1 August 2016

Bulleted summary of peer review and public comments, organized into issues

Green = agency and public comment
Blue = peer review
Purple = both public comment and peer review

Delisting process and compliance with applicable laws, regulations, and policies

- **ISSUE:** Inadequacy of public involvement:
  - Public comment period not sufficient and not enough public hearings.
  - Public comment period should reopen once state plans are final and once YES releases a final draft of the CS.
- **ISSUE:** Comments that the CS needs to be analyzed under NEPA, NFMA, and the ESA. A draft EIS needs to be completed because this is a change from current management on public lands.

General

- Though the adaptive strategies outlined in this document will address many of the management challenges, I encourage an adaptive process to the plan itself, through periodic assessment and revision as warranted, to ensure any unanticipated mechanisms affecting population-level outcomes are addressed.
- Need increased detail in all aspect of the plans, including habitat, food, and self-defense kills
- Because the CS is not final, the rule cannot adequately assess its adequacy to guide management and monitoring post-delisting
- Request to reopen the public comment period once YES releases a final draft of the CS. And once state plans are final. Some commenters feel that YES is currently making "substantive changes" to the CS.
- Who is responsible for tasks, preparation, and what is the timetable for completion
- Update all tables, graphs, etc. with the 2015 Annual Report Summary prior to a final rule making.
- What is the expected increase in grizzly bear mortality and habitat reduction upon delisting? MULTIPLE PARTS. ADDRESSED IN OTHER CATEGORIES. FR RESPONSES.
- Failure to obtain outside peer view by other scientists is not addressed. FR RESPONSE
- Need to consider how implementation and management of the CS will adversely impact private landowners within the DMA. The CS may adversely impact land owners and the process for satisfying a damage claim for/on both real and personal property will be difficult. ASSISTANCE FROM YES SC
- The USDA Sheep Experiment Station in Dubois, ID is absolutely not needed for grizzly bear management. ASSISTANCE FROM USFS. IRRELEVANT QUESTION

Executive Summary

- The Conservation Strategy should be evaluated and reviewed every 5 years (currently every 5 years or as necessary) YES
- The CS needs to mandatory and not "voluntary". RESPOND TO IN FR (NO CHANGE TO DOC)

Comment [JB1]: FR Response.

Comment [JB2]: FR. Point them to AM stuff

Comment [JB3]: FR Responses

Comment [JB4]: FR Response same as above

Comment [JB5]: Tied to CONSERVATION STRATEGY. THINK ALREADY BEING ADDRESSED

Comment [JB6]: Fr NOTICE COMMENT

- Object to the CS objective to maintain grizzly bears "inside and outside the PCA in biologically and *socially acceptable* habitats" Social acceptance will change with time, people, and location (also in Chapters 1, 2, and 3). YES ASSISTANCE
- The Service should clarify in the preamble that the 2016 Conservation change will evolve with new science. Clarify when referring to the document reviewing now as the 2016 versus a future version of the document. FR RESPONSE AND POINT TO LANGUAGE
- Clarify that the CS is a cooperative agreement and that the Service's role is not to oversee management but evaluate the five factors under the ESA should it be necessary. YES ASSISTANCE (CHAPTER 6 ADDRESSES SOME OF THIS)

Chapter 1: Introduction and Background

- pg. 21 says current entire population was 58 but does not discuss FCOY in the DMA CLARIFICATION IN CS (FWS DO)
- **ISSUE:** Implementation period of the Conservation Strategy (YES)
  - CS should be in effect beyond 5 year minimum
    - The Conservation Strategy must be implemented beyond the minimum 5-years of the ESA. The Service has a history of implementation for longer than 5 years.
    - Say "the 2016 Conservation Strategy will remain in effect beyond the 5-year monitoring period" instead of "in perpetuity" or "indefinitely"
    - Even if states are cautious during the first five years of federal oversight that follows delisting, over time management will reverse gains made over the last 40 years of endangered species protection.
    - Should be in effect for at least 18 years. The post-delisting monitoring for the peregrine falcon was every 3 years for 15 years and every 5 years for 20 years for the Hawaiian hawk.
  - CS should be in effect for only the 5 year minimum
    - The CS should only be in effect for the 5 years required by the ESA and then management should become the full responsibility of the states (all "references to "indefinitely or "in perpetuity" should be removed).
    - The Service inappropriately links mandates to grizzly bear's "conservation reliant" status, such as having the CS in effect "in perpetuity" (States).
    - Since the three demographic recovery criteria have been met, post-delisting should not require management but only monitoring. Management drives up costs and depletes state resources without a biological or scientific need.
  - There should be a commitment to continue robust monitoring and research post-delisting

Chapter 2: Population Standards and Monitoring

GYE Grizzly Bears Recovery Criteria and management objectives

- **ISSUE:** Confusion and concerns about demographic recovery criteria:
  - General concerns about criteria
    - Are the population numbers in the criteria tied to Chao2? FWS RESPOND. LINKED TO METHOD (RPA) AND FR. The Service does not specify the method by which the

population will be calculated. Does the population estimate rely on Chao2 or does the Service retain the discretion to change the calculation method?

- There should no requirements for minimum number of FCOY, distribution of management units, or mortality of dependent young. If the population is recovered then management mortality limits should be enough. FR RESPONSE.

- Concerns about Criterion #1 – FR RESPONSE
  - The trigger for Criterion #1 is inadequate
    - The Service selected 500 as a minimum to maintain short-term genetic fitness. Adjust the minimum number upwards to ensure long-term genetic fitness.
    - No trigger until 500 grizzlies bears, which is too low
    - Should have the same population trigger of 600 as Criterion 3 instead of setting two separate population floors
    - Explain why the 3-year trigger and not a 1 or 2-year trigger.
  - Discrepancy between the RP and the CS in whether the criterion has not been met if it was two or three consecutive years. If it will be changed, the Service needs to justify why three years is appropriate. Should be 2 years. FR RESPONSE -FWS
  - The population objective of 500 bears and maintenance of 48 females with cubs within the DMA are at odds. 48 FCOY equates to ~600 bears. The 500 objective was based on genetic health and is a buffer above the 400 needed to maintain genetic viability for this population. Given that the rule and state management plans establish objectives within the DMA of 600 or more bears, consistent with 48 FCOY, eliminate the 500 objective to reduce confusion or discuss it in its historical context of genetic viability.
  - Needs to reflect that this is not a population target but a minimum to maintain short-term genetic fitness.
- Concerns about Criterion #2
  - Please explain why this trigger is appropriate and based on the best available science. FR EXPLANATION
  - "[Three] consecutive 6-year sums" seems to require at least 18 years to pass before it might be found that this criterion is not being met."
  - How will the 16 of 18 BMUs occupied for three consecutive 6-year sums be calculated? "For example, if less than 16 of 18 bear management units are occupied by females from 2016 to 2023, will the criterion not be met because there was not sufficient occupancy from 2016-2021, 2017-2022, and 2018-2023?" (Center for Biological Diversity)
  - Explain why a 6-year sum of observations is adequate. This is a long time for a criterion of this importance to be met if female occupancy is insufficient. FR RESPONSE
  - Pro-delisting/anti-Service oversight. The criteria for 48 FCOY or FCOY in 16 of 18 BMUs will restrict future adaptive management, too stringent. WE only need mortality limits to ensure total population size stays stable. FR RESPONSE
  - Criterion needs to be more stringent: Occupancy criterion currently only applies to PCA. Occupancy needs to apply to all areas of the DMA, , not just the PCA, stratified on what are currently called 'Flight areas' or BMUs. FR RESPONSE

Comment [JB7]: FR AND CHANGES TO TEXT CLARIFICATIONS

- Concerns about Criterion #3
  - Many commenters felt that the trigger of 600 was too low
    - The average around which the population is maintained should be increased to be more precautionary.
    - The trigger should be higher than the lower 95% CI (600) and should be the average itself (674) or higher
  - The mortality limits should not be tied to a population minimum but should be a criterion on their own if the limits are exceeded.
  - If the population limit drops below 612, the Service should not wait 3 years before determining the criterion is not met
  - Should be made easier to interpret, such as an annual index of observed females with cubs to total observed mortality FR CLARIFICATION
  - Mortality limit for dependent young is unnecessary because it is not currently being measured. FR CLARIFICATION
  - It states that the mortality rates are adjustable, when will these rates be adjusted and how? They are the foundation of the regulatory mechanisms. YES SC. NEEDS EXPLANATION
  - The objective should be described as maintaining a stable population. FR RESPONSE
- Additional Recovery Criteria recommended:
  - Add a trend criterion: "if a pattern of three or more years of consecutive declining model-averaged total population for lower CI bounds occur (even if the decreasing metrics are not as low as the proposed single-year trigger), then discretionary mortality should decrease/end and assessment protocols should begin. FR RESPONSE.

- **ISSUE:** Confusion about the population management objectives and their scientific basis:
  - Concern that the population goal is unclear (i.e., 500 or 600 or 674) and the states would decrease the population by more than 100 bears.
  - Concern that post delisting management allows for managed population decline
  - It should be clear that population will not be managed down to a minimum population size of 500, that this is not a population goal.
  - The Service references a management objective of 674 bears within the DMA. The states have agreed to a "management objective for the DMA of at least a range between 600 and 747 (based on the 95% confidence interval of the estimated average population size between 2002-2014) and upon mortality rates to keep the population within this range".
  - The population should be managed for stable to increasing because some lands within the DMA are currently unoccupied. Should not be managed to the lower end of the population estimate confidence interval of 600 bears.
  - Managing to a target population size is counter to the goal of continued population expansion into all suitable habitat and connectivity with the NCDE and possibly the Bitterroot.
  - Unrealistic to manage a population to a single number when the confidence intervals are large and do not account for all sources of variation so are actually even larger than reported.

Comment [JB8]: FR RESPONSE WITH SOME EDITS TO TEXT

Comment [FJK9]: Issue briefed to Gary and Matt

- There is no scientific basis for the population lower limit of 500 bears.
- Population goals should be re-evaluated periodically to consider natural and anthropogenic changes in the ecosystem.

Measurement of and interpretation of population parameters

- **ISSUE:** General lack of trust in the science and analysis
  - Raw data not available for independent review
  - Monopoly on the data/research, leads to "groupthink"
  - Peer review does not detect error and bias more than random chance
  - There's never one correct model, model building most bias prone form of analysis
  - Need to "guard against Type II errors in data interpretation, when one falsely concludes there is no effect because statistical analyses fail to detect one" (IBA)
- **ISSUE:** Issues regarding Chao2 (our method for estimating population):
  - Confusion about what the Chao2 estimator is
    - The definition of the "Chao2 estimator" in the Glossary is "a bias-corrected estimator of the total number of female grizzly bears with cubs-of-the-year, derived from the frequency of single sightings or double sightings of unique females with cubs-of-the-year as identified based on a rule set by Knight et al. (1995)." However, throughout the Proposed Rule the Chao2 estimator is referenced as producing an estimate of "overall grizzly bear abundance within the DMA"? This discrepancy should be resolved.
    - Explain the details of model averaging as used with the Chao2 estimator. Model averaging is a method used when alternative methods are evaluated using information-theoretic procedures. This is something that warrants careful attention because of problems that can exist with model averaging (Cade 2015). Or if the intent is to estimate abundance for each year between 2002 and 2014 and to average those estimates clarification needs to be made and the term "model-averaged Chao2 estimate" should be avoided.
  - Lack of transparency regarding the Chao2 estimator
    - Is there published literature describing the Chao2 estimator in its entirety?
    - Has the Chao2 population estimator been subjected to peer review?
    - In general, there needs to be more transparency regarding the Chao2 estimator (i.e., What are the demographic inputs and how were they determined? What are the model assumptions? How were initial population size and the different sex-age distributions estimated? and How were natural mortalities estimated and incorporated? etc.)
  - Outdated
    - Not the best available science for monitoring population trend
    - Currently use the Knight rule to distinguish unique females with cubs. Ordiz et al. 2007 proposed a different rule set for counts of FCOY in Europe. Knight rule is how we count unique females with cubs (how avoid counting same female twice).
  - Unreliable/biased: Need to acknowledge the risk and bias associated with Chao2.

