

100 General comments

- In support of the delisting and the associated DPS designation
- Questions about the accuracy of the ~700 population estimate. Doak, D.F. & K. Cutler. 2014. Re-evaluating evidence for past population trends and predicted dynamics of Yellowstone grizzly bears. *Conservation Letters* 7(3): 313-322.
- The science is not confirmed because the raw data has not been made available to scientists outside of the IGBST for analysis.
- “Virtually none of the most recent science published in peer-reviewed journals by the IGBST and used by the Service in this Rule is reliable.” (Mattson 2016). The IGBST has a monopoly on the data pertaining to the GYE and the PR. Model building is one of the most bias prone analysis and there is never 1 correct model. Data needs to be available to other scientists for collective deliberations.
- Error and bias is not likely to be detected by peer review and is not a guarantor of scientific quality.
- All data should be made available to any researcher to undertake independent analysis
- The IGBST inadequately represents the extent of whitebark pine loss
- “Peer review is unlikely to detect much less correct for bias in IGBST science introduced by monopolistic arrangements.” (Mattson 2016)
- The boundaries of the GYE are unclear in the sentence “while there are no distinct boundary to the GYE, it is generally defined as those lands surrounding Yellowstone National Park with elevations greater than 1,500 meters (m) (4,900 feet (ft)).”
- Against trophy hunting – iconic bears that seasonally travel outside of NPS boundaries for hibernation, etc. would be susceptible to be hunted – 68% of the American public does not think GYE grizzly bears should be hunted
http://www.humanesociety.org/news/press_releases/2016/04/opposition-yellowstone-grizzlydelisting-041216.html?credit=web_id65489811_web_globalfooter
- The DMA boundary should be reconsidered to not include habitat such as Upper Green allotments
- The DMA should be expanded to include all designated wilderness lands adjacent to the proposed DMA.
- The Service should manage for a metapopulation with net positive growth to allow for natural recolonization of unoccupied suitable habitat
- “The Service fails to use the best available science in describing the taxonomy and evolutionary biogeography” of GYE grizzly bears (Mattson). GYE grizzly bears are “part of a clade (Clade 4) with an ancient and unique history, a restricted distribution, and warranting consideration as an evolutionarily unique and threatened genetic lineage”. And therefore needs to address recovery of more of Clade 4 in North America.
- “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

- Process surrounding the proposed rule is flawed because it relies heavily on the CS and state management plans that are either not finalized or outdated.
- 60 days is not enough time for public comment given that the three documents constitute over 678 pages worth of information. Request to extend public comment period given that the concurrent documents are not available and/or not finalized.
- The Service failed to provide additional public hearings
- Under Section 7 of the ESA, the PR and the CS must consider connectivity as a threat to other recovery areas
- The GYE grizzly bear exceeds the social carrying capacity
- The Service fails to consider threats outside of the DMA as threats to grizzly bears in the GYE. Invisible boundaries cannot be used to classify the health of a population. The Service must reanalyze the five factor analysis to include areas outside the DMA.
- Excluding mortalities outside the DMA fails to fairly estimate the threats to the population.

200 **DPS comments**

- The USFWS cannot create a DPS to remove that DPS from the list of threatened and endangered species. *Humane Society of the United States v. Jewell*, 2014 WL 7237702 (D.D.C., Dec 19, 2014). One-way ratchet. There cannot be a DPS without an endangered or threatened status.
- Because grizzly bears were listed as a threatened species as a single unit in the lower 48 states, they must be delisted the same way.
- The Service erroneously interprets range as meaning the range in which the species currently exists.
- SPR analysis: the Service fails to explain that current range is a sufficient fraction of its larger, historical range. “it is on the record apparent that the area in which the [species] is expected to survive is much smaller than its historical range, the Secretary must at least explain her conclusion that the area in which the species can no longer live is not a ‘significant portion of its range.’” The proposed rule only focuses on the GYE itself and dismisses areas outside of the 5 currently occupied zones as “likely to never contribute meaningfully” to the population of GYE grizzly bears. The SPR document 16 USC §§ 1532 is currently subject to litigation.
- The Service must not consider whether expansion into historic range would be “socially acceptable” or politically popular or economically disadvantageous.
- The Service must analyze SPR to include the grizzly bear’s historic range and analyze where lost historical range qualifies as a “significant portion”
- And if the DPS is legal, then must consider if the lost historic range of the proposed DPS is significant. “The Service failed to adequately analyze other threats to the grizzly bear within portions of the proposed DPS, including, but not limited to, trophy hunting of grizzly bears, incidental take from hunting and trapping activities (both state regulated hunting and trapping as well as hunting and trapping by federal entities such as the U.S. Department of Agriculture’s Wildlife Services), lack of connectivity to other populations and genetic diversity issues, increased road densities in parts of the proposed DPS, intense increased human development

within the proposed DPS, and other discussed at length in these comments.” (Wild Earth Guardians)

- The Service’s July 1, 2014 policy defining SPR is contrary to the intention of Congress. Congress was clear “The term ‘range’ [in the ESA] is used in the general sense, and refers to the historical range of the species.”
- The SPR analysis fails to analyze whether any threats to any portion of the entire grizzly bear range constitute a significant portion of the grizzly bear’s range. (Wild Earth Guardians)
- “The Service failed to consider whether other threats found elsewhere in the range of the currently listed entity are significant, including, for example, incidental take from hunting and trapping activities (both state regulated hunting and trapping as well as hunting and trapping by federal entities such as the U.S. Department of Agriculture’s Wildlife Services), lack of connectivity to other populations and genetic diversity issues, increased road densities, and others discussed at length in these comments.” (Wild Earth Guardians) (i.e., do threats to bears outside of the DMA constitute a threat to a significant portion of the DPS)
- The areas outside of the DPS which will remain protected by the Act must be clearly identified by name and location (i.e., the Bitterroot Ecosystem).
- DPS justification “affirms an abandonment of grizzly bear restoration beyond the currently occupied range”
- The Service fails to evaluate the third factor for declaration of a DPS: the population segment’s conservation status (cannot designate a DPS to remove protections from the covered species designation).
- The Service attempts to evaluate the status of the “DPS” under Section 4 and finds it does not qualify as either endangered or threatened and therefore it does not meet the definition of a “species” under the act.
- The GYE does not meet the DPS policy’s significance, discreteness, or status factors.
 - The Service argues for “markedly separated” for discreteness – acknowledges that future connectivity with the NCDE is desirable but that occasional movement does not undermine discreteness as absolute separation is not necessary. This argument is nonsensical. The roads which define the DPS are permeable to grizzly bears.
 - Genetic data of 60% heterozygosity is an unconvincing argument. The Service’s later analysis finds that genetic differences do not support a finding that the population is significant: “Because we do not know the biological significance (if any) of the observed differences, we cannot say with certainty that the GYE grizzly bear population’s genetics differ ‘markedly’ from other grizzly bear populations.” Low heterozygosity is evidence that linkage is necessary.
 - Basis for significance is that “loss would represent a significant gap in the range of the taxon”. The argument only makes sense if you’re moving to protect the GYE bears further, not delist them. Undermines duty to recover the species as a whole.
 - None of the DPS examples justify the Service’s approach because federal courts have rendered the Service’s interpretation as arbitrary and capricious.
 - The 2008 solicitor’s opinion does not give the Service legally binding support to proceed.

