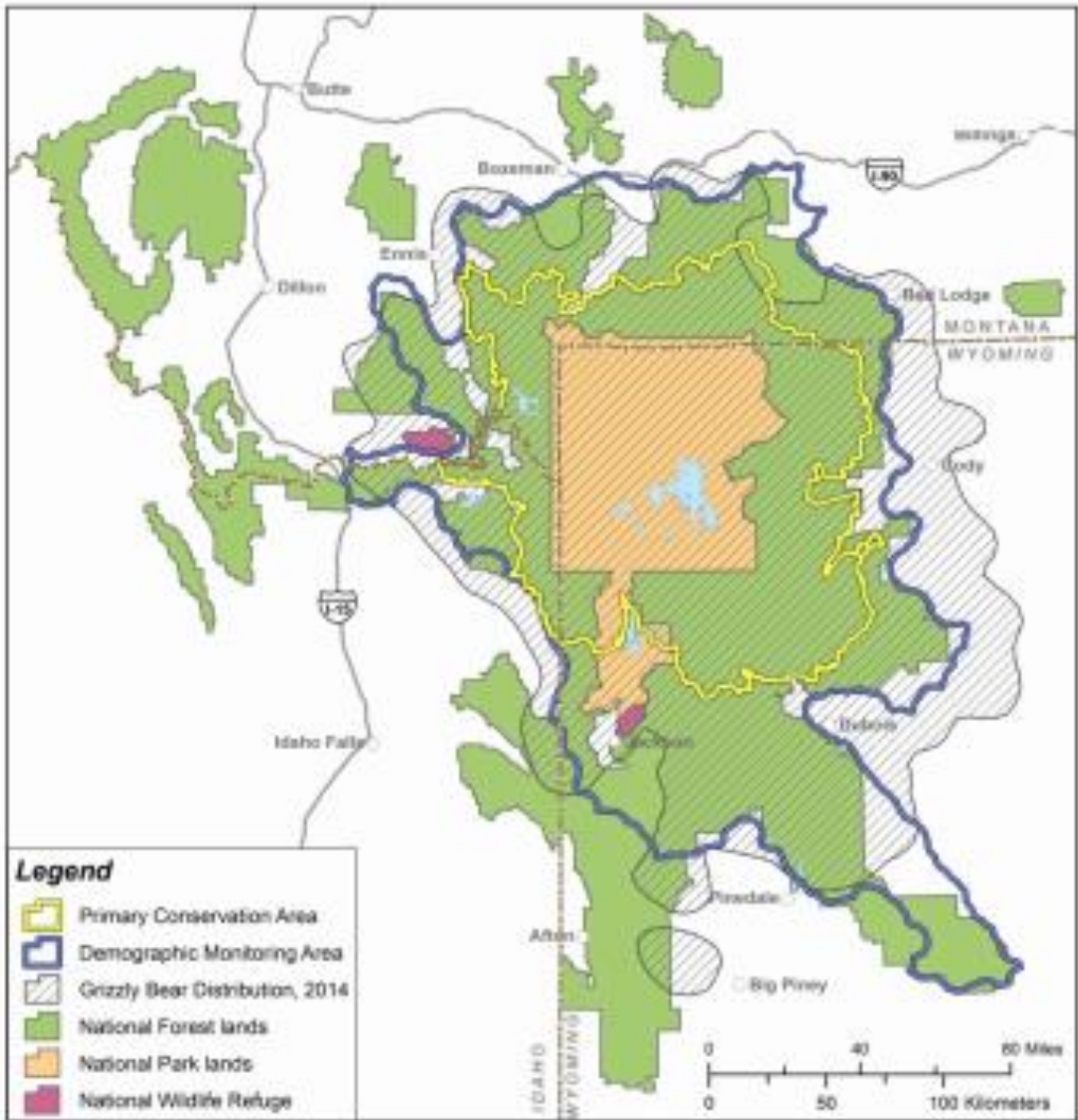


Figure 1: Map of the Greater Yellowstone Ecosystem (GYE) outlining the Primary Conservation Area (PCA), Demographic Monitoring Area (DMA), National Forests, National Parks and National Wildlife Refuge. In addition, the hashed area on the map represents grizzly bear distribution during the year 2014.