Comment [JB10]: RECOMMENDATION THAT WE CHAO 2 ESTIMATE OF 674 AS POPULATION GOAL AND OTHER REFERENCES TO TOEHR NUMBERS BE REMOVED, UNLESS THOSE NUMBERS ARE EXPLAINED (IE. 500 GENETICS). **NEED YES CS CONSISTENT WITH FR**

Comment [JB11]: FR RESPONSE-CLARIFICATIONS, ASSISTANCE FROM IGBST TO VERIFY CHAO 2 EXPLAINED WELL

- Proposed rule fails to account for bias associated with the method or disagreements in the scientific community about the population estimate of ~700 (Doak and Cutler 2014a, 2014b)
- No accounting for factors that might influence sightings of FCOY (females with cubs of the year)
- Total population size is strongly influenced by the multipliers used for dependent young, pre-reproductive independent females, and independent males, introducing more bias
- The Chao2 estimate becomes increasingly negatively-biased with increasing density, so "the Chao2 estimates could level off while the population continues to increase, give a false sense of the population reaching carrying capacity (K). Likewise, once the population has exceeded the density threshold of FCOY that precludes further differentiation of distinct individuals, a decline also would not be detectable until dropping below this threshold." (IBA)
- The Chao2 is only conservative if the population is indeed increasing. If the vital rates or mortalities are misestimated, the population could decline, undetected. (IBA)
- Chao2 could become more unreliable with increased cub mortality because of more difficulty in distinguishing FCOY (i.e., litter sizes are changing). (IBA)

o Potential errors in usage
- The survival rate (and the multiplier) was increased for independent males in 2012 but survival rates actually decreased (Mattson)
- Population composition (i.e., changes in sex ratio over time) (how we use sex ratios in population estimation)
  - What has been the trend in sex-age distribution from 2002-2014, the same time period that is used for the Chao2 estimate?

o Acknowledge ways to manage this bias in the future
- Need to specify that population monitoring will continue indefinitely at the same intensity (neither more nor less) and distribution and under the same design given potential biases in the Chao2 method.

o Females with cubs-of-the-year
- Figure #3 currently shows actual FCOY but the criterion is the model-averaged FCOY. Recommend showing the Chao2 estimate and the trend line on the same graph as actual FCOY.
- Figure 3, Page 38 reads FCOY model average minimum of 48 but page 21 reads entire population was 58 but does not include the FCOY in the DMA (Beaverhead county commissioners)

- **ISSUE:** Concerns about how we measured and interpreted population trend:

o Concerns about measurement/methods
- Annual uncertainty in the population estimate should be compared to long-term averages to give more insight into the population trend
- Negative trend may not be detected with current statistical rigor until too late
- Increased population trend due to biases from increased search effort (i.e. number of hours flown) and sightability (increased use and flights of moth sites). Search

Comment [JB12]: FR RESPONSE WITH ASSISTANCE FROM IGBST

Comment [JB13]: ALREADY ADDRESSED YES CS EDITS, FR RESPONSE/CLARIFICATION.

effort doubled even if standardized to grizzly bear distribution. Increased FCOY mirror increased search time and moths site use.

- The model-averaged approach to estimate population size and trend is insensitive to rapidly changing conditions. The "smoothing" approach should not include data from before 2000 when drastic changes occurred in the GYE. The results, both population size and trend, are highly dependent on the time period being modeled. The more data included, the more optimistically the result is biased. Since 2007, the population trend has declined significantly to 0.8%.
- "The Service employs linear and quadratic models, without statistical or theoretical justification."
- The population growth rate has been over-estimated because it does not account for senescence in both birth and death rates of female grizzly bears (Doak & Cutler 2014a, 2014b).
- Population size is inflated by inflation of survival rates male and female bears 2+ years old and is insensitive to rapidly changing conditions.
- Van Manen et al. (2016) and Bjornlie et al. (2014), the papers cited in the rule, use trapping-effort data instead of reliable capture-recapture population count method.
- Doak (1995) published that there's an 8-13 year lag between habitat decline and population decline, McLellan (2015) recently demonstrated lag effects for grizzly bears in the North Fork of the Flathead River drainage of BC and MT.
- Use of an independent measure to verify model trends, including independent sampling for this purpose, would strengthen interpretation of any model employed.
- The IGBST workshops concluded that it is not possible to rely on FCOY observations as a trend indicator at the current high densities (IGBST 2012).
- The IGBST has failed to deal with the high degree of spatial and temporal correlation in its models and has failed to address a number of potential drivers of birth and death rates (Wild Earth Guardians, p. 7, Section 2.2)
- p. 51 to "strive to maintain" a minimum of 25 adult female grizzly bears with radio collars at all times throughout the ecosystem is expensive and difficult to continue into perpetuity. If not achievable will it lead to unnecessary litigation? What happens if it is not achieved? This seems cost prohibitive.

o Alternative interpretations

- 2015 population estimate was down 6% from the 2014 estimate. Decline due to increased mortalities as a result of conflicts with hunters and livestock and lower cub survival
- The population has not increased since the early 2000s
- Given the low end of the 2015 population estimate of 642 bears and the loss of up to 90 bears in 2015 (59 deaths plus unrecorded deaths which could be another 30 bears), the current population estimate could be as low as 552 bears (Thuermer 2015).
- Survival rates have changed and the population may be "higher" when adjusted for the higher number of males and slightly lower number of females (see Haroldson and van Manen 2014).

- More older bears and fewer cubs and young bears is not a good trend to maintain a healthy population.

- **ISSUE:** Pros/cons of using new population estimator and method (rather than Chao2)
  - Challenges with new methods
    - The Service fails to explain how a new population estimator would be applied, how will deviations between the new population estimate and estimates from Chao2 be reconciled? For example, because of corrections for low bias, corresponding mortality limits may represent a significantly greater number of bears compared to previous years. Harvest levels should not increase in light of a new, less biased estimator.
    - Any new population estimation method needs to be calibrated to ensure long-term comparability of data.
    - The current calculations for total mortality limits are highly sensitive to total population size. Therefore, all aspects of the method used to monitor trend, calculate allowable total mortality, and trigger outside reviews needs to be recalibrated should new methods be adopted for estimating population size. A new method also needs to be made available for public comment.
    - If a new population estimator is used, the number of recovered bears for future management actions should not be re-defined. (Park County Commissioners)
- **ISSUE:** Concerns about limiting monitoring to the DMA:
  - Less intense monitoring outside the DMA may result in less data about individual bears that may behave differently than those within the DMA.
  - Mortality may be misinterpreted when bears killed outside of the DMA have home-ranges that overlap the DMA boundary.
  - Unforeseen, catastrophic events within the DMA (e.g., a fire on the scale of 1988) could displace grizzly bears forcing some to shift home-ranges to outside the DMA boundaries and require sampling outside of the DMA.
  - Need to monitor the population outside the DMA.
- **ISSUE:** Concerns with how mortality measured in proposed rule and current levels of human-caused mortality:
  - Concerns about measurement of mortality
    - Known fate monitoring to monitor death rates is biased because it uses large datasets over long periods that will reduce chances of detecting short-term trends. Death rates calculated from known fate monitoring are in disagreement with the death rates actually occurring.
    - The Service uses Cherry et al. (2002) as its method for estimating total mortalities and then this is used to calculate death rate. This method tends to under-estimate mortality and bias is created by changes in cause of death and changes in capture and radio-collaring efforts (e.g., larger portion of the population is being marked). Probability of a death being reported may depend on cause of death.
    - All mortality outside the DMA should be assumed to be emigrants from the DMA and be counted as losses for the DMA.
    - Excluding mortalities outside the DMA fails to fairly estimate the threats to the population.

Comment [JB14]: FR RESPONSE AND ASK IGBST IF WE NEED CLARIFYING LANGUAGE

Comment [FJK15]: Issue briefed to Gary and Matt

Comment [JB16]: Recalibration text provided by YES CS. We will share our ideas. Probably will need more work. YES CS>

Comment [JB17]: FR Response, explanation

- Shift to a more conservative 50:50 sex ratio when assigning sex to probable mortalities or assume any probable mortality is an adult female.
- To account for annual fluctuations in cub sex ratio, alternative assignment of sex and assign female first or to be conservative assume every unknown is female.
- Need to clarify when referring to the total grizzly bear population versus the population within the DMA.
- Need to provide a more thorough explanation of the mortality definitions for "annual unknown and unreported"

Comment [JB18]: FR notice.

- Concerns about current levels of human-caused mortality (see Issue 17 in WY wolf)
  - Increase in human-caused mortalities in 2015, 59 known and additional 30+ more unknown
  - Increase in hunter caused mortality in the past 11 years from 3.7 to 10.2 bears/year
  - Total human caused mortality has risen steadily since ~1994 (8.9% per year) and drastically since 2007 (7.0% per year)(Mattson). If the population has stabilized since between 2002 and the present then these rates of increased mortality means the population is actually declining.
  - The Service incorrectly concludes that the reduction of human-mortality is no longer a threat because of reduction through I&E programs. Mortalities have continued to rise despite the heavy implementation of I&E in 2008.
  - Mortalities from all causes in 2015 was 61 bears. Reported mortality is about half of actual dead bears "Start adding in the bears that will be shot in the trophy hunt and you could easily approach 200 dead grizzlies in a single year."
  - Female mortality limit was exceeded in 2015.
  - Mortality limits for males and/or females have been violated during 5 out of the last 7 years

Comment [JB19]: FR notice. But depending upon this years information may require verbage edits in document.. YES CS Information sharing

- **ISSUE:** Concerns about our detection and interpretation of trends in vital rates
  - Negative trend may not be detected with current statistical rigor until too late
  - Monitored individuals may be more susceptible to capture and not be representative of the population (e.g., individuals more likely to exhibit neophilic behavior that could affect survival or other vital rate parameters
  - Lower cub and yearling survival since the early 2000s
  - Uncertainty on the driving forces behind the declining vital rates

Comment [JB20]: FR Notice, explanation

- **ISSUE:** Why does the Service believe that the GYE has hit carrying capacity for grizzly bears? (concerns about inadequacy of our discussion of this issue/lack of analysis indicating that carrying capacity is limiting the population throughout the GYE):
  - Doubts that carrying capacity is limiting factor:
    - Loss of food sources is actually the main driver of the significantly slower growth rate in the GYE DPS census that has been observed over the years, not carrying capacity.
    - Grizzlies occupy less than 25% of the GYE. In the CS the Service admits it cannot calculate carrying capacity.
    - The increasing or stabilized population trend does not confirm that the present actions to limit human-caused mortalities are effective. An alternative explanation

to the theory that stabilization is a function of the population reaching biological carrying capacity is that social carrying capacity has been reached.
    - If the population is increasing by 3-4% per year and harvest has to be adjusted to maintain total adult mortalities up to 10-22% in order to limit the population then this is not characteristic of biological carrying capacity.
  - Demographic dynamics could be a result of a decreasing carrying capacity for grizzlies in the GYE
    - Van Manen et al. (2016, page 309) noted that a *decrease* in carrying capacity was a possible alternative explanation for the demographic changes and should be noted in the rule.
    - Carrying capacity has declined in the 1-2 decades with the decline in the four major food sources

Comment [JB21]: FR response, may require additional verbage for clarification/explanation

- **ISSUE:** Density-dependence or density-independence:
  - Concerns about claims of trends in bear density
    - "The density index directly based on the number of bears trapped and radio-marked in a given area during a given year" is not validated and contradicts the straight-forward calculation made by Mattson that the population has not increased and occupy a wider range so density is decreasing
    - Core density has decreased. Mark-resight population estimates show the population was stable since the early 2000s and even possibly declining since 2006-2007. At the same time distribution has increased ~40% (Bjornlie et al. 2013). The same number of bears is occupying a larger range as evidenced by a stable population and larger occupied range.
    - Density did not increase during the 2000s and after.
  - Concerns about claims of density-dependent effects
    - Temporal changes in abundance of key foods and habitat were not accounted for in the index of bear density by van Manen et al. 2016. No basis to isolate any density effect.
    - Only 1 factor (home range size) of the 4 factors is different for density-dependence and density-independence. Decreased cub and yearling survival, increased age of first reproduction, and decreased reproduction cannot be distinguished between food and density as a cause.
    - What is the causal link between density dependence and vital rate declines? Only cub survival through male infanticide has been explained.
    - Intraspecific predation, cub survival, reproductive transition, and increase of age of first reproduction due to limited food resources cannot be used to assume density-dependent population regulations.
    - There is occasional confusion in the use of 'cause', suggesting causality and 'association'.