- Not large enough to be considered secure on its own in the short-term, the GYE requires dispersal
- The Service concludes that because the grizzly bear is not in danger of extinction in the GYE it is no longer threatened but even if only current range is analyzed the grizzly bear is in danger of extinction in other parts of their range.
- Even if the Service was correct in its appeal of the western great lake wolves DPS ruling, the Service cannot designate the GYE as a DPS because you cannot have a DPS of a DPS. The listing of the lower-48 portion of the species is already a DPS.
- Request that the Service publish an Advance Notice of Proposed Rulemaking that explains how the Service will address the remainder of the grizzly bear listed unit, sets forth a timeline for initiation and completion of such actions, and solicits public comment on possible ways under which the grizzly bear could be reclassified.

300 Delisting

- The Service should withdraw this proposed rule.
- They will decline without protection of the ESA with a recurrence of history “the grizzly bear was considered a predator and a competitor of humans by the settlers who occupied the American West. As such it was shot, poisoned, and killed wherever it was found.”
- remove any language linking carrying capacity as a basis for delisting
- delisting should occur because state management of grizzly bears will increase funding for grizzly habitat conservation and management
- Delisting is a federalism issue
- FOIA documents revealed undue political influence in the decision to delist and the setting of mortality limits (Robert Aland)
- Delisting is premature and is in direct contradiction to the precautionary approach to wildlife management that is mandated under the ESA.
- Section 4(a)(1) analysis should not be limited to suitable habitat

400 Recovery

- The GYE grizzly bear has exceeded the recovery criteria for many years
- Grizzly bear recovery in Yellowstone is one of the biggest conservation success stories for the ESA.
- Total population of grizzly bears in lower 48 is 1,800, 5 times too few individuals to assure a long-term persistence of the species. Frankham, R., B.W. Brook, C.J.A. Bradshaw, L.W. Traill, and D. Spielman. 2013. 50/500 rule and minimum viable populations: response to Jamieson and Allendorf. Trends in Ecology and Evolution 28(4):187-188 http://izt.ciens.ucv.ve/ecologia/Archivos/ECO_POB%202013/ECOPO2_2013/Frankham%20et%20al%202013.pdf

- Recovery of grizzly bears in the lower 48 will require a population of at least 2500-3000 (and perhaps 5000) bears in a linked metapopulation (National Academy of Sciences 1995, Reichman et al. 2000, Allendorf and Ryman 2003, Reed et al. 2003, Traill et al. 2010).
- The rule does not evaluate the connectivity needs of the other grizzly bear populations or how this rule will affect their recovery
- Recommendation for the addition of a trend criterion be added: “if a pattern of three or more years of consecutive declining model-averaged total population or 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”
- Criterion 3 should be made clearer and easier to interpret, such as annual index of observed females with cubs to total observed mortality
- Criterion 3 does not have a trigger until 500 grizzlies bears, too low
- It is not appropriate to equate reaching carrying capacity with recovery, not a metric included in the recovery criteria
- Have met recovery: range is fully occupied and young or transient bears encounter difficulty establishing their own home ranges.
- Grizzly bears do not occupy all of the suitable habitat in the DMA identified by the Service
- This is a “piecemeal approach, in which a fragment of a species’ current range is declared “recovered” before the species is recovered at the larger, regional scale.” This approach ignores the responsibility of long-term recovery and significant portions of the range of unoccupied suitable habitat.
- To include that anywhere grizzly bear populations are not currently present is unsuitable 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.
- Recovery must include permanent populations of bears in the Gravelly-Snowcrest-Centennial Mountains, in the Selway-Bitterroot Wilderness, and along the connecting crest of the Bitterroot Range. Alternative connected landscapes include the Madison, Tobacco Root, Highland Mountains, continental divide north of Butte, and the Sapphire Range, however, these alternatives have more interspersed private land that would make human-bear conflicts more common.
- 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.
- Recovery has been achieved because all recovery criteria have been met and bears are adaptable to habitat changes
- Occupancy for adult females with young needs to apply to all areas of the DMA and not just the PCA, stratified on what are currently called ‘Flight areas’

- “Forty years of ESA protection has still failed to recover the GYE grizzly bears, so the Service needs to increase, rather than remove, federal protections”
- 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.
- The criteria for 48 FCOY or FCOY in 16 of 18 BMUs will restrict future adaptive management. Mortality limits will ensure total population size.
- Mortality limit for dependent young is unnecessary because it is not currently being measured.
- The grizzly bear is not recovered because:
 - Less than 3% of species historic abundance
 - Occupy less than 2% of their historic range
 - Population estimate is questionable
 - Population has not increased since early 2000s
 - No connectivity between ecosystems

500 Population parameters

- Chao2 is not the best available science for monitoring population trend and the Service fails to account for the bias associated with the method or disagreements in the scientific community on their use. Critique by Doak and Cutler (2014a, 2014b).
- The Service assumes roughly 81% of FCOY are seen and documented, which is highly unlikely and the Chao2 is driven almost entirely by FCOY counts. The adjustments introduce no additional information.
- Chao2 is “based on all sightings from all sources, without accountings for any factors that might influence such sightings” (Mattson)
- 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 effort doubled even if standardized to grizzly bear distribution.
- 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%. (Mattson)
- “The Service employs linear and quadratic models, without statistical or theoretical justification.”
- The Service should abandon the model-based average approach and instead use a model based on a running average of annual growth rate over the 6 preceding years.
- 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.