Figure 2: Map of the Greater Yellowstone Ecosystem (GYE) outlining the Distinct Population Segment (DPS) boundary, Primary Conservation Area (PCA), food storage order areas, Forest Service, and National Park Service land.

Appendix D: Chapter 68: Wyoming Grizzly Hunting Regulations

Section 5. Hunting Regulations.

(a) No person shall take a grizzly bear by the use of or aid of baiting, including any legally placed black bear bait in hunt areas 1, 2, 3, 4, 5 or 6. Baiting may be permissible in limited circumstances in hunt areas 7 and 8 and shall require a Department baiting authorization permit in accordance with Section 7 of this regulation.

(b) No person shall take a grizzly bear by the use of or aid of dogs.

(c) No person shall take a grizzly bear with a trap or snare.

(d) No person shall take a grizzly bear through the use or aid of radio telemetry equipment.

(e) Hunters may take any grizzly bear except dependent young and female grizzly bears with dependent young

(f) Reporting Grizzly Bear Harvest. Licensees harvesting a grizzly bear in hunt areas 1, 2, 3, 4, 5 and 6 shall report the harvest of a grizzly bear within twenty-four (24) hours of harvest with a Department provided electronic device unless the licensee properly registers their harvest within twenty-four (24) hours in accordance with this section. The Department provided electronic device shall allow the licensee the ability to report their harvest, hunt area, sex of grizzly bear, licensee's name and telephone number. A grizzly bear harvest shall not be considered reported until the licensee receives a Department acknowledgement of their harvest report.

(i) Licensees harvesting a grizzly bear in hunt area 7 or 8 shall report their harvest of a grizzly bear to the Department by calling 1-800-264-1280 within twenty-four (24) hours of harvest unless the licensee properly registers their harvest within twenty-four (24) hours in accordance with this section. The licensee shall provide the date and time of harvest, hunt area, sex of the grizzly bear, licensee's name and telephone number.

(g) Registering Grizzly Bear Harvest. Licensees harvesting a grizzly bear shall retain the pelt and skull from each grizzly bear harvested for registration purposes. Even if the skull is damaged, it shall accompany the pelt. Visible external evidence of the sex of the grizzly bear shall remain naturally attached to the pelt. Within five (5) days after harvesting a grizzly bear, the licensee shall present the pelt and skull to a district game warden, district wildlife biologist or Department personnel at a Department Regional Office during business hours for registration. The pelt and skull shall be presented in an unfrozen condition in order to allow collection of up to two (2) premolar teeth and to allow examination of the pelt to determine the sex and possible lactation status of the grizzly bear. The Department may also collect biological samples at the time of registration.

(h) Any person who provides false information when reporting the harvest of a grizzly bear, or any person who makes a false statement on a grizzly bear registration form shall be in violation

of this regulation and such violation shall be punishable as provided in Title 23, Wyoming Statutes for violation of Commission regulations.

(i) Licensed grizzly bear hunters shall take a mandatory orientation and training course on grizzly bear ecology and management prior to entering the field to hunt grizzly bears. The course shall be provided by the Department.

(j) Electronic harvest reporting devices shall be returned to the Department at the time a licensee registers their harvested grizzly bear with the Department or at the close of the grizzly bear season in accordance with Section 6, whichever comes first.

(k) Licensed grizzly bear hunters shall not take grizzly bears within onequarter (1/4) mile of Wyoming State Highways 22, 28, 120, 131, 296, 352, 353 and 390 or U.S. Highways 14, 16, 20, 26, 89, 191, 212 and 287 within hunt areas 1, 2, 3, 4, 5 and 6.

(l) Surrender of Electronic Radio Tracking Device. Any person taking a grizzly bear wearing an electronic tracking device shall surrender the device to the Department in accordance with registration requirements in Section 5 (g).