Comment [JB22]: FR response may need additional verbage. Talk to IGBST

Human-caused mortality

- **ISSUE:** Concerns about the boundaries of hunting activities (where hunting will be allowed to occur):
  - Hunting in the PCA

- There should be no hunting inside the PCA or other densely populated grizzly areas
- Only allow hunting outside the DMA, away from "secure habitat"
- Misconception that there will be no hunting inside the PCA because it is "secure habitat". The Conservation Strategy states that "The PCA will be a secure area for grizzly bears, with population and habitat conditions maintained to ensure a recovered population is maintained for the foreseeable future and to allow bears to continue to expand outside the PCA." And "Habitat security requires minimizing mortality risk and displacement from human activities in a sufficient amount of habitat to allow the population to benefit from this secure habitat and respond with increasing numbers and distribution."
- It is difficult to identify boundaries of the PCA or other "secure habitat", need to limit hunting to readily defined zones.

Comment [JB23]: YES CS. Needs language to be cleared up to clarify. Define secure habitat.

- Hunting in the national parks/national forests
  - Create a buffer of no hunting around national parks or focus hunting away from NPS boundaries
  - No hunting on state and private inholdings within GTNP. The NPS is currently being litigated on its 2014 decision to allow this. The Service failed to assess the impacts hunting on inholdings in the rule.
  - There should be no hunting in the JDR. A grizzly bear hunt within the JDR would have a negative impact on public safety and public use and enjoyment. Pub. L. 92-404, Sect 3(b)
  - Because the public lands belong to the public, public should have a say in how grizzly bears that originate from public lands are managed. Hunters are the minority.
  - Grizzly bear hunting in GTNP must be prohibited

Comment [JB24]: FR response. YES SC help.

- Hunting and connectivity areas
  - Should consider precluding hunting of bears living in suboptimal habitat outside of the DMA in areas of connectivity.
  - There should be no hunting in the connectivity areas (e.g., the Gravelly Mountains, the Centennial Range, the Tobacco Root Mountains, the Highland Mountains, etc.)
- Hunting should occur in conflict areas, like the Upper Green, to potentially address individual bears
- No hunting should be allowed at food aggregate sites (i.e., moth sites and a 10 mile buffer anywhere in the DPS) as these would be "easy killing fields for trophy hunters to wipe out large numbers of bears at one time and place" (Wild Earth Guardians)

Comment [JB25]: FR response. YES SC help.

- **ISSUE:** Concerns and confusion about proposed mortality limits:
  - Discrepancy between the mortality limit tables between rule and CS, footnote in rule of rule to Dan Ashe's letter – should restructure table for 2 columns – 1 for 674 and 1 for <674, allowing the mortality limit to remain at 7.6% at populations <674 would allow the population to be driven down.

Comment [JB26]: YES CS. Table needs to be fixed

  - Doubts about scientific basis of the mortality limits
    - For mortality limits >7.6% for independent females: What is the biological basis for population decline? Unsustainable, especially with increasing density dependent forces. Need scientific justification for the mortality limits and models used to derive

these thresholds, available for independent peer review. Population may continue downward even after reducing mortality to ≤7.6%.

- Given the large CIs on the survival estimates of each sex-age group and non-age-specific reproductive rate (IGBST 2012), the estimated mortality limit must have wide uncertainty.(IBA)
- Calculation of mortality limits and setting of availability for discretionary mortality without a description of the uncertainty (i.e., confidence intervals) gives the false impression of the precision of the population estimates and the presented mortality limit table
- The 7.6% sustainable mortality rate assumes that all females aged 4-30 maintain an average reproductive rate (0.336), this estimation may have been based on transitions of immature animals and old bears in reproductive senescence but provides great uncertainty in the estimation. Average age of first reproduction may increase with carrying capacity (interpretive note from Alex: commenter questioning whether 7.6% is actually sustainable because transitions from immature animals to reproductive bears to non-reproductive bears can change and 7.6% predicated on a certain value of when expect females to start reproducing, which can change. We don't allow for variation in mortality rate if that changes).
- Using "best estimates" for population size, vital rates, unknown human-caused mortality, and natural deaths as proposed in the rule means there would be a 50% chance that mortality limits are unsustainable. (IBA) Should set the mortality limits based on the lower confidence limits. Other larger, connected populations (i.e., BC) have a total HCM annual limit of 4-6% and only 30% can be female and are even lower in areas with higher uncertainty around population estimates (interpretive note from Alex: limit set at mean estimate, rather than end of confidence interval. So if set at mean, 50% chance this will be too low or too high).

o Concerns that the limits are too high/inappropriately set

- Hunting limits do not consider annual environmental conditions such as drought, fire, or berry crop failures, which may be used to refine and temper harvest levels.
- A >7.6% female mortality limit will not maintain population growth
- A total mortality limit for a population level of ≤600 should be set to produce population growth. Simply dropping discretionary mortality is not enough.
- FOIA documents revealed undue political influence in the setting of mortality limits (Robert Aland)

o Clarifying suggestions

- A suggestion is a statement on page 13202 of how many years from 2002-2014 were there bears available for hunting harvest, and what was the annual range of bears available
- Clarify if the total mortality limits is annual or not.
- If 7.6% is the sustainable rate at 674, any drop below should result in a mortality rate less than, not equal to 7.6%.
- Where it says <7.6% at <674 it does not specify how much lower the limit should actually be.

Comment [FJK27]: Issue briefed to Gary and Matt

Comment [JB28]: Need help from YES CS to explain biological basis. IGBST is modeling this to give us more info.

Comment [JB29]: FR Response. IGBST assistance

Comment [JB30]: FR Response.

- All of the tables must contain the footnotes in Table 1 of the rule, so that at a population <674 the mortality limit cannot be 7.6%, which would cause population decline. Additionally, to be clear that the mortality limits apply to total mortality as defined in the rule.
- There are discrepancies between the mortality limits in the proposed rule and the CS.
- It is unclear that the mortality limits are total and what that means in the CS without the explanations in the Rule, leaving open for misinterpretation how many bears are available for discretionary mortality

Comment [JB31]: FR Response

- Alternatives
  - "Having spatially explicit targets for this population would be better, we believe, than exact numerical targets. For example, mortality limits could be higher in the southern and eastern portions of the GYE than to the west and north. Moreover, habitat to the north and west of the DMA should be managed in such a way as to encourage population expansion." (IBA)
  - Risk of overharvest would decrease if mortality limits were calculated/assessed using the lower bounds of confidence intervals
  - Proportional harvest can lead to overharvest and even population collapses when there is uncertainty in population projections. Proportional threshold harvesting, where only a fraction of the excess in estimated population above the threshold is removed, minimizes the risk of overharvest where there is uncertainty in population size (Wyoming Wildlife Advocates, pgs. 7-8 can give more info on proportional threshold harvesting).
  - The mortality limits should be more conservative. The mortality limits are limit by virtue of being based on inflated estimates of population growth. Mortality limits should be adjusted downward to account for liberal bias.
  - Allowable annual total mortality should be calculated as a % of the Chao2 estimate and give a range based on the lower and upper confidence intervals
  - If the goal is a stable population at 674 then it seems logical that all discretionary mortality would cease if the population falls below 674 rather than 600. If mortality is allowed below 674 then it should be at the threshold proposed in 2007, "known human-caused mortality not to exceed 4% of the conservative, minimum population size index based on the most recent 3-year sum of unduplicated FCOY. Mortality limits were set at 4% of Nmin, with no more than 30% of this 4% (1.2% of the population) to be females (interpretive note from Alex: this commenter is just trying to say that if our goal is really a stable population at 674 bears, why would we allow discretionary mortality below 674? Also suggesting that if population below 674, we should keep our mortality limits the way they were in the previous recovery plan, before the revision; the quote is what the mortality limits were in the previous version of the recovery plan).

Comment [JB32]: FR Reponse

- Potential shifts in sex-age classes may be caused by hunting and environmental conditions. These should be tracked and a contingency made for how discretionary mortality might be adjusted in response to such shifts.

Comment [JB33]: FR Response.

- There is no provision for the NPS in the allocation of 'discretionary' mortality. The NPS should be allocated their fraction for foreseeable mortality under NPS jurisdictions.

- **ISSUE:** Confusion around how total and background mortality is calculated
  - The rule provides definitions and calculations not included in the CS (i.e., total mortality, background mortality, discretionary mortality, Table 3 and subsequent 3 paragraphs) that should be included for clarity
  - Background mortality fails to account for unknown-unreported grizzly bears deaths.
  - Need to discuss the uncertainty in the number of bears that die from natural causes or unreported human-caused mortality, broad credible intervals depending on priors and how unexplained an unresolved cases are dealt with (Cheery et al. 2002). IGBST reports do not show credible intervals and natural deaths are not included in the estimation.
  - The method used to calculate total deaths is biased (biased low – IGBST 2012, Table 2.1) and the degree of that bias is not consistent (e.g., effort expended to locate dead bears) and is unknown.
  - The period over which the moving average of background mortality should be defined and account for uncertainty
  - Fails to address loss by emigration out of the DMA and is not counted towards total mortality limits or background mortality when calculating allowable discretionary mortality
  - Difficult to plan to close hunting seasons when total mortality reaches threshold levels when up to half of individual grizzly bear mortalities are never discovered in non-telemetered bears (McLellan et al. 1999).
  - Cumulative annual mortality should be analyzed on a month-to-month or seasonal basis to be used a better predictor to alert managers if annual mortality is progressing in a "normal" pattern or if it is likely to be exceeded. An additional trigger could be added to stop discretionary mortality for the current year in light of this information.
  - Governor Mead requests the removal of language following Table 3 explaining mortality allocation beginning with "[t]here are mortalities that occur…" through the sentence, "[t]these examples serve to explain the process…"

- **ISSUE:** Concerns about mistaken identity kills
  - States should prohibit black bear hunting within the DMA, or at the very least the PCA, to reduce mistaken identity kills of grizzly bears.
  - Idaho and WY should have a mandatory bear ID test for hunters to reduce mistake id mortalities

- **ISSUE:** Concerns about mortality from trapping intended for other game (bear as incidental take)
  - A ban on trapping should be a requirement prior to delisting. Even if trapping is banned for grizzly bears, without ESA protection trapping of other animals could be allowed without Section 9 liability for injury and death of grizzly bears as incidental take.
  - State plans do not require that grizzly bears being caught in traps (as a non-target animal) be reported to the fish and game departments
  - Trapping is allowed in Wyoming and the rule does not address non-target trapping incidents of bears and how this will be managed. (i.e., incidence of cub caught in a trap

Comment [JB34]: YES CS. Need a draft response

Comment [FJK35]: Major issue. I provided a modified example to you in the email for YES.