- 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 is 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.
- Figure 1 would be better replaced by a figure of Chao2 estimates leveling off
- Present figures or tables showing estimated population of females with cubs-of-the-year, estimated total population, and mortality patterns over time
- “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
- Density is not a mechanism, “if population density has any effect at all, it is through somehow modifying” birth and death rates (Mattson, Krebs 1995, 2002).
- IGBST 2013 Annual Report: the population has not increased since the early 2000s.
- Bears have already begun to wander farther to find food, which has led to increased human-bear conflicts and increased mortalities. The IGBST mortality data base shows a marked and consistent increase in bear deaths caused by human interactions.
- 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. Doak, D.F. & K. Cutler. 2014. Re-evaluating evidence for past population trends and predicted dynamics of Yellowstone grizzly bears. *Conservation Letters* 7(3): 313-322.
- Why does the Service believe that the GYE has a carrying capacity for grizzly bears? Grizzlies occupy less than 25% of the GYE. In the CS the Service admits it cannot calculate carrying capacity.
- 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.
- If a new population estimator is used, the number of recovered bears for future management actions should not be re-defined. (Park County Commissioners)
- 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.
- The current population estimate is down 6% from 2014 and reported mortalities from all causes was 59 in 2015. 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.

- Uncertainty about vital rates and their driving forces
- Carrying capacity fluctuates (i.e. figure 1), as a function of environmental factors (i.e., food availability), emigration in search of food, mates, or territory should be included in the description
- Carrying capacity has declined in the last decade with the decline in the four major food sources
- Assume that the females with cubs and mortality figures outside the DMA are all emigrants and should be counted as losses for the DMA
- Decline in population growth rate is because increased mortalities as a result of conflicts with hunters and livestock and lower cub survival.
- Annual uncertainty in the population estimate (i.e., the CI) should be compared to long-term averages to give more insight into the population trend
- Risk of a negative trend in population or vital trends would not be detected with statistical rigor until adverse impacts have occurred
- Core density has decreased and dispersal increased because of the decline in whitebark pine and cutthroat pine. The same number of bears is occupying a larger range as evidenced by a stable population and larger occupied range.
- What is the causal link between reaching carrying capacity (density dependence) and the vital rate declines? Only cub survival through male infanticide has been explained.
- Three of the 4 density-independent examples are the same as the density-dependent examples (i.e., decreased cub and yearling survival; increased age of first reproduction; and decreased reproduction) and therefore cannot be distinguished between food or density as a cause
- Although the 1 factor that is different, home range size, has declined and indicates density it does not explain how density is affecting vital rates. "Home range is not determinative because food scarcity and social pressure are working strongly against each other." (Daniel Galvez)
- No analysis to indicate that carrying capacity is limiting the population throughout the GYE.
- The population has not increased since the early 2000s with lower cub and yearling survival. More older bears and fewer cubs and young bears is not a good trend to maintain a healthy population.
- Population has stabilized or even declined as evidenced by the mark-resight population estimate, a less biased method than the Chao2 estimator
- The MOA and the Rule 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.
- 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).
- Mortality limits for males and/or females have been violated during 5 out of the last 7 years
- 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".

- 9% female mortality is the upper limit at which we might still expect population growth (Harris 2006, Schwartz et al. 2006, Harris et al. 2007). The limit was lowered from 9 to 7.6% after the IGBST workshop (2012) as a result of slowed population growth.
- A 10% female mortality limit will not maintain population growth and is not supported by the best available science to support the grizzly bear's long-term survival.
- These arbitrary thresholds that allow for population decline may not be corrected for by reducing mortality to $\leq 7.6\%$, allowing the population to continue downward even after reducing mortality. Need scientific justification for those mortality limits and models used to derive these thresholds, available for independent peer review.
- 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 it will be $< 7.6\%$ at < 674 it does not specify how much lower the limit should actually be.

600 Factor A - habitat

- Grizzly bears need to be recognized as a keystone species in the ecosystem
- There is no connectivity between the 6 recovery zones in the lower 48.
- There is no plan that provides for connection between recovery zones in the current rule.
- 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.
- Connectivity zones need to be secure and minimize human-caused mortality to allow for female occupancy because females set up home ranges adjacent to or overlapping their mothers' home range, making for slow range expansion (McLellan and Hovey 2011). Create zones or demographic connectivity areas or expand the DMA between the GYE and the NCDE and between the GYE and the Bitterroots similar to what is proposed in the NCDE. Failure to create a connectivity zone would undermine the NCDE strategy. These zones should have the same habitat standards as inside the PCA.
- Reduce the DPS boundary to be the same as the DMA to allow for connectivity.
- The suitable habitat definition excludes consideration of sheep allotments, 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 Service is effectively writing off the 25% of the independent females that occur outside of the PCA because there is inadequate habitat protections outside the PCA, this exceeds the mortality limit for this cohort under all circumstances.
- 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.

- Even where there isn't suitable habitat there can still be travel corridors for emigration/immigration of male bears.
- 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?
- 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 km² in size.
- 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)
- 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 removal when conflicts occur with livestock on federal land.
- Stronger language needs to be included for phasing out and permanently retiring sheep allotments inside the PCA and other important areas. Why not have mandatory phase-out? Work with permittees to find alternative allotments, consolidate operations and permanently retire grazing operations from important grizzly habitat.
- Work with third party sources to buy out allotments where possible so permittees can move operations to lower conflict areas.
- "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"
- Oil, gas or mineral projects are not restricted in the PCA; however since such projects reduce the amount of secure habitat, operators must replace secure habitat of similar habitat quality. [?]
- There should be no new oil, gas, or mineral projects allowed in the PCA.
- Projects inside the PCA should not be allowed that temporarily change the amount of secure habitat.
- There is no means by which to limit the number of mines because of the 1872 General Mining Law. There are currently 2 mining operations in the process of development in and near the PCA (the Crevice Mine and the Emigrant Mine). The Service needs to acknowledge the threat to grizzly bears from these mining claims.
- Human recreation 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 visitation?
- Snowmobiling – lack of evidence does not allow the Service to conclude that there is no impact. Monitoring alone is insufficient.
- The Service did not adequately consider activities associated with snowmobile use, such as artillery to control avalanches.
- Reconsider allowing recurring low-level helicopter flights and temporary road construction during denning season.
- 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
- The Service should use spatially dynamic boundaries to allow for shifts in habitat distributions and migrations of grizzly food sources.
- In the GYE, the moving window analysis results from Mace and Waller (1997) has not been 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.
- Use of 1998 baseline questioned because was developed under a different population estimator than currently used (nonparametric Chao2 estimator v. model-averaged Chao2 estimator).
- Bear mortalities have significantly increased in “secure habitat” where they encounter elk hunters and may increase as bears move to a more meat-based diet.
- 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.
- The 1998 baseline 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?
- Chao2 estimator overstated growth 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 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).
- The 1998 baseline does not account for edge effects with residential and recreational developments on private lands (see for estimates of impacts Schwartz et al. 2012)