Section 6. Open Hunt Areas, Season Dates and Limitations.

(a) Grizzly bear license issuance list hunt areas, season dates and limitations.

Hunt Area	Type	Season Dates	License	Hunt Area Mortality Limit	Limitations
1, 2, 3, 4, 5, 6	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List		Collective female mortality limit – not to exceed one (1) Collective male mortality limit – not to exceed ten (10)
1	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List	2	Any grizzly bear; See Section 6 (b) and (d)
2	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List	1	Any grizzly bear; See Section 6 (b), (d) and (e)
3	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List	2	Any grizzly bear; See Section 6 (b) and (d)
4	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List	3	Any grizzly bear; See Section 6 (b) and (d)
5	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List	3	Any grizzly bear; See Section 6 (b) and (d)
6	1	Sep. 15 - Nov. 15	Grizzly Bear License Issuance List	2	Any grizzly bear; See Section 6 (b) and (d)

(b) Licensees for hunt areas 1, 2, 3, 4, 5 and 6 may hunt any of these hunt areas provided that individual hunt area is open. Hunt areas 1, 2, 3, 4, 5 and 6 shall have a collective female mortality limit of up to one (1) female grizzly bear and up to ten (10) male grizzly bears.

(c) In hunt areas 1, 2, 3, 4, 5 and 6 the total number of licensed hunters in the field shall not exceed the available collective female mortality limit as specified in Section 6 (a).

(d) In hunt areas 1, 2, 3, 4, 5 and 6 the grizzly bear hunting season shall close in each separate hunt area when the individual hunt area mortality limit is reached. Hunt areas 1, 2, 3, 4, 5 and 6 shall all close when the collective female mortality limit is reached, the collective male mortality is reached or on the date specified in Section 6 (a), whichever comes first.

(e) Valid in that portion of Area 2 north of U.S. Highway 26-287 and east of the following: Where the Turpin Meadow Road (U.S.F.S. Road 30050) meets U.S. Highway 26-287 at Fourmile Meadow; northerly and westerly along said road to the Box Creek Trailhead; northerly along the Box Creek Trail (U.S.F.S. Trail 038) to the Enos Lake Cutoff Trail (U.S.F.S. Trail 041); westerly along said trail to the Pacific Creek Trail (U.S.F.S. Trail 036); southwesterly along said trail to the Gravel Creek Trail (U.S.F.S. Trail 042); northerly along said trail to the Wolverine Cutoff Trail (U.S.F.S. Trail 029); northerly and westerly along said trail to the Coulter Creek Trail (U.S.F.S. Trail 029W); northerly along said trail to the Wolverine Creek Trail (U.S.F.S. Trail 029N); northerly and westerly along said trail to the Yellowstone National Park boundary. Also valid in that portion of Area 2 west of Grand Teton National Park and the John D. Rockefeller Jr. Memorial Parkway.

(f) Grizzly bear limited quota hunt areas, season dates and limitations.

Hunt Area	Type	Season Dates	Quota	License	Limitations
7	1	Sep. 1 - Nov. 15	12	Limited Quota	Any grizzly bear
8		Sep. 1 - Nov. 15		Limited Quota	Any grizzly bear; See Section 6 (g)

(g) Currently, grizzly bears do not occupy hunt area 8. Unused licenses for hunt area 7 may be available for use in hunt area 8 upon Department notification and written authorization should grizzly bears occupy this hunt area.