Comment [JB36]: Change to CS. Need YES SC review and agreement…See new table…

Comment [JB37]: YES SC –State assistance in response. FR response Likely..

near Cody in October 2015 leading to agitated sow nearby). All trapping should be banned within the PCA and the DMA (trapping of any animal).

- **ISSUE:** Selling of grizzly bear parts not addressed in the proposed rule, how common is trafficking in the US?
  - The state legislation needs to pass appropriate laws to make it illegal to sell bear parts, the rule needs to discuss the current state laws or lack thereof

Genetic health

- **ISSUE:** Concerns about our analysis of genetic viability
  - Population size and effective population size
    - There is no scientific basis for the lower limit of 500 bears. We have no evidence that this is the number of bears required for genetic integrity, and the theory behind this estimate is almost entirely irrelevant, referencing an old reference by Franklin (1980)...The 500 bears guidelines might be the right number, but it is not based in sound science. A critical assessment of the use of effective population size in conservation is found in Ewens (1990) and a reassessment of the old 50/500 rule was published by Frankham et al. (2014). See more recent literature Traill et al. 2009 and Willoughby et al. 2015.
    - Effective population size of 100 and a population of 400 (Miller and Waits 2003) is the minimum for short-term not long-term fitness and not a population goal.
    - Population size of 500-5000 is the minimum for long-term genetic viability, not 100
    - The Service picked the high end of the effective population estimate of 469 rather than the more conservative estimates discussed by Kamath et al. (2015).
    - Kamath et al. (2015) also state that N_e is approaching, but hasn't reached, the long-term viable population criterion of >500 defined be Franklin (1980). And that restoration of gene flow would increase fitness.
    - If the effective population size is ~25-27% of total population size (Allendorf et al. 1991; Miller and Waits 2003; Groom et al. 2006) then Kamath et al. (2015) finding of an effective population size of 469 would mean a population of 1876 grizzly bears. In reality, the current population estimate of 717 corresponds to an effective population size of 179.
  - Concerns about confined gene pool, allele loss, and evolutionary consequences
    - Declines in the GYE population would deplete genetic diversity
    - Genome changes are slow and take decades to detect
    - Should model the rate of allele loss due to genetic drift at given population sizes
    - The long-term fitness implications of changes in alleles are not understood. Genetic health is based on heterozygosity, allelic diversity, and effective population size, which are only indices of what may be occurring across generations of microevolution in populations.
    - Reintroduction into other ecosystems is the best option to expand the gene pool
    - The need for genetic diversity for the GYE and for the diversity for all of the current and potential future subpopulations is lumped together. Providing gene flow applies differently to the GYE and other populations. Both need to be monitored, considered, and managed for in the CS. "The Service should clarify that current

Comment [JB38]: FR Response. Assistance from States YES SC

Comment [JB39]: FR Response. Assistance from States YES SC

Comment [JB40]: FR Responses. May need clarification, edits.

genetic diversity sufficiently supports the delisting decision and that future management of genetic diversity after delisting is a separate matter to be managed as described in the Conservation Strategy." (Boone & Crocket)
    - Long-term evolutionary future is not considered (projected), demographic recovery of bear numbers is not adequate for recovery
    - The affects that artificial selection in the place of natural selection will have on genetic drift is not considred.
  - Isolated populations and lack of connectivity; discussion of immigration and dispersal
    - All five grizzly bear populations in the lower 48 are genetically isolated from each other
    - The need for periodic influx of new genetic material is dismissed with a promise from the State of Montana that it will "manage discretionary mortality in [connectivity] area[s] in order to retain the opportunity for natural movements of bears between ecosystems".
    - Justify why 1-2 immigrants or transplants per generation (~10 years) into the GYE will provide adequate gene flow (Miller and Waits 2003).
    - Natural dispersal should be facilitated over transfer of animals between core populations.
    - Genetic management can be accomplished by transport/hauling grizzly bears to/from any one of the 5 recovery zones

Comment [JB41]: FR Response

Comment [JB42]: FR response, may add some verbage to be clear

Chapter 3: Habitat Standards and Monitoring
Habitat management

- General:
  - P.7 identifies four habitat criteria to be measured and reported. Who assembles the information, when is it due and to whom is it reported?
  - p. 57, last sentence first paragraph: "habitat standards in this document are subject to revision…reviewed and updated as necessary" should be defined. Who will review and update and what is the process?
  - Need to address human-caused mortality through habitat management with specific plans and timelines for implementation.
- **ISSUE:** Concerns about how we defined "suitable habitat":
  - The definition is qualitative and weakly done.
  - The suitable habitat definition excludes consideration of sheep allotments and other livestock operations, which are present and increase human-bear conflicts. Instead of excluding sheep allotments from suitable habitat, they should have been considered as a potential threat to GYE grizzly bears under Section 4(a)(1).
  - The analysis for suitable habitat leaves out important potential habitat, such as the Wind River Range, the Palisades WSA into Idaho, and other public lands that lie just outside the DMA and some habitat outside the DMA that is already occupied.
  - To exclude anywhere grizzly bear populations are not currently present from suitable habitat due to social intolerance is not a science-based conclusion. Public intolerance is not a rationale for lowering recovery objectives below what is biologically necessary for long-term persistence.

Comment [JB43]: YES CS. Timeline questions already being worked on.

Comment [JB44]: FR Response. YES CS assistance in providing response

Comment [JB45]: FR Response

- The Service should use spatially dynamic boundaries to allow for shifts in habitat distributions and migrations of grizzly food sources.

- **ISSUE:** Discussion of habitat management appears to be more about management to prevent human-caused mortality rather than identifying biologically important habitats. Provide details on what "biological" habitats grizzly bears use during different seasons and how these vary by sex-age class (e.g., females with cubs and yearlings, sub-adult males, etc.). Quantitative methods for identifying habitats selected by grizzly bears are well developed (see Proctor et al. 2015). There is precedent where courts have accepted resource selection function as rigorous definition of suitable habitat. (requesting additional modeling)
- **ISSUE:** Concerns about how we defined secure habitat:
  - There is an apparent mismatch between minimum secure habitat area size (10 acres) and lake size (lakes <1 mi^2 are considered secure). I would consider most of any lake (open water) as unsuitable (unused) for grizzly bears, thus by definition cannot be secure…Instead of using the entire lake surface area (for those <1 mi^2) as secure habitat, I would consider creating a buffer along the respective shorelines that represents the actual area used grizzly bears.
  - The Service cites the US Forest Service 2006 EIS for secure habitat definition but it contains no justification for the definition. Mattson (1993) recommends that "microscale" security areas contain a core roughly 290 ha in size, 2-4 km from the nearest road or other human facility, resulting in an area 28.3 km^2 in size.
  - Increase minimum core security areas to allow for dietary flexibility, "typically set at approximately 10 km^2, because that size takes into account the size of average daily movements of an adult female grizzly bear (Gibeau et al. 2001). It should be at least 500 m from high human use defined as >100 human visits/month, not just an "open or gated motorized access route." (IBA)
  - Further explain the significance of "10 acres" in defining "secure habitat"
  - "Overall, I support the definition of what constitutes secure habitat and appreciate the no net loss of secure habitat as a consequence of human activities, especially that this acquisition occurs within the same area as secure habitat is lost. I do suggest that consideration be given to the juxtaposition of secure habitat, particularly if substantial changes to its distribution occur over time. Connectivity and corridors can be considered hierarchical, not only necessary to facilitate exchange among populations, but to facilitate movements at the individual and subpopulation level. Ensuring the spatial distribution of secure habitat within and across bear management units facilitates these finer scale movements is warranted." (Interpretive note from Alex: we define secure habitat by size and distance from roads but that's not whole story of what secure means. Once the 1998 baseline was met, Forest Service was allowed to do projects that temporarily impact habitat as long as mitigate in the same BMU. This is getting at the fact that need to make sure that disturbances are such that secure habitat distributed across landscape in such a way that doesn't cause fragmentation)
- **ISSUE:** Concerns about use and development in secure habitat (inside the PCA):
  - Projects inside the PCA should not be allowed that temporarily change the amount of secure habitat.

Comment [JB46]: FR response

Comment [JB47]: FR Response. With IGBST assistance, may add clarifying verbage

Comment [JB48]: FR Response, fix clarification

- Reconsider allowing recurring low-level helicopter flights and temporary road construction during denning season.
- Misconception that hunting will not be allowed in secure habitat (i.e., inside the PCA) (Habitat cannot be considered secure if hunting is allowed?)
- Mortality risk is not static within "secure" habitat. Social and dietary changes since 1998 have resulted in increased exposure to human hazards with no net change (or increase) in livestock allotments and human infrastructure.
- Road densities in the PCA are currently limited but will not be limited upon delisting and will increase mortality risk and logging.
- Only the density of permanent roads is limited and the distinction between a permanent and temporary road is unclear. Temporary logging roads may have higher traffic than a permanent road.
- Increased development of lands around national parks needs to be considered.
- The presence of 500 development sites on the 5 National Forests is a concern: control, reduction, and outreach will be essential to ensure the long-term conservation of grizzly bears in the GYE.
- Exceptions to secure habitat requirements and limits on developments for administrative and maintenance needs should be minimized (or stated more clearly).
- It is recommended that plans are developed to control important habitat components (e.g., role of fires, distribution and abundance of ungulates)
- p. 63, temporary reductions in secure habitat mentions only federal projects. Has any consideration been given to road projects that may be state or county, especially if emergency or large projects may impact more than one BMU are involved?

Comment [JB49]: Tied to hunting issue above for YES SC States

Comment [JB50]: FR Response, clarification.

- **ISSUE:** Concerns about stressors outside the PCA:
  - What is the scientific basis for creating 2 management zones: the PCA and outside the PCA? What evidence is there that these are 2 distinct grizzly bear populations and that bears don't overlap the boundary to justify different management proposals for what is likely one population?
  - It is disingenuous to say that suitable habitat outside the PCA will provide additional ecological resiliency and habitat redundancy to respond to environmental changes; however, the same habitat protections do not occur outside of the PCA as inside the PCA.
  - It is insufficient that 60% of suitable habitat outside of the PCA is protected by other binding regulatory mechanisms. That means 40% remains unprotected.
  - The Service is effectively writing off the 25% of the independent females that occur outside of the PCA because there are inadequate habitat protections outside the PCA, this exceeds the mortality limit for this cohort under all circumstances.
  - Habitat outside of the PCA has become a sink for human-caused mortalities
  - Displacement from roads is well documented and may result in higher mortality rates and lower fecundity
  - p.59, second paragraph "levels of secure habitat and motorized route density are monitored on federal lands outside the PCA to identify and prevent potential habitat threats". Who will define, monitor, decide and pursue amelioration of the threat? What if that process is inconsistent with the current forest service plan?

- There are discrepancies in FS maintenance of secure habitat outside of the PCA between the proposed rule and the CS

Comment [JB51]: FR Response. May need some assistance from FS, NPS.