- 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.
- “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.” See draft CS. 2006 Gallatin Travel Management Plan not approved? (Center for Biological Diversity)
- The habitat conditions outside of the PCA are “at the whim of federal land management agencies and state wildlife agencies” (Wild Earth Guardians)
- Language “or will be” formally incorporated into regulatory documents is not an enforceable commitment
- The state manage plans will actively discourage occupancy of areas outside of the DMA by grizzly bears which is in direct contradiction to the rule.
- Other food items cannot make up for the caloric value of the loss of the four main foods.
- Boyce et al. (2001) “cautioned that their analyses were not entirely sufficient because they were not able to consider possible changes in habitat and how these may affect population vital rates.” The decrease in food sources is the cause of the trend from 4-7 percent down to 0.3-2.2 percent.
- Bison management actions along the northern and western boundaries of YNP, where bison migrate into Montana, have direct and negative impacts on grizzly bear behavior and nutritional needs. Bison, especially winter-killed bison, are an important food source for grizzly bears and is becoming more important with the decline of other high-caloric food items (Yellowstone Science, 2015).
- Holders of livestock allotments in the PCA should expect and accept losses for predator-caused mortalities without expecting aggressive action toward the grizzly bear.
- 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
- 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.
- Managed motorized access is the most effective habitat management tool to reduce grizzly bear mortality risk (Nielson et al. 2006; Schwart et al. 2010). Federal plans to to address reducing motorized access on public land located in and around suitable habitat areas.
- Why would the Service proceed with delisting without establishing connectivity between the GYE and other subpopulations when the Service acknowledges the importance of connectivity?
- Natural dispersal should be facilitated over transfer of animals between core populations (Carroll et al. 2014; Rohlf et al. 2014).
- Provide specific statutory and regulatory definitions for “conservation reliant species” and the authority that accompanies such a designation.

- Work with the FS to revise “sensitive species” and “conservation reliant species” language
- Discrepancies in FS maintenance of secure habitat outside of the PCA between the proposed rule and the CS
- The PR inaccurately describes some aspects of the FS management of Wilderness Study Areas and Roadless Areas (FS will help edit)
- Impression that most of the GYE is designated as critical habitat for the grizzly bear and that delisting will lift some of the restrictions on oil and gas leases, etc.
- 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).
- Increasing rural development has negative impacts on grizzly bear population trends (Doak and Cutler 2013)
- 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.
- 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.
- Longer-term exposure to humans can cause habituation and higher mortality risks.
- 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.
- 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).
- Displacement from roads is well documented and may result in higher mortality rates and lower fecundity (Mattson et al. 1987; Apps et al. 2004; Chruszcz et al. 2003; Wielgus et al. 2002).
- 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.
- The CS only limits densities of permanent roads and the distinction between a permanent and temporary road is unclear. Temporary logging roads may have higher traffic than a permanent road.
- Road densities in the PCA are currently limited but will not be limited upon delisting and will increase mortality risk and logging.
- 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.).
- Grizzly bears are twice as likely to use an area when the managements were restricted or people were inactive (Coleman et al. 2013).
- Food storage orders should be in effect for all habitat within the DPS boundaries within extend of the law.
- More closely analyze the impacts of private lands and what actions, if any, can be taken to minimize grizzly bear deaths and conflicts.

- It is insufficient that 60% of suitable habitat outside of the PCA is protected by other binding regulatory mechanisms. That means 40% remains unprotected.
- Wilderness, wilderness study areas, and roadless area designations are 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, 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.

700 Factor B – overutilization, hunting

- The population should be managed for stable to increasing because some lands within the DMA are currently unoccupied.
- Hunting is unethical and unjustifiable
- There should be no hunting inside the PCA, no hunting in densely populated grizzly areas
- Hunting should occur in conflict areas, like the Upper Green, to potentially address individual bears
- Only allow hunting outside the DMA, away from “secure habitat”
- Create a buffer of no hunting around Yellowstone National Park and GTNP
- No hunting on state and private inholdings within GTNP
- There should be no hunting in the JDR
- It is difficult to identify boundaries of the PCA or other “secure habitat”, need to limit hunting to readily defined zones
- Hunting significantly increases the risk that the GYE grizzly bear population would drastically decline again.
- Hunting is destructive to the healthy function of an ecosystem (i.e., trophic cascades).
- No plausible scientific argument to allow hunting.
- No evidence that hunting increases fear of humans.
- “Introducing hunting negatively impacts sustainable ecotourism, as visitors typically perceive they cannot safely visit to observe or hike trails shared by armed hunting enthusiasts.” (Animal Defenders International)
- Suggestion that a 5-year (3-year) moratorium on recreational and commercial harvest be in place upon delisting to determine how well recovery is maintained post-delisting first.
- Difficult of the common public to identify males vs. females in the field, outlined strategy to protect females is not adequate
- Hunting will have a behavioral impact on grizzly bears.