Appendix E: Hunting Areas per Chapter 68, Wyoming Hunting Regulations

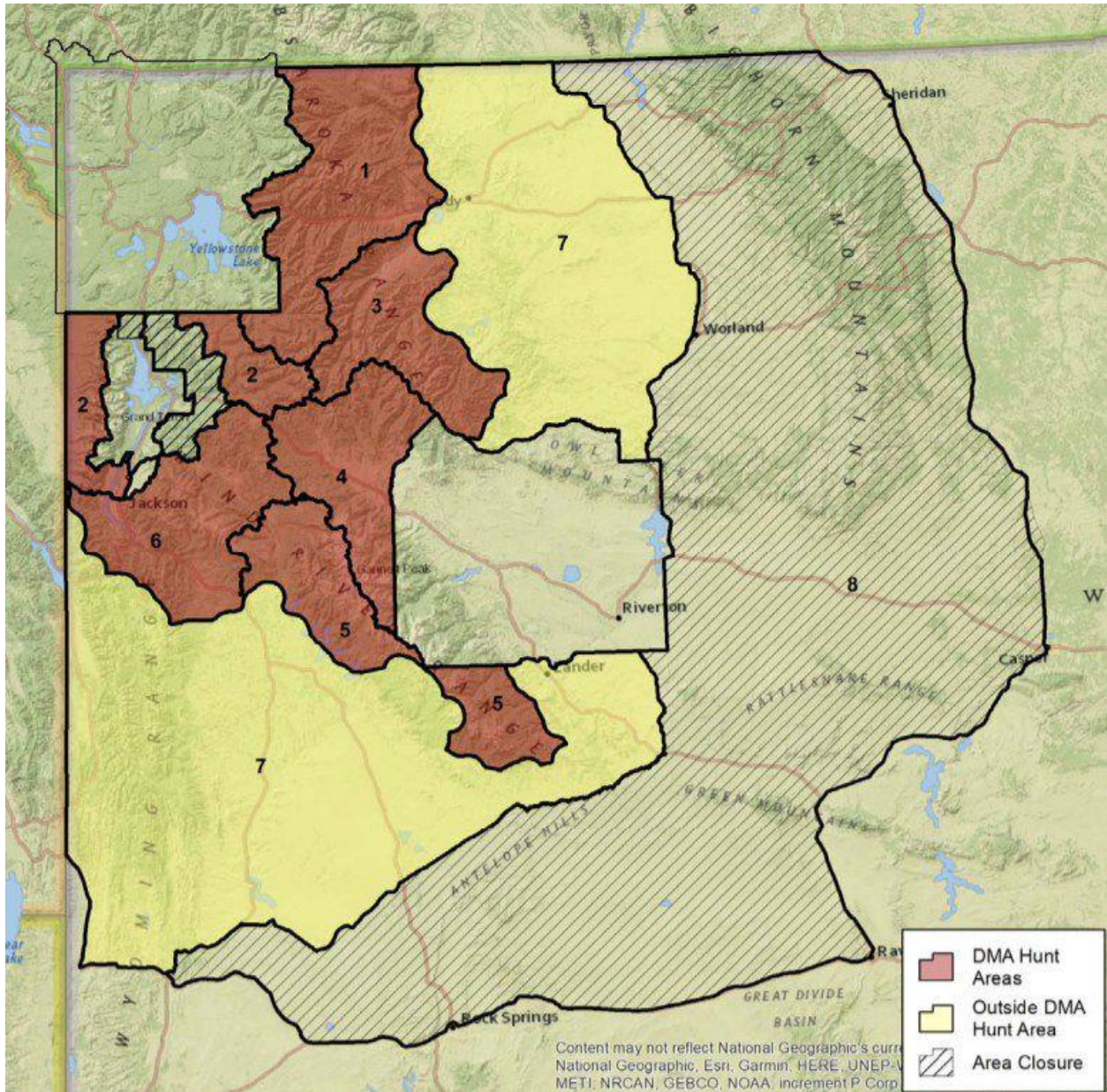


Figure 3: Map of hunting areas in Wyoming as specified by Chapter 68 of Wyoming Hunting Regulations. Red areas indicate hunting zones 1-6, located within the Demographic Monitoring Area (DMA). Zones 7-8 are yellow/no-color, hashed, and located outside of the DMA