- **ISSUE:** Concerns about our use of the 1998 baseline
  - Is 1998 the right baseline?
    - Population growth was overstated for the 1988-1998 period for which the 1998 baseline was established and has also been associated with the recent decline in population trend.
    - The 1998 baseline was developed under a different population estimator than currently used (nonparametric Chao2 estimator v. model-averaged Chao2 estimator), is it valid?
    - The 1998 habitat baseline fails to account for the distinction between frequency of contact and lethality of encounter in determining risk of human-bear mortalities to grizzly bears. This is a dynamic phenomenon influenced by human attitudes and behaviors and habitat management needs to change to account for social and dietary changes since 1998.
    - Since grizzly bears have expanded their range and increased in numbers, habitat management should be more flexible and not held to the 1998 baseline.
    - "Since bears have successfully recovered based on current conditions of habitat, a much more effective and understandable standard would be to use "current conditions"." (Park County Commissioners) Or any changes since 1998 should be "grand fathered".
    - The 3 standards listed on p.6 are problematic, especially "with some exceptions for administrative and maintenance needs". P.56 does not discuss those exceptions.
    -

Comment [JB52]: FR Response. Informational for YES SC

  - Is everyone really in compliance with the 1998 baseline (and will they stay that way?)?
    - It is unlikely that the habitat remains in the same condition as it was in 1998 (i.e., whitebark pine decline) even if "security" is unchanged.
    - Does not account for increasing use on, off, and nearby the mapped features, increasing encounter rates.
    - How will the 1998 baseline be achieved? "What will happen to roads and developments that were constructed between 1998 and the present date?" (Wild Earth Guardians)
    - Upon delisting, protections that have occurred in conjunction with the 1998 baseline and that will disappear include: the ESA Section 9 "take" prohibition; the ESA Section 7 consultation requirement; the 1986 Interagency Grizzly Bear Guidelines; and the ESA citizen suit provision. Without these, will the 1998 baseline be sufficient habitat protection?

Comment [JB53]: FR Response. Informational for YES SC

  - Alternative to 1998 baseline: The moving window analysis results from Mace and Waller (1997) should be implemented and is the best available science. Set open motorized route densities, total motorized route densities, and core amounts for every BMU. Not the 1998 baseline.
  - The Service does not address the improvements made or if they meet the level of improvement originally identified in the three subunits that were in need of improved

and have since been improved. (Note from Alex to clarify this: when the 1998 baseline was set, secure habitat was calculated for each subunit in each BMU. Three subunits were identified as deficient and in need of improvements in 1998. All other subunits just needed to stay the same. These 3 subunits were improved but we don't specify by how much. This commenter is wondering if these improvements were sufficient)

Comment [JB54]: FR Response. Clarify level of improvement…

- **ISSUE:** Concerns with adequacy of our discussion of livestock allotments and their potential as a remaining threat
  - livestock allotments within the DMA and the DPS exclude it from being suitable habitat, cause habitat fragmentation, and are a barrier to grizzly bear movements
  - Cattle allotments also cause population sinks (i.e., Upper Green Allotment)
  - Concern that the number of livestock on allotments is independent of the acreage and number of allotments.
  - The livestock allotments standard only applies within the PCA and not the entire DMA. No standards for the entire DMA where a population is to be maintained or in linkage corridors.
  - Issues surrounding conflicts with bears related to livestock allotments (see also discussion under Human-Caused Mortality):
    - Livestock conflicts still account for 14% of human-caused mortalities from 2002-2014. On private lands in the PCA there is no requirement to securely store and/or remove attractants, including livestock carcasses and feed.
    - Require that non-lethal techniques (i.e., removal of attractants, construction of barriers, guard animals, etc.) be used before grizzly bear removal when conflicts occur with livestock on federal land.
    - Livestock allotment permits should require conflict prevention/reduction measures (i.e., educational programs to reduce attractants, etc.) to reduce grizzly bear conflicts and mortalities
    - Holders of livestock allotments in the PCA should expect and accept losses for predator-caused mortalities without expecting aggressive action toward the grizzly bear.
    - The Service must undertake Biological Opinions for livestock operations on federal lands and has failed to require conflict prevention measures.
    - Wyoming Game and Fish Department compensation program has been instrumental in supporting the recovery because depredation has been increasing between 2010 and 2015 -- increased depredation from 20 in 2010 to 80 in 2015 (interpretive note from Alex: the fact that livestock owners being compensated ensures their support for recovery) (Upper Green River Valley Cattle Association)
    - Continue using and expanding programs that prevent grizzly bear depredation on livestock (i.e., carcass removal, range riders, electric fencing around chickens, etc.)
    - Changing environmental conditions may alter the conflict dynamics between grizzly bears and livestock allotments
  - Concerns around phasing out/relinquishment of allotments
    - Phasing out of allotments: include stronger language for mandatory phase-out; work with third parties to buy out allotments where possible.

Comment [JB55]: FR Response

Comment [JB56]: FR Response

        - This should be a management priority, especially for sheep allotments and where chronic conflicts have occurred.
        - "Voluntary relinquishments" of livestock allotments is "driven by the inability to withstand the pressure of predation by bears and/or wolves or regulatory constraints imposed by the federal land agencies"
        - The payment of some compensation by the "NGOs does not negate the severe impacts of relinquishments on these ranchers and our industry"
        - Prior to delisting, the US Sheep Experiment Station must be closed, the only sheep grazing operation in the PCA and on federal land. It is in an important connectivity area between the GYE and the Salmon-Selway Ecosystem.
        - Allowing private interests to control the phase out of allotments (i.e., willing permittees) may violate Section 7 of the ESA and other laws
    - Explain "appropriate analysis by the agency must be conducted to evaluate impact on grizzly bears." Evaluation of impacts does not directly translate into ensuring non-detrimental effects on grizzly bears. (Interpretation from Alex: in the rule we say, "appropriate analysis by the agency must be conducted to evaluate impact [of livestock allotments] on grizzly bears," though we do not specify what we would do if we found impacts.)

Comment [JB57]: FR Response. FS help

- **ISSUE:** Concerns with our discussion of oil, gas, or mineral projects
    - Delisting will lift some of the restrictions on oil, gas, or mineral leases
        - Concern that 4% of suitable habitat inside the PCA and 19% of suitable habitat outside the PCA (inside the DMA) allows for surface occupancy. The impacts of such occupancy can extend beyond the footprint itself. Needs intense monitoring and mitigation.
        - The effects of honoring existing oil, gas, and other mineral leases are unclear. 'Striving' to meet the application rules for changes to secure habitat is unclear. Additional clarification on the number of leases, the location and area of leases, and possible range of effects of these leases to grizzly bears is warranted.
    - Not restricted inside the PCA. Do projects that reduce the amount of secure habitat have to replace secure habitat of similar habitat quality (i.e. is there required mitigation?)?
    - No new oil, gas, or mineral projects should be allowed in the PCA.
    - No means to limit the number of mines because of the 1872 General Mining Law.
    - Currently there are 2 mining operations in the process of development in and near the PCA (the Crevice Mine and the Emigrant Mine). These threats need to be acknowledged in the rule.

Comment [JB58]: FR response. BLM help.

- **ISSUE:** Additional concerns/considerations surrounding human recreation
    - Detriments of increased human visitation/human contact with bears
        - Grizzly bears are twice as likely to use an area when human activity is restricted or people were inactive (Coleman et al. 2013).
        - Longer-term exposure to humans can cause habituation and higher mortality risks (note from Alex: references exist for this but they were not provided by the commenter).

- The number of visitors to national parks has steadily increased since 2005 to the present (YNP 2.9 to 4.1 million and GTNP 2.5 to 3.1 million), increasing risk without a change in infrastructure.
- Increasing visitation and recreation is a concern and presumably a limit on visitation will be needed at some point and should be considered.
- Increased visitation should be assessed as take (section 9) as it harasses wildlife and causes displacement from food sources.
- What is the potential impact to bears feeding on army cutworm moth sites of increased human visitation?
- Food storage orders should be in effect for all habitat within the DPS boundaries, especially within the DMA, within extent of the law.

Comment [JB59]: Acknowledge issue. YES CS help figure out how to respond…

- **ISSUE:** Concerns about our discussion of logging
  - Timber harvest will increase post-delisting because road densities will not be controlled in most grizzly bear habitat. Increased road densities will also increase mortality risk.
  - Concern that 11% of suitable habitat outside the PCA inside the DMA allows for timber harvest.
  - Impacts of logging:
    - Need to analyze impacts from logging between 2002 and the present to determine real impacts. If there was no logging after 2002 the Service should clarify that. (Currently we only discuss logging from 2000-2002).
    - Grizzly bears avoid recently logged forests (McLellan and Hovey 2001; Apps et al. 2004). Habitat values will likely decrease under short-rotation management regimes (Mattson and Knight 1991). Food availability does not increase in early successional forests in Yellowstone as it does in some other ecosystems.
    - Logging will degrade red squirrel habitat, which are essential to making WBP nuts available to grizzly bears. Most red squirrel populations are at lower elevations than the WBP zone.
    - Aside from the increased risk from roads, there is not enough science to determine the impacts of logging on bears (i.e., displacement, habitat quality, mortality, etc.).
  - Designation of secure areas for grizzly bears during logging should include previously disturbed areas as areas already providing security is not mitigation for increased disturbance. (interpretive note from Alex: when project will disturb or change secure area and thus need to mitigate for it, should not be able to mitigate for it with land that has already been disturbed (e.g. previously logged land))

Comment [JB60]: FR response. USFS assistance

- **ISSUE:** Concerns with our discussion of impacts to grizzly bears from activities on private lands
  - More closely analyze the impacts of private lands and what actions, if any, can be taken to minimize grizzly bear deaths and conflicts.
  - Increasing rural development has negative impacts on grizzly bear population trends (Doak and Cutler 2013)
  - "There is precedent for federal managers undertaking mitigation on public lands for harm arising from activities on nearby private holdings (e.g., the 1997 Swan Valley Grizzly Bear Conservation Agreement).

- The 1998 baseline does not account for edge effects with residential and recreational developments on private lands, with development occurring at an accelerated pace
- Education and mitigation is important to reduce the likelihood of attractant sinks developing on the 9% of suitable habitat outside the PCA that is private land.
- Potential privatization of federal land is a threat to habitat maintenance and it is easier to transfer land if there are no listed species on the land (see Issue 42 in WY wolf rule)
- Need to consider how implementation and management of the CS will adversely impact private landowners within the DMA.

Comment [JB61]: FR Response.

- **ISSUE:** Concerns about our discussion of habitat fragmentation → when you consider all the sources of fragmentation together (i.e. private land, livestock allotments, logging, energy development etc.), fragmentation becomes more of an issue
  - There is a high degree of fragmentation in "suitable habitat" within the PCA and to a greater degree in the DMA (Forest Service 2006, Schwartz et al. 2010).
  - No prevention of habitat fragmentation inside the GYE DPS outside of the DMA.
  - The Service does not consider energy development, timber harvest, off-road vehicle use, etc. in potential habitat fragmentation.
  - Private lands contribute to habitat fragmentation of grizzly bear habitat outside of the PCA
  - Add details in the habitat section on how competing land uses (e.g., livestock, timber harvest, etc.) impact grizzly bears and how this could be managed (in rule, talk about livestock and timber from perspective of security but not other impacts like regeneration, habitat quality).

Comment [JB62]: FR Response. See wolf rule

- ISSUE: Forest Service designation of "sensitive species" or "species of conservation concern":
  - Provide specific statutory and regulatory definitions and the authority that accompanies such a designation.
  - Designation under the 2012 Planning rule does not provide the same protections. The same project-level prohibitions do not apply.
  - Designation by the FS as a "sensitive species" or its equivalent is an important component of ongoing management to ensure that grizzlies remain a management priority.