- The Service should provide funds to the states to encourage proactive and non-lethal management tools.
- Should be a ban on baiting and the use of hounds for grizzly bears in the GYE DPS as a state requirement before delisting
- 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 is an ineffective management tool as hunters will not be hunting “nuisance”
- Question the rationale behind trophy hunting given the slow reproductive rate of grizzly bears
- The theory that humans can “fill in” for predators to maintain a ecosystem’s prey base at appropriate levels is not valid. Wright, G.J., R.O. Peterson, D.W. Smith, and T.W. Lemke. 2006. Selection of northern Yellowstone elk by gray wolves and hunters. *Journal of Wildlife Management* 70(4): 1070-1078. Smith, D.W., T.D. Drummer, K.M. Murphy, D.S. Guernsey, and S.B. Evans. 2004. Winter prey selection and estimation of wolf kill rates in Yellowstone National Park, 1995-2000. *Journal of Wildlife Management* 68(1): 153- 166.
- Hunting may increase reproductive suppression among females and the phenomenon of inverse density dependence will further depress the population of these animals. Cooley, H.S. 2008. Effects of hunting on cougar population demography. Ph.D. dissertation. Washington State University. http://www.dissertations.wsu.edu/Dissertations/Fall2008/h_cooley_091508.pdf
- Against trophy hunting on principle
- 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. Lande, R., S. Engen, and B.-E. Sæther. 1994. Optimal harvesting, economic discounting and extinction risk in fluctuating populations. *Nature* 372:88–90. Lande, R., B.-E. Sæther, and S. Engen. 1997. Threshold harvesting for sustainability of fluctuating resources. *Ecology* 78:1341–1350. Kaitala, V., et al. 2003. Harvesting Strategies in a Fish Stock Dominated by Low-frequency Variability: The Norwegian Spring-spawning Herring (*Clupea harengus*). *Marine Resource Economics*, Volume 18, pp. 263–274
- Lack of mortality limits outside the DMA – constant harvesting strategy, where a fixed number of individuals are removed each year, regardless of the size of the population, destabilizes populations and may lead to rapid extinction unless the harvest is very small.
- Hunting has potential indirect negative effects on a population. Removal of older males may lead to increased immigration and potentially increased infanticide by such immigrant males. Avoidance of these males by females may lead to less suitable habitat/less food and smaller litter sizes. Gosselin J, Zedrosser A, Swenson JE, Pelletier F. 2015 The relative importance of direct and indirect effects of hunting mortality on the population dynamics of brown bears. *Proc. R. Soc. B* 282 : 20141840. <http://dx.doi.org/10.1098/rspb.2014.1840>. Swenson JE, Sandegren F, Soderberg A, Bjarvall A, Franzen R, Wabakken P. 1997 Infanticide caused by hunting of male bears. *Nature* 386 , 450–451. (doi:10.1038/386450a0) . Bellemain E, Swenson JE, Taberlet P. 2006 Mating strategies in relation to sexually selected infanticide in a non-social carnivore: the brown bear. *Ethology* 112, 238–246. (doi:10.1111/j.1439-0310.2006.01152.x) . Wielgus RB, Bunnell FL. 2000 Possible negative effects of adult male mortality on female grizzly bear reproduction. *Biol. Conserv.* 93, 145–154. (doi:10.1016/S0006-3207(99)00152-4)
- Poaching – in gray wolves, delisting and hunting increased poaching despite designation as a game species and state regs. A. Treves et al., Predators and the public trust. *Biological Reviews*, (2015). J. T. Bruskotter,

- “Blood does not buy goodwill: allowing culling increases poaching of a large carnivore” Chapron and Treves (2016)
- Poaching will remain a threat to GYE grizzly bears
- There is little confidence that poachers will be prosecuted or that the level of prosecution serves as an effective deterrent to poachers
- Defense of life and property kills, especially from ungulate hunters, still a major contribution to human-caused mortality. Hunters only required to carry bear spray inside GTNP and JDRP.
- Coordinate and fund programs on public and private lands to reduce attractants: deadstock removal, electric fencing, and bear-resistant garbage and feed bins.
- No hunting should be allowed at food aggregate sites (i.e., moth sites and a 10 mile buffer anywhere in the DPS)
- The rule fails to address how moth sites will be dealt with in a potential hunt as these sites would be “easy killing fields for trophy hunters to wipe out large numbers of bears at one time and place” (Wild Earth Guardians)
- 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
- Risk of overharvest would decrease if mortality limits were calculated/assessed using the lower bounds of Cis
- The period over which the moving average of background mortality should be defined and account for uncertainty
- Background mortality fails to account for unknown-unreported grizzly bears deaths.
- 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.
- 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).
- Allowable annual total mortality should be calculated as a % of the Chao2 estimate and give a range based on the lower and upper CIs
- 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.
- 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.
- 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.
- 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
- A total mortality limit for a population level of ≤ 600 should be set to produce population growth. Simply dropping discretionary mortality is not enough.

- If a minimum population goal is 500 animals then states may envision an immediate surplus of 274 animals
- Grizzly bear hunting in GTNP must be prohibited and must be set out clearly
- Bears that seasonally travel outside of NPS boundaries to hibernate, forage, etc. would be exposed to hunting
- Grizzly bear hunting is contrary to the reverence that Native American Tribes have for them.
- Normal licensing and hunting procedures should apply, open to the public and non-resident hunters, Limited and controlled hunts should not be permitted
- Change language from “may” to “will” for the trigger to initiate a status review if there are any changes in federal, state, or tribal laws, etc...
- Not enough data to state “commercial and recreational hunting will not constitute a substantial threat”
- Will there be reasonable resources for patrols and field support from the USFWS to investigate and prosecute mortalities?
- Does the economic benefit of trophy hunting outweigh the cost?
- Hunting can disrupt the sex and age structure of the population. Wielgus et al., "Effects of Male Trophy Hunting on Female Carnivore Population Growth and Persistence; Gosselin et al., "The Relative Importance of Direct and Indirect Effects of Hunting Mortality on the Population Dynamics of Brown Bears."
- Hunting of the GYE population is a threat to the recovery of other populations, including the NCDE and the Selway-Bitterroot populations.
- The population must be growing, not stable, to provide a source for the Bitterroot Ecosystem
- Hunting can disrupt activity patterns during hyperphagia, which could be energetically costly. Ordiz, A., O. G. Stoen, S. Saebo, J. Kindberg, M. Delibes, and J. E. Swenson. 2012. Do bears know they are being hunted? *Biological Conservation* 152:21-28.
- 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]hese examples serve to explain the process...”
- “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.”
- Artificial selection (i.e., hunting) will replace or weaken natural selection.
- Hunting is not required to manage bear conflicts, the state fish and game departments already handle these without a hunting season.
- There are discrepancies between the mortality limits in the proposed rule and the CS.
- The rule provides definitions and calculations not included in 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
- The mortality limits should be more conservative

- 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.
- 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 FOCY. Mortality limits were set at 4% of Nmin, with no more than 30% of this 4% (1.2% of the population) to be females.”
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800 Factor C – disease and predation