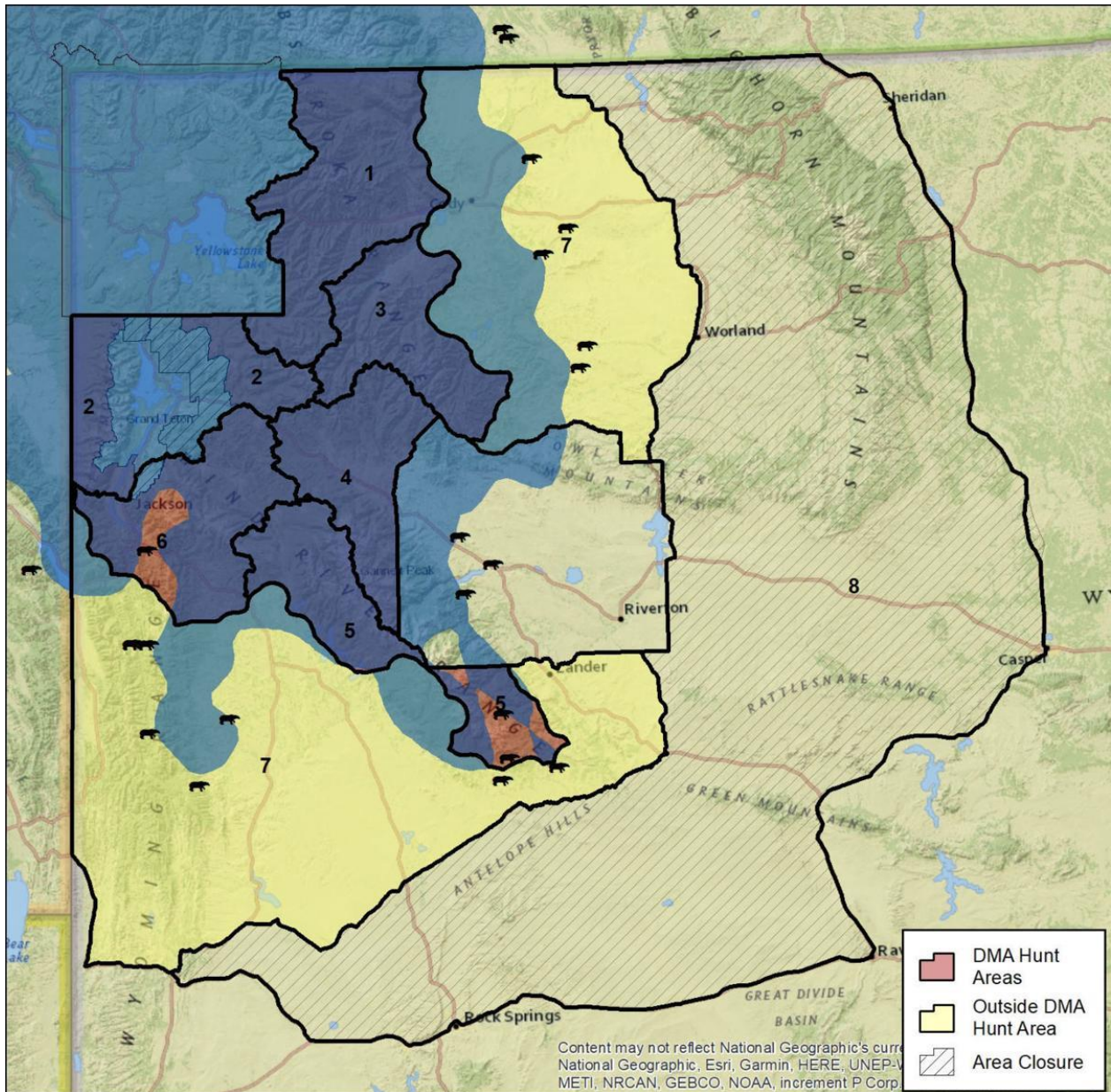


Figure 4: Map of hunting areas in Wyoming as specified by Chapter 68 of Wyoming Hunting Regulations. In addition to specified hunting areas, this map overlays the known 2014 distribution of grizzlies in the Greater Yellowstone Ecosystem (GYE) and identifies the “fringe” of distribution. Red areas indicate hunting zones 1-6, located within the Demographic Monitoring Area (DMA). Zones 7-8 are yellow/no-color, hashed, and located outside of the DMA.