Comment [JB63]: YES SC –Forest Service Response. May changes CS language

- **ISSUE:** No mention of BLM's sensitive species program, its requirements, and how grizzly bears will be classified for planning and management purposes on those lands post-delisting

Comment [JB64]: YES SC –BLM assistance.

- ISSUE: Wilderness, wilderness study areas, and roadless area designations:
  - These designations not restrictive enough to assume that no impact on grizzly bears exist in those areas. In Roadless areas, energy development or road construction in conjunction with oil and gas leases that pre-date the effective date of the rule, off-road vehicle use, motorized ATV trails, and human recreation may impact habitat. In Wilderness and wilderness study areas, mining claims that pre-date the Wilderness Act may be pursued. Livestock grazing is also permitted on these lands.
  - Cannot assume that changes in the management of roadless areas under the Roadless Rule will not occur as it is currently under judicial review.
  - Some aspects of the FS management of Wilderness Study Areas and Roadless Areas are inaccurately described. "The Service states that the Gallatin National Forest determined

that gains in secure habitat resulting from full implementation of the 2006 Gravel Management Plan will constitute a new baseline, but it is unclear why the Service is not enforcing the Gallatin National Forest to decommission motorized routes and develop sites to comply with the 1998 baselines as all other forests have done." 2006 Gallatin Travel Management Plan not approved?

- **ISSUE:** Concerns with adequacy of our discussion of habitat connectivity:
  - P.7 identifies four habitat criteria to be measured and reported but p.57 only discusses 3 in detail.
  - Suggestions regarding measurement/monitoring of connectivity:
    - Sampling outside of the DMA could detect immigration and emigration, which are important for potential genetic exchange among populations. Genetic samples could easily be obtained through mandatory registration of bear hunted in the GYE.
    - New techniques, such as establishing protocols for sampling environmental DNA (eDNA), should be considered to detect movements between different population segments.
    - Monitoring habitat should be a high priority. Please provide details of plans to do this. Step-selection functions can be used to model habitat attributes that facilitate movement and connectivity (Thurfjell et al. 2014), but this is not reviewed.
    - The CS fails to include necessary management protections to allow connectivity with other ecosystems.
    - The CS does not commit to and provide connectivity in its consideration for recovery and so is in direct conflict with other agency regulations, violating the National Forest Management Act (NFMA), National Environmental Policy Act (NEPA), and APA. Section 219.9 of the 2012 Forest Planning Rule.
  - Road construction and connectivity:
    - The guidelines for road construction to facilitate connectivity are vague. Use of crossing structures, signage, and other aspects that might increase effective immigration would benefit from additional clarity. Use of words such as "should", "encouraged", "consideration", and "can recommend" are inadequate to bring about consistent and effect management responses. There should be a commitment to include habitat connectivity in any new road construction and any reconstruction projects.
    - Are there references to support the successful use of crossing structures by grizzly bears?
    - Cooperation needs to occur with the State Highway Departments of Transportation to ensure that new roads or highway improvement projects include consideration for highway crossings
  - Commenters and peer reviewers emphasize the importance of facilitating connectivity and concerns about lack of effective plans for facilitating connectivity:
    - The Service states that it does not consider connectivity to the east, west, or south a relevant issue although the Service recognizes that the GYE could be a source population to re-colonize the Bitterroot Ecosystem to the west. Idaho should allow for connectivity to the BE.

Comment [JB65]: FR Response – USFS assistance. Clarify language

Comment [JB66]: YES SC –add some language about connectivity. Could use MT GB mgmt. Plan, food storage.

Comment [JB67]: FR response, IGBST assistance

Comment [JB68]: YES SC need assistance..

- The concept of need for connectivity is unclear in the preamble. The Service needs to clarify what is needed for management by all parties post delisting.
- Demographic connectivity needs to be addressed in addition to genetic exchange
- Facilitation of movement should be supported as a management objective. Without connectivity to other grizzly bear populations the GYE population remains more vulnerable to local extinction.
- Long-term viability of the grizzly bears is ensured through connectivity of the grizzly bear populations.
- Although the plan mentions the GYE as a source for recolonizing the Bitterroot Ecosystem, there are no plans to facilitate this process and Idaho's plan clearly states that moving grizzly bears into new areas (e.g., the Bitterroot) is prohibited.
- Failure to provide connectivity zones would undermine the NCDE Conservation Strategy
- No connectivity or plans to provide connection between the 6 recovery zones in the lower 48
- Create zones or demographic connectivity areas (similar to the NCDE) between the GYE and the NCDE and the GYE and the Bitterroots to allow for female occupancy.
- Only Montana's plan discusses connectivity and is non-committal. Idaho and Wyoming's plans do not discuss connectivity and are not mentioned in the rule.
- Additional details of the state management plants (mainly Montana) to facilitate connectivity should be discussed.
- Connectivity zones should have the same habitat standards as inside the PCA.
- Reduce the DPS boundaries to be the same as the DMA to allow for connectivity
- Even where there isn't suitable habitat there can still be travel corridors for emigration/immigration of male bears.
- Wyoming and Idaho plans state/strongly indicate that they will prevent the GYE grizzly bear from re-occupying its historic range.
- State plans need to manage for connectivity and not towards a minimum population level as they currently do
- The state management plans will actively discourage grizzly bears outside the DMA

o Connectivity between the GYE and the NCDE should not be a requirement of delisting. MT has committed to allow bears to occur where they are tolerated and expect the populations to intermingle in the future.

o Erroneous points in discussion of connectivity:
  - Please clarify what food storage orders have to do with connectivity.

o A map of the segments of grizzly bears would be useful for better understanding connectivity.

o Additional discussion about landscape (i.e., topography, man-made structures, etc.) and how these mediate movements between the population segments would be useful. Distance alone is not enough to limit movements between the populations. (note from Alex: we talk about distance as a potential barrier to movement between populations. However, we note that the distance would not be insurmountable. We do not discuss any potential additional barriers to movement. This commenter is suggesting we need to consider those in the rule)

Comment [JB69]: YES SC state help to respond

Comment [JB70]: YES SC State help us respond.

Comment [JB71]: FR Response, IGBST assistance.

Comment [JB72]: FR response. USFS assistance.

Comment [JB73]: Might add map to FR.

Comment [JB74]: FR Response to add clarification….

Food resources

- Funding:
  - p. 76, monitoring protocols mention that IGBST will monitor "as budgetary constraints allow". Certainly all the agencies will face similar circumstances but yet it appears that monitoring the four foods is the only protocol with this caveat. What justification can be used to justify this option and why does it apply only to the IGBST and not other agencies?
  - Monitoring of high caloric foods should not be budget dependent and be considered part of adequate funding for the whole strategy and trigger a review
- **ISSUE:** Needed additional monitoring and analysis of food sources
  - Regular review of the complete diet of GYE grizzly bears would provide additional insights of possible dietary shifts beyond the four foods.
  - Analysis of movements and home-ranges of females with cubs would be beneficial because if they are decreasing it would decrease food resources available and support the hypothesis that the population is approaching biological carrying capacity (interpretive note from Alex: this analysis could support our position).
  - The Service needs to employ a matrix that distinguishes high-quality foods with high versus low hazards associated with them and if the hazards are primarily to dependent young, independent bears, or both.
  - Need to continue monitoring the relationship between availability and use of the four main foods and the vital rates and body condition of grizzly bears.
  - The IGBST and the Service "fail to account for potential interactions between spatial distributions of and temporal trends in key food resources".
  - The three IGBST papers (Bjorn et al. 2014, Costello et al. 2014, and van Manen et al. 2015) failed to account for long-term trends in weather and for major changes in abundance of other key foods (army cutworm moths, cutthroat trout, elk, and bison) besides WBP.
  - Food Synthesis Report and Ninth Circuit ruling: The Food Synthesis Report does the minimum to satisfy the requirement of the Ninth Circuit ruling when they should have done a robust assessment of at least all four of the key food sources to detect diet changes.
- **ISSUE:** Army cutworm moths
  - May be reduced by pesticides and new farming technologies
  - All documented moth feeding sights are alpine fellfields
  - Depend on tundra flowers in the alpine that are disappearing with temperature increases
  - 90% of alpine and high subalpine environments will be potentially lost. How moths will respond is unknown.
  - Grizzly bears increased use from almost zero during the mid-1980s to high, sustained levels since the late 1990s, that has not been accounted for in its effects on birth (fatter females leads to greater fecundity) and death rates (remote locations means less potential for conflict with people)
  - Moth sites are spatially correlated with livestock allotments, a major cause of human-

Comment [JB75]: Already addressed. FR response

caused mortality.
  - Moths are a source of concentrated fat and are located in remote locations away from people, an important factor affecting survival (interpretive note from Alex: this comment seems to present the opposite case from the one above. They are from two different commenters so they disagree).
  - Bear use of army cutworm moth sites may not be a good indicator of relative abundance of moths as bears may return to areas where food was previously found even though they sometimes may not be present.
  - The Forest Service plan needs to address the issue of human activity at moth aggregation sites.
- **ISSUE:** Cutthroat trout
  - Have declined with decreased winter snowfalls and reduction in stream flow, which is likely to continue
  - Cutthroat trout has stopped spawning in all tributaries of Yellowstone Lake
  - The Service asserts that only a small portion of GYE bears used cutthroat trout when it's actually ~15%, and that data is outdated (Haroldson et al. 2005).
  - The loss of cutthroat trout has left a seasonal nutritional hole that has been filled by elk calves and lower-quality vegetation (Fortin et al. 2013, Middleton et al. 2013, Ebinger et al. 2016).
  - Questions about the disparity in the use of cutthroat trout in quantity and between males versus females by Haroldson et al. 2005 and Felicetti et al. 2004 in contrast to Mattson & Reinhardt 1995.
  - The decline has disproportionately impacted females, resulting in them eating more terrestrial meat (esp. calves) and leading to a probable increase in cub and yearling death rates.
  - Warmer waters may mean faster growing trout but also means higher incidents of whirling disease and potentially blocked stream outlets with seasonal drought.
  - Carrying capacity has almost certainly declined in the core of YNP with the decline in trout.
- **ISSUE:** Whitebark pine (WBP)
  - Not an issue
    - Will eventually regenerate and help ameliorate the losses that have occurred
    - There has been a 2-fold increase in cone production on surviving trees, probably driven by warmer climates but some believe this is temporary (i.e., masking).
    - If the whitebark decline that has been occurring since 2001 had a negative impact on the grizzly bears then the population wouldn't have continued to increase
  - Bigger threat than we acknowledged
    - The IGBST inadequately represents the extent of whitebark pine loss by using remote sensing and thus wrongly claims that 23-33% of historic bear ranges contained little or no WBP and was unimportant to a corresponding percentage of bears.
    - WBP pine preference only declined at the end of the study (Costello et al. 2015), too short of a time to recognize any population-level feedback in modeled estimates.