- Limiting of hunting of ungulates would minimize interactions between grizzly bears and humans because ungulate hunting can increase the tendency of predators to seek livestock as prey. Merrigi, A. and S. Lovari. 1996. A review of wolf predation in southern Europe: Does the wolf prefer wild prey to livestock? *Journal of Applied Ecology* 33(6): 1561-1571.
- Post-delisting there would not be enough resources to investigate and prosecute poaching without the USFWS special agents.
- Allowing a trophy hunt will create an atmosphere of acceptability to kill a grizzly for any reason.
- The theory that designating the grizzly bear as a game animal may reduce illegal poaching is unsubstantiated. Provide references.
- Idaho and WY should have a mandatory bear ID test for hunters to reduce mistake id mortalities
- Increase in human-caused mortalities in 2015, 59 known and additional 30+ more unknown
- Hunting will curtail any movement of bears between the GYE and the NCDE
- Habitat outside of the PCA has become a sink for human-caused mortalities
- Need to change the attitudes and behavior of people living in grizzly bear habitat to reduce mortalities
- Elk hunting should not be allowed in the GTNP because of hunter-caused mortality
- States are not adequately equipped to pursue law enforcement action against illegal grizzly bears kills and need federal jurisdiction
- Selling of grizzly bear parts not addressed in the proposed rule, how common is trafficking in the US?
- Increase in hunter caused mortality in the past 11 years from 3.7 to 10.2 bears/year
- 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 near Cody in October 2015 leading to agitated sow nearby). Trapping should be banned within the PCA and the DMA.
- The 1998 fails to account for human-caused mortality that occurs independently of the landscape features set forth in the baseline.

- Most natural deaths are cubs and yearling and undocumented. When these are considered then this triples the estimated natural deaths from 1 per year from 1986-2015 (as stated in the Rule) to 3 per year. And the annual medium has jumped to 6 per year since 2010.
- 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 mean the population is actually declining.
- Treatment of conflict bears will likely be less conservative upon delisting.
- Disagree that conflict removals encourages people to use means to avoid conflicts in the future. Lethal control does not increase tolerance (Browne-Nunez et al. 2015).
- States should prohibit black bear hunting within the DMA, or at the very least the PCA, to reduce mistaken identity kills of grizzly bears.
- 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.
- 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.

900 Factor D – adequate regulatory mechanisms

- The Service must analyze Factor D based on existing regulatory mechanisms.
- To be regulatory, the management directives in the Strategy must be legally binding and enforceable while implementation of the strategy is dependent on funding.
- Montana and Idaho do not plan on revising their existing, inadequate grizzly bear management plans
- WGFD compensation program has been instrumental in supporting the recovery – increased depredation from 20 in 2010 to 80 in 2015 (Upper Green River Valley Cattle Association)
- “Since 1975, Wyoming has spent more than \$40 million on grizzly bear management. Wyoming remains committed to robust grizzly bears population and ensuring they never warrant protection under the ESA again.” (Governor Mead)
- The CS and state plans “provide for the take of nuisance bears regardless of the current mortality quota upon consultation among all involved agencies”. Therefore, discretionary mortality limits are only applicable to hunting.
- The states have not implemented regulatory mechanisms yet: number available, methods available to hunters, detailed age limits, sex ratios, or bag limits.
- The Service cannot simultaneously insist that certain regulations be adopted before a final rule and argue that the existing regulatory mechanisms are adequate
- State plans need to manage for “enhancing grizzly connectivity, population size, and diversity across the three state area” not towards a minimum population level as they currently do
- 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

- Heavy fines and hunting license revocation should be in state regs to incentivize compliance with carrying bear spray
- Wyoming and Idaho plans state that they will prevent the GYE grizzly bear from re-occupying its historic range.
- Without state implementation of regulatory mechanisms the conservation strategy is a voluntary commitment and cannot be the basis of delisting.
- Even if the states implement plans and regulations, they cannot be considered because they are promises of future action and not present obligations.
- 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.
- 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.
- The rule says the FS *will* designate the grizzly bear as a “species of conservation concern”, a promise is not an adequate reg mech
- The new designation of “species of conservation concern” under the 2012 Planning Rule, which does not provide the same protections as the older “sensitive species” classification. The same project-level prohibitions do not apply.
- As the 5 national forests revise their forest plans, the “sensitive species” designation will no longer exist. Should meet the new definition of “species of conservation concern”.
- Forest Service plans are not regulatory documents because of the 2012 Planning Rule? [Tyson is checking on this]
- Inventoried Roadless Areas prohibit roads but don’t prohibit motorized ATV “trails”
- YNP incorporated the 2007 CS into it’s compendium and do not reflect the revised CS and are therefore insufficient.
- 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
- 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.
- Bears outside the PCA do not have adequate protection
- 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.
- Land use plans do not prescribe agency actions and therefore are not legally enforceable (*Norton v. Southern Utah Wilderness Alliance*) and therefore cannot be considered adequate regulatory mechanisms.
- 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.”

- Forest plans to implement HBRC may not be implemented once listed status, which provides tools and incentives, is removed
- State plans need to be available to review concurrent with proposed rule to delist to ensure critical management strategies and regulatory framework are in place to maintain recovery
- The rule relies on habitat management plans and standards that have yet to be finalized (the CS) and therefore the public cannot adequately comment on the proposed rules. The Service must allow another comment period once the CS is finalized.
- Adequate state plans, regulations, and the MOA must be finalized to a final rule
- 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
- 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”
- 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
- 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).”
- 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
- 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?
- If the states list grizzly bears as predators at some point in the future then grizzly bears should be relisted immediately.
- Regulatory mechanisms are too lax
- No statement that the states have committed funding to fully implement the CS and no consequence if agencies fail to procure the necessary funding.
- Is there any commitment by the Service to continue funding monitoring or conflict prevention, etc?
- 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, Criteria 1-3 are met, and facilitates genetic connectivity?
- 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.