The worst of the WBP crash is too recent to detect long-term impacts to the population.
    - Concern over the degree of decline in whitebark pine due to mountain pine beetles and potential future loss due to disease, insects, fire, and reproductive failure. Climate projections predict the terminal loss of whitebark pine from the Yellowstone ecoregion from climate change, increased fires, white pine blister rust, bark beetles, and competition from lower-elevation species
    - Whitebark pine cannot adapt rapidly enough to the changing environmental conditions given its long generation length even if climate-adapted and blister rust resistant trees were engineered and planted
    - Cannot conclude that the GYE will adapt to the loss of whitebark just because the NCDE grizzly bear population has continued to increase in the absence of whitebark
    - The Service needs to account for loss to the 1988 fire and the lack of regeneration after the loss in their analysis of availability.
    - The Service overlooks that WBP die-off and vital rate decline occurred simultaneously.
    - Positive lambda does not mean a healthy population or that the threat is not substantial
    - The declining vital rates have not been fully realized because of the slow reproductive rate.
  - Provide a citation for monitoring items "trends in the location and availability of whitebark pine", if old monitoring protocol is what will be continued then it is inadequate
- **ISSUE:** Ungulates
  - Bigger threat than we acknowledge
    - All of the elk herds, but the Upper Madison, have declined because of increased depredation of calves, drought, chronic wasting disease, and human hunters. Hunters are "super-additive" because prime-age breeding animals are taken (Vucetich et al. 2005, Wright et al. 2006, Mallonee 2011).
    - Bison have probably become more important to grizzly bears with the increase in meat in their diets but the Service fails to present trends in the bison herds (bison plan and brucellosis) and falsely extends the findings that grizzly bears made little use of bison (Fortin et al. 2013) from the Central herd (which is declining) to the Northern Range herd (which is increasing).
    - The Interagency Bison Management Plan and the new bison management plan developed by YNP and MT aim to reduce the migratory bison herd, removing this important food source for grizzly bears in YNP and SW MT.
    - Summer forage conditions (i.e., drought) affects female pregnancy and calf survival in ungulates with unknown effects on herd numbers.
    - Climate change has reduced winter severity and length and the availability of winter-killed carrion in the spring.
    - The Service fails to present its own data that shows a decline in availability of spring carrion (interpretive note from Alex: spring carrion has declined and the Service has data showing this but we did not include this data and analysis in the proposed rule).

- Side effects of grizzly bear reliance on ungulate meat as food source
  - More conflicts occurring with ranchers and hunters as bears eat more meat (livestock and hunter-killed carcasses) to replace traditional food sources.
  - Meat consumption has increased for females with the decline of WBP and trout leading to a decline in cub and yearling survival rates. The difference in consumption of meat between the sexes has diminished. Although the switch to meat is not nutritionally detrimental it has other hazards (i.e., decreased cub and yearling survival rates, hunter-caused mortalities).
  - Cub survival throughout the 2002-2014 time period should be analyzed to assess predator-prey relationships, which may have a lag time in detectability. More meat consumption by adult females with cubs in replace of whitebark pine seeds could be a sink if accessing these resources results in additional cub mortalities during confrontations with other predators or adult male grizzly bears.
- Agencies should manage for higher populations of ungulates to decrease livestock predation.
- Food monitoring needs to be expanded to add numbers of elk and bison in various ecosystem herds
- Ungulate carcasses from hunter kills should be considered an important seasonal food. Monitoring of ungulate harvest where ungulate hunting is allowed by numbers of ungulates killed, species, and mass estimates of typical carcass remains would be a better metric than number of hunters.

- **ISSUE:** Huckleberries
  - Huckleberries are less abundant as a result of warming temperatures and a persistent drought pattern. Bjornlie et al. 2014
  - McLellan (2015) did not see a decline in the grizzly bear population in Canada and northern MT until 11 years after the huckleberry decline.

- **ISSUE:** Hunter Numbers
  - p. 84 first line indicates that there is little evidence of a relationship between hunter numbers and grizzly bear mortality. The next paragraph indicated that the greatest source of mortality is due to interaction with hunters. If the number of hunters has been shown as not relevant, why does the State have to collect the number of hunters for this CS?

Comment [JB76]: YES SC group already worked on . FR response and changes to CS.

Comment [JB77]: Addressed thru YES SC subgroup. Removed language and study team recommended additions Chapter 4. These were not provide to SC.

Chapter 4: Management and Monitoring of Grizzly Bear-Human Conflicts

- **ISSUE:** Concerns about adequacy and effectiveness of management of human-bear conflict (and the subsequent removal of problem bears)
  - Reducing conflict
    - Defense of life and property kills, especially from ungulate hunters, still a major contribution to human-caused mortality. Hunters are only required to carry bear spray inside GTNP and JDRP. All hunters should be required to carry bear spray inside the DPS or at least the DMA.
    - Should limit/eliminate ungulate hunting to minimize conflicts

- Coordinate and fund programs on public and private lands to reduce attractants: deadstock removal, electric fencing, and bear-resistant garbage and feed bins.
- Waste management improvements would be beneficial across counties and communities in the GYE.
- Need to change the attitudes and behavior of people living in grizzly bear habitat to reduce mortalities

Comment [JB78]: FR Response

- Concerns about lethal responses to problem bears
  - Treatment of conflict bears will likely be less conservative upon delisting.
  - Should clarify how conflict bears will be treated inside versus outside the PCA.
  - Conflict removals do not encourage people to use means to avoid conflicts in the future. Lethal control does not increase tolerance.

Comment [JB79]: YES SC already made some changes to address this. FR note those.

- Non-lethal means of responding to problem bears
  - A Grizzly Bear Management Relocation Plan must be prepared prior to any delisting (i.e., pre-agreed upon relocation sites)
  - The Service should provide funds to the states to encourage proactive and non-lethal management tools.
  - Tracking the success of relocated animals should be assessed to determine its efficacy (i.e., genetic contribution to relocation sites, homing of bears).

Comment [JB80]: FR response.

- Data on human-bear conflict
  - The IGBST 2009 Yellowstone Mortality and Conflicts Reduction Report recommended the creation of a database for all bear encounters and mortalities and that it be available to the public. This has not been acted upon.
  - NDVI data (satellite imagery) may be of value to understand bear distributions and potential relationships to human-bear conflict (interpretive note from Alex: can be used to quantify habitat value and where bears are occurring).

Comment [JB81]: FR Response, IGBST assistance.

- Additional content requested:
  - Additional review should be done on the effectiveness of methods to regulate human-caused mortality (i.e., public education, management removals, policy, etc.) and how they might be modified in response to changes in human activity in the GYE.
  - A review of the social aspects of managing large predators would be beneficial.
  - Need to discuss resolution of conflicts on tribal lands.

Comment [JB82]: FR notice

- Need to include a definition for habituation and clarify when habituated bears are killed (Deidra Bainbridge)

Comment [JB83]: FR notice . Wayne K helps.

- Need to include plans to manage gut piles so that bears aren't attracted onto private land

Comment [JB84]: FR Response

- The nuisance bear standards should be applied throughout the DMA… within the entire GYE DPS

Comment [JB85]: YES SC –Assistance on Responding.

- Agencies should have predetermined relocation sites to ensure appropriate habitat

Comment [JB86]: FR Response

- The nuisance bear standards differ between the NCDE and the GYE with no biology reason. The standards in the NCDE must be included in the GYE CS to include:
  - "State, Federal, and Tribal agencies will retain Grizzly Bear Management Specialists and law enforcement officers to rapidly respond to conflicts, perform public education, implement proactive sanitation measures such as fencing and livestock

carcass redistribution, and assist with grizzly bear relocations and remavals." "Preemptive moves will not be used to stop distribution increases (Dood et al. 2006)."

- p.8 and 92 discuss removal. Why are removals only allowed to be placed in "public research institutions or public zoological parks"? Why limit flexibility for future decisions or only certain recipients?

Comment [JB87]: FR Response

Comment [JB88]: FR Response

Chapter 5: Information and Education

- **ISSUE:** Concerns about our discussion of information and education
  - Need increased I&E to teach people how to live with bears; more I&E for visitors on bear safety
  - Has failed to alter hunter behavior (i.e. bear id training) as evidenced by the loss of 11 grizzlies from 2009-2015. Bear spray needs to be required and education to use it.
  - Modern media would be advantageous to integrate into I&E through apps and citizen science.
  - Suggest adding language that bears around roads, campgrounds structures, within city limits or around landfills should not be rewarded or encouraged to remain. These bears are not the ""norm" of what this species should be for their long-term management" (Park County Commissioners)

Comment [JB89]: FR Response

Chapter 6: Implementation and Evaluation

- **ISSUE:** Role of YGCC
  - What is the role of the YGCC in sponsoring and approving changes to the 2016 CS? Discrepancy in language between the PR and the CS.
  - Question the functionality of YES/YGCC
- **ISSUE:** All language should firm: remove will, anticipated, expect, etc. (are we firm and committed to doing this or are we leaving the option open?)
- **ISSUE:** Concerns about adequacy of funding for implementation:
  - Add the requirement that "funding fully procured" for the CS to go into effect
  - There is no formal outline for budgetary needs to carry out the CS post-delisting
  - What happens if the YGCC fails to obtain the necessary funding to ensure implementation of the CS? Does this trigger a status review or emergency relisting by the Service?
  - Change "could" to "will" in "A Biology and Monitoring Review could occur if funding becomes inadequate to the implementation of the draft 2016 Conservation Strategy…"
  - Is the IGBC still working to set up a Grizzly Bear Conservation Fund through National Fish and Wildlife Foundation to commit funding to implement the CS?
  - Funding will be an issue because hunting licenses will not be sufficient to cover state costs. The Service should assist the state to continue field biologists to minimize and manage bear conflicts.
  - Is there any commitment by the Service to continue funding monitoring or conflict prevention, etc.?

Comment [JB90]: YES SC. Already addressed.

Comment [JB91]: FR Response, add changes to document

- The proposed rule assumes sufficient federal and state funds will be available for the foreseeable future to monitor and detect population changes with enough resolution to trigger fallback mechanisms (e.g., no discretionary mortality if population <600).

Comment [JB92]: FR Response. See wolf response.

- **ISSUE:** IGBST Biology and Monitoring Review
  - The timeframe for the completion of an IGBST Biology and Monitoring report need to be stated and a time period for a remedy the issue
  - The generation length for grizzly bears is likely close to 10 years and a frequency of a demographic monitoring review by the IGBST should be 5 years (rather than 5-10 years) to be consistent with precautionary management.
  - Standardize response in the rule, CS, and state management plans

Comment [JB93]: YES SC. Help with response, What is time line for review.

- **ISSUE:** Concerns about the triggers for Service status review (see Issue 49 in WY wolf rule):
  - Concerns about lags in detecting population declines
    - There is a lag in decision-making response to population declines that drop below 600. This may especially be true in high mortality years.
    - Define "significant" in the statement "if…[t]here are any changes in Federal, State, or Tribal laws, rules, regulations, or management plans that depart significantly from the specifics of population or habitat management detailed in this proposed rule and significantly increase the threat to the population".
  - Proposed changes to/clarifications of current triggers
    - Initiate a status review if the Chao2 population estimate falls below 600 rather than 500.
    - Status review triggers are inconsistent between the documents (2 versus 3 years)
    - Management approaches should be reviewed if mortality limits are exceeded for two consecutive years rather than three consecutive years as is currently proposed. Currently, states could exceed mortality limits in 7 out of 10 years, which would likely mean a declining population with no check until the population dropped below 600.
  - Proposed additional triggers
    - Lack of funding should be added as a trigger for a status review with potential for relisting as well as a Biology and Monitoring review trigger
    - There should be triggers related to habitat standards and monitoring protocols, they are all population standards
    - There should be a status review if failure to demonstrate at least once during each 6 year period of observation, natural connectivity between the GYE and the NCDE.
    - If the states list grizzly bears as predators at some point in the future then grizzly bears should be relisted immediately.
    - The Service says that lag effect is only a concern if the sole method of detecting changes in habitat but that a suite of other indices are being monitored. However, the suite of indices is not detailed or explained why it enables us to detect the consequences of significant habitat change. This type of adaptive management was rejected by the Ninth Circuit court in the 2007 delisting rule. Need more specific management responses tied to more specific triggering criteria. Population objectives/triggers do not necessarily reflect the health of the habitat. (we are arguing that the lag effect on how habitat conditions affect the population (e.g.

decline in food resource, lag effect on how will impact population) isn't a concern because we are measuring other indices, but we don't specify what those are. This commenter wants to know what these additional indices are/what our triggers are for the habitat indices)

- Standardize agency responses in the rule and other management plans (CS and state plans)
- What would be the parameters of "warranted" for the Service to initiate a formal status review "3) if the Service determines a petition to re-list from an individual or organization including YGCC, is warranted"

- **ISSUE:** Concerns about the Service's authority
  - Service overreach?
    - The rule compromises the states management authority (i.e., requiring the state to establish a hunting season before delisting can occur).
    - The tone and specific comments indicate a level of continued Service engagement that exceeds their authority under the ESA.
    - Congress does not give the Service that authority to direction provisions of the monitoring plan but that it should be done in cooperation by the state.
    - Does the Service have the authority to require that grizzly bears be classified as "non-game"
  - Need more Service involvement?
    - What is the post-delisting role of the federal government?
    - "Management should continue to be the responsibility of the USFWS."