1000 Factor E

- The propose rule concludes that because threats can be managed they do not constitute a threat at all (i.e., genetic health).
- The five grizzly bear populations in the lower 48 are genetically isolated from one another.
- The rule dismisses the need for periodic influx of new genetic material with a promise from the State of Montana the it will “manage discretionary mortality in [connectivity] area[s] in order to retain the opportunity for natural movements of bears between ecosystems”. This is not sufficient assurance. MT could change its plan at any time to abandon the goal of connectivity. The rule is silent on connectivity in Idaho and Wyoming plans.
- The Service misinterpreted the results of Miller and Waits (2003), population size of 500-5000 not 100 is minimum necessary for long-term genetic viability. 100 is minimum for short-term fitness.
- Effective population size of 100 and a population of 400 (Miller and Waits 2003) is the minimum for long-term fitness, not the goal. Grizzly bears have a low reproduction rate so should be far above the minimum.
- 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.
- The Service picked the high end estimate of 469 published 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 by Franklin (1980). And that restoration of gene flow would increase fitness.
- The current metapopulation of 1800 animals is 5-11 times too few to assure long-term persistence (Frankham et al. 2013).
- Drastic declines in the GYE grizzly bear population would deplete genetic diversity in the GYE.
- Genome changes are slow and will take decades to detect.
- The long-term fitness implications of changes in alleles is 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.
- Long-term evolutionary future is not considered (projected), demographic recovery of bear numbers is not adequate for recovery
- Modelling to estimate the rate of losing alleles due to genetic drift with given population sizes should be done.
- Provide justification that 1-2 immigrants or transplants of bears into the GYE every generation (~10 years) will provide adequate gene flow as referenced by Miller and Waits (2003).
- Reintroduction of grizzly bear in other ecosystems is the best option to expand the gene pool
- Adaptive management indicates that the agency should actually manage for a higher population of ungulates and prevent hunting of large predators because such a management approach could actually lead to less livestock depredation by North American brown bears, as

well as by other large predators. Musiani, M. and P. Paquet. 2004. The practices of wolf persecution, protection, and restoration in Canada and the United States. *BioScience* 54(1): 50-60.

- The future impacts of climate change must be considered before delisting even if the exact extent of those impacts on the species are currently unknown. The Service reviews the literature forecasts for climate change but does not link the effects to grizzly bears or their habitat. Yellowstone specific literature includes: Pedersen et al. 2010, Rice et al. 2012, Chang and Hansen 2015, Tercek et al. 2015.
- Climate change has reduced winter severity and length and the availability of winter-killed carrion in the spring.
- Climate change may reduce snowpack and winter length which may impact the time, season, and success of grizzly bear denning
- Hydrologic regime “Observations *thus far* do not provide a valid basis on which to make conclusions about future conditions.” Downscaled projects for the region predict decreases in runoff in the long term and that a 1-3 degree warming would negatively affect water availability in the upper Yellowstone River Basin (Gray and McCabe 2010).
- The rule inaccurately summarizes Servheen and Cross’ publication that most grizzly bear biologists don’t expect habitat changes under climate change to directly threaten grizzly bears. When it states “however, climate change may play a significant role in driving grizzly bear/human interactions and conflicts.” And that it will be important to understand how and where food sources will change and if additional or different secure habitat is required to acquire sufficient resources.
- The rule does not say why the biologists (Servheen and Cross 2010) do not believe climate change will threaten grizzly bears or why climate change “may even make habitat more suitable and food sources more abundant”.
- 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.
- Conduct a thorough analysis of the potential impacts of climate change on grizzly bear habitat.
- Climate change will likely lead to increasing temperatures, decrease in snow, increase in drought that may be partially mitigated by increase in rain, and changes in the distribution and abundance of vegetation.
- The Service used a “downscaled” projection to analyze climate change, which may underestimate the impacts.
- Less snowpack could lead to fewer avalanche chutes.
- No data on whether shorter denning periods could impact the success of reproduction
- Army cutworm moths - 90% of alpine and high subalpine environments will be potentially lost. How moths will respond is unknown.
- 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 (Mattson).

- It is unreasonable to argue that whitebark pine can adapt rapidly enough to the changing environmental conditions given its long generation lengths even if climate-adapted and blister rust resistance trees were engineered and planted.
- It is nonsensical to conclude that because the NCDE grizzly bear population has continued to increase in the absence of whitebark that they GYE will be fine too.
- The Service does not adequately address the impact of higher human-caused mortalities during years of low WBP use with an increased use of low elevations and meat (i.e., with hunters and with livestock).
- Demographic implications of food sources have are seen at a population level by effects on both birth (i.e., the condition of reproductive females) and death rates (i.e., hazards associated with a given food – “ecological traps” (Mattson)). Analysis of food resources has been done independent of these potential “ecological traps”.
- All four foods, not just whitebark pine, have likely affected birth and death rates (Mattson). “essentially all of the trends in total and human-caused grizzly bear deaths since roughly 1990 can be explained by the availability of elk, cutthroat trout, whitebark pine seeds, army cutworm moths, and drought (as a proxy for other vegetal foods).”
- All data has been collected as part of an observational study, making it difficult to isolate the effectiveness of individual variables. Are the models developed by the IGBST defensible (i.e., have all factors been accounted for)?
- 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.
- Many food sources of grizzly bears are in decline or will shift in distribution due to climate change. This may lead bears into more direct contact with humans, leading to higher human-caused mortality.
- The four high-caloric foods face threats from climate change, which grizzly bears depend on for their survival.
- Alternative foods may also be at risk from climate change (i.e., roots such as yampa that grow in moist soils)
- Schwartz et al. (2013) found a decline in body fat among females.
- Study that body condition of females did not decline inadequate because it “included bears that were not captured specifically for monitoring change in body fat levels” and “included female grizzly fat level data from spring and summer”. Carry-over assumption flawed – females could reach satisfactory fat levels in the spring or summer but still be fat deficient in the fall.
- Wider search for food with decline of four main foods brings bears into more frequent contact with humans, resulting in higher mortalities.
- The Service failed to assess the impacts on vital rates of declines of the major foods other than WBP.
- Delisting should consider fungi that is symbiotic with WBP as its health and survival is connected to the tree.

- All of the elk herds but the Upper Madison have declined (Mattson) and declines have been linked to increased levels of bear predation on elk calves (Middleton et al. 2013). Drought and chronic wasting disease are also contributing causes.
- 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.
- The loss of cutthroat trout has affected ~15% of the population and 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).
- The decline in cutthroat trout has disproportionately impacted females, resulting in them eating more terrestrial meat (esp calves) and a probable increase in cub and yearling death rates (Mattson).
- Warmer waters may mean faster growing trout but also means higher incidents of whirling disease and potentially blocked stream outlets with seasonal drought.
- With the decline of cutthroat trout, carrying capacity has almost certainly declined in the core of YNP (Mattson)
- Moth sites are spatially correlated with livestock allotments, a major cause of human-caused mortality.
- Moths are a source of concentrated fat and are located in remote locations away from people, an important factor affecting survival.
- Summer forage conditions (i.e., drought, climate change) affects female pregnancy and calf survival in ungulates and how this will affect herd numbers is unknown.
- 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.
- The IGBST inadequately represents the extent of whitebark pine loss nor the loss during the 1988 fires, lack of regeneration after loss
- 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 [Greater Yellowstone Coalition, Inc. v. Servheen, 665 F.3d 1015 (9th Cir. 2011).
- The declining vital rates have not been fully realized because of the slow reproductive rate.
- Potential synergistic effects of loss of whitebark and declines in wild elk and bison herds in the GYE.
- The Service cannot conclude that GYE grizzly bears will not be affected by the extirpation of whitebark pine just because NCDE grizzlies bears make almost no use of it.
- Cub production has declined with the decrease in availability of whitebark pine seeds. van Manen, F.T., M.A. Haroldson, D.D. Bjornlie, M.R. Ebinger, D.J. Thompson, C.M. Costello, and G.C. White. 2015. Density dependence, whitebark pine, and vital rates of grizzly bears. *Journal of Wildlife Management* 80(2): 300-313.