Chapter 7: Existing Authorities

- ISSUE: Forest Service plans and implementation:
  - The 2005 guidelines for habitat outside the PCA are not legally enforceable. Standards should include road density, secure habitat, and no surface occupancy stipulations for all federal lands within the DMA.
  - The 2012 Planning Rule requires the Forest Service to consider connectivity, including roads (permanent or temporary, open or closed) and site development in light of how they may increase human-bear conflicts and grizzly bear mortality.
  - The 2006 Amendment cannot "simply be resurrected" once a new delisting is finalized. The FS has to do a new planning process and public review to amend their plans because the new CS changes the habitat protection provided by existing forest plans.
  - Forest Service plans are not regulatory documents because of the 2012 Planning Rule.
  - Forest plans to implement HBRC may not be implemented once listed status, which provides tools and incentives, is removed
- **ISSUE:** What can we consider as an adequate regulatory mechanism?
  - It is not acceptable to simply state: "standards and provisions not yet incorporated into management plans will be integrated into future land management plan amendments or revisions."

Comment [JB94]: FR response. May make changes to RC depending upon RO support

Comment [JB95]: FR Response

Comment [JB96]: FR Response. Wolf rule…

Comment [JB97]: FR Response, working with FS. There may be edits to FR and CS.

- Process surrounding the proposed rule is flawed because it relies heavily on the CS and state management plans or other management regimes that are either not finalized or outdated
  - Adequate state plans, regulations, and the MOA must be finalized to a final rule
  - The 2006 FS plan no longer represents the best available science and the rule says "the amendments to the GYE National Forest Land Management Plans would become effective if, and when, delisting is finalized". Therefore, the FS doesn't currently have regulatory mechanisms to exhibit adequate regulatory mechanisms.
  - YNP incorporated the 2007 CS into its compendium and do not reflect the revised CS and are therefore insufficient. GTNP "will incorporate grizzly bear management standards into their 2016 Superintendent's Compendium" reads as if it'll include the 2007 CS and not the revised CS.
- MOAs and management plans cannot be considered adequate regulatory mechanisms

Comment [JB98]: FR Response. May need clarifying language.

- **ISSUE:** Concerns about adequacy of state management plans and their ability to appropriately manage grizzlies
  - Critical
    - Montana and Idaho do not plan on revising their existing, inadequate grizzly bear management plans
    - The three states "have shown little if any ability to be in agreement when it comes to managing wolves or other species". "I see grizzly bear management from these states no different. There needs to be uniformity, consistency, and communication among these three states to prevent elimination of the bear from certain landscapes."
    - Concern that the states will be swayed by political pressure in their management plans as they must go in front of state legislatures for approval, disapproval, or amendments
    - State management "will relegate the bear's importance to only a few special interest stakeholders" (Cougar Fund)
    - Complications of multiple state management: "allocation among states and tribes, feasibility of enforcement, prevention of exceedance of limits (including gender limits), and subsequent implementation of mitigation (reducing discretionary mortality) in a following year"
    - At least 2 of the states have "clearly demonstrated non-precautionary management of large carnivores, as exemplified by unsustainable harvest levels of the NRM gray wolf (Creel and Rotella 2010; Ausband et al. 2015)."
    - WGFD has not identified all threats grizzlies will face outside of the NP boundaries.
    - Who will be the watchdog for the State fish and game departments if grizzly bear management falls to them?
    - What measures have been put into place to ensure that grizzlies within the DMA but outside the PCA will be managed in a consistent method between the three states ensuring that nuisance bears do not exceed mortality thresholds, Criterions 1-3 are met, and facilitates genetic connectivity?
    - The states do not establish population targets and associated specific harvest criteria but rather a minimum population size leading to concern that the states will

overharvest and a lag in management response could drive the population below the desired minimum.
    - "The ESA represents the conscience of the broader public when it comes to grizzly bears and other imperiled species. By contrast, our state wildlife management agencies in the Northern Rockies represent the views of a politically influential minority whose interests focus on extractive uses of the natural world." Willcox 2016
    - The Conservation Strategy needs to be clearer on how states are coordinating with each other
  - Supportive
    - MT committed to sound management practices into the future. "Montana has the expertise to conserve and manage grizzly bears, and we are committed to continuing our sound management practices into the future. The Yellowstone area's wildlife is one of the region's great resources, and perhaps the most charismatic of all the species is the grizzly bear." (public comment from Steve Bullock)
    - The Strategy "includes every possible safety net, including triggers for relisting"
    - "Since 1975, Wyoming has spent more than $40 million on grizzly bear management. Wyoming remains committed to robust grizzly bear population and ensuring they never warrant protection under the ESA again." (Governor Mead)
    - MT, WY, and ID have agreed to collectively manage the GYE population at the ecosystem scale to maintain recovery through the MOA and all three states Fish and Wildlife Commissions

Comment [JB99]: FR responsive. YES SC? States? Need to add specificities of State Mgmt Will need help from states to add information to Chapt. 7.

Comment [JB100]: FR Response

- **ISSUE:** Adequacy of proposed hunting regulations required from the Service/points of confusion (see Issue 19, 39, and 40 in WY wolf, kind of)
  - Inadequate because...
    - Difficult of the common public to identify males vs. females in the field, outlined strategy to protect females is not adequate
    - States are given too much discretion: manner of take (e.g., baiting, hounding, trapping, stalking), bag limits, seasons, sex ratios and age limits for grizzly bear hunting. Many of these are allowed for black bears.
    - There are significant gaps in the measures the Service requires the states to implement that leave too much latitude for individual states to develop regulations that would not provide adequate GYE-wide coordination and consistency.
    - All hunters should be required to carry bear spray
  - Adequate because…
    - Timing the hunt to minimize female mortality is (1) not a legally binding requirement and (2) timing and location of hunts cannot be reliably manipulated to avoid the take of mature females (i.e., denning times are highly variable with weather and food conditions). Although males usually emerge from dens earlier than females, the difference is usually only 2-3 weeks.
    - "Lack of bear trapping is not a foundation for grizzly bear delisting and this should be made clear." (Governor Mead) The rule reads "….we do not expect grizzly bear trapping to occur due to public safety considerations and the precedent that there has never been public grizzly bear trapping in the modern era."

- Clarification needed
  - If discretionary mortality is suspended, except for human safety purposes, when the population estimate is below 600, how is "human safety purposes" defined? There are blurred lines between human conflict and human safety.
- Proposed additional regulations:
  - The shooting of a grizzly bear traveling with another bear or bears should be prohibited to avoid killing a female with cubs or a bear two years old or younger.
  - The hunt dates should be coordinated through the YGCC and timed to minimize risk to females and females with cubs.
  - Normal licensing and hunting procedures should apply, open to the public and non-resident hunters, Limited and controlled hunts should not be permitted
  - Heavy fines and hunting license revocation should be in state regs to incentivize compliance with carrying bear spray
  - Should be a ban on baiting, trapping, and the use of hounds for grizzly bears in the GYE DPS as a state requirement before delisting. Montana's proposed regulations prohibit baiting or hunting with dogs or use of scents to attract grizzly bears. They also set conservative fall and spring seasons to reduce female mortalities. Why doesn't the Service require similar regulations of Wyoming and Idaho (Coalition to Protect America's National Parks)
- Because the CS and state plans allow for removal of a conflict bear for human safety at any time, discretionary mortality limits are only applicable to hunting (interpretive note from Alex: inconsistency in use of terms hunting and discretionary mortality that we need to clarify)

Comment [JB101]: FR response.

Editorial

- Definition for MFWP not in CS
- Standardized tables across the 3 documents.

Comment [JB102]: FR fix that

Comment [JB103]: FR fix that…

Conservation Strategy Appendices

- Appendix A – the resource allocated are meaningful but cannot be assessed with the information provided
- Consider including other documents frequently cited by CS in the Appendices (i.e., The Food Synthesis Report)
- Make sure all appendices have clear authors and date
- Appendix I – no basis for the statement that humans will be safer because bears will avoid people after hunting is allowed. "Likening grizzly bear behavior to herd animals (elk in Yellowstone) is absurd." (Debra Patla) If this were true would bears be driven from important back country food sites as a result of hunting? Will bears that have adverse experiences with hunters become more aggressive?
- Appendix C: concern that new population goals and mortality limits for the future are dictated through adoption of a new population estimator
- MOA missing from draft CS, essential details necessary to evaluate the rule and CS
- Updated state management plans not available for review at this time

Comment [JB104]: FR response.

Comment [JB105]: FR Response. Add clarification

Comment [JB106]: YES SC-States. MT. From their writeup. Help in responding.

Comment [JB107]: Paragraph deleted. Note this in FR

Comment [JB108]: FR Notice. Added.

Comment [JB109]: FR Notice. Added.

- Not available for public review/comment and need to be before a final rule

Comment [JB110]: FR Notice. Added.

MOA

- Refers to the 2007 Conservation Strategy rather than the 2016
- No mechanism by which excessive non-discretionary mortality moderates discretionary mortality nor is there mention of undocumented/unreported mortality (i.e. total mortality estimate). Need to include the example from the PR.
- The maintenance of a minimum population size of 500 bears in the GYE should specify inside the DMA
- Should be clear that the population will not be managed down to a minimum population size of 500, that this is not a population goal.
- The MOA and state plans need to clearly state how a new estimator will be calibrated as directed in Appendix C and undergo public review.
- Is focused on maintaining a minimum number of grizzly bears in the DMA and does not adequately address genetic concerns or connectivity. "Viability" is not the same as genetic quality.
- Does not recognize the loss of genetic material without immigrants or transplants or commit to provide for natural immigration or transplants.
- Does not address the impacts of hunting on population generation interval.
- Misuses Miller and Waits (2003)
- The NPS must be invited/formally consulted to participate in the annual meeting to review population monitoring data
- "The parties may agree to adjust the allocation of discretionary mortality based on management objectives and spatial and temporal circumstances". The states should not be allowed to move around the percentage of mortality allowed annually as this could lead to population sinks.
- Is inconsistent with the rule, must say that hunting will be suspended within the DMA if mortality limits are reached and not within one state or hunting unit.
- Says background mortality will be used from the previous year to calculate hunting whereas the rule says most recent 4-year period, only using 1 year could have a significant negative impact if it was below average.
- No commitment to maintain a specific number of radio-collared females or other data collection addressed in the rule and CS. States alone cannot manage all of the data collection and analysis.

Comment [JB111]: YES SC –assistance from State to respond. .