- Annual decline in reproduction and survival with decreased WBP availability does cause long-term survival problems.
- The worse of the WBP crash is relatively recent and so long-term correlations haven't been made
- 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 (BTI)
- Doak (1995) published that there's a 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.
- 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.
- The rule should acknowledge that whitebark pine will eventually regenerate and help ameliorate losses that have occurred, to be monitored by the Study Team
- Army cutworm moths depend on tundra flowers for nectar and these flowers are disappearing as average air temperatures rise. consequent reductions in flows to the GYE's rivers and streams (including those that feed Yellowstone Lake) as anthropogenic climate change proceeds, it cannot be assumed that this important source of protein for the North American brown bear will continue to be available to a degree necessary to sustain a recovered bear population.
- Army cutworm moths may be reduced by pesticides and new farming technologies
- Huckleberries are less abundant as a result of warming temperatures and a persistent drought pattern. Bjornlie, D.D., F.T. van Manen, M.R. Ebinger, M.A. Haroldson, D.J. Thompson, and C.M. Costello. 2014. Whitebark pine, population density, and home-range size of grizzly bears in the Greater Yellowstone Ecosystem. PLOS One 9(2): e88160. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0088160>
- Cutthroat trout has drastically declined and with decreased winter snowfalls and subsequent reductions in flows to the GYE's rivers and streams will likely not continue to be available to a degree necessary to sustain a recovered bear population.
- Climate change may shift abundance and distribution of bear foods, whitebark pine has already exhibited longitudinal shifts and less harsh winters may reduce spring carrion availability.
- Whitebark pine preference decreased only at the end of the study, too short of a time to recognize any population-level feedback in modeled estimates
- Shortened or shifting denning seasons, as a result of climate change, may increase the frequency of conflicts with humans.
- Synergistic effects of climate change and changing food availability are unknown and may not be detectable for decades
- Drought has affected death rates.
- Climate change will increase the fire regime (frequency and extent) and alter the composition of plants and animals (Westerling et al. 2011)
- Lack of 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
- No alternative food source of equal quality to WBP for bears to switch to
- With the decline of the 4 major foods, alternative foods must be of comparative nutritional value (i.e., percent fat, protein, etc.), risk of obtaining, energetic cost of obtaining (i.e. foraging efficiency), and seasonal abundance

- The loss of any one of the four foods would have major impacts because of the overwhelming reliance on them by GYE grizzly bears (Mattson, Appendix B)
- The Service fails to address spatial distributions of cone-producing WBP in its analysis. Bjornlie et al. (2014) and Costello et al. (2014) erroneously classified areas as without WBP when in fact they contained mature, cone-producing trees. (Mattson – known locations of grizzly bears feeding on WBP from 1977-1996 relative to mapped distribution of WBP by the IGBST using remotely sensed mapping. The Service is wrong in claiming that 23-33% of historic bear ranges contained little or no WBP and was unimportant to a corresponding percentage of bears.
- The Service mistakenly equates the extent of WBP distribution with cone or seed production. During the same period of WBP tree loss cone production increased over 2-fold on the surviving trees (Macfarlane et al. 2013). An index of cone availability should be created by using cone production multiplied by the number of surviving trees. Additionally, the increase in cone production is probably driven by warmer climates and is temporary (Mattson)
- The Service does not accurately estimate WBP availability in their analysis, “misrepresenting early periods of cone shortage as periods of cone abundance and later periods of cone abundance as periods of cone shortage.” (Mattson) (Bjornlie et al. 2014 and Van Manen et al. 2015. Need to use a cone availability index and account for loss by 1988 fire.
- The increase in consumption of false truffles was only documented for bears in the core of the ecosystem with no indication of the nutritional values of it.
- Bear densities vary widely depending on habitat productivity (Mowat et al. 2013)
- More conflicts occurring with ranchers and hunters and bears eat more meat (livestock and hunter-killed carcasses) to replace traditional food sources.
- The list of “greater than 200 different foods” is inflated because to a bear “a grass is a grass” (Mattson)
- The decline in cub and yearling survival rates are probably a consequence of females eating more meat with the losses of trout and WBP. Mattson et al. (1997) noted that bears ate more meat in years with lower WPB availability. Consumption of territorial meat has increased in the mid- to late-2000s (Schwartz et al. 2014; Ebinger et al. 2016) in the form of elk calves (Fortin et al. 2013; Middleton et al. 2013) and scavenging gut piles (Orozco & Miles 2013). Difference in consumption of meat between the sexes has diminished (Fortin et al. 2013; Schwartz et al. 2014).
- Food monitoring needs to be expanded to add numbers of elk and bison in various ecosystem herds as well as aerial extent of WBP
- 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.
- The IGBST and the Service “fail to account for potential interactions between spatial distributions of and temporal trends in key food resources.”
- The Service fails to address wolves, which have decreased the availability of spring carrion since their reintroduction, disproportionately affecting females, and decreasing elk populations. Also, wolves have been known to kill grizzly bear cubs. Females very rarely usurp wolf kills (Gunther & Smith 2004).
- Increased I&E to teach people how to live with bears and visitors on bear safety
-
- I&E 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.
- Social acceptance will not increase because of more discretion in decisions to manage grizzly bears. Rigid enforcement laws will increase acceptance. Tourism will increase acceptance.

- Effective counter measures (i.e., livestock protection dogs, electric fences, etc.) should be deployed to reduce livestock losses.

1100 Post-delisting monitoring and management

- “The Service has fiercely maintained that even if problems arise [under state management], it will not relist the population.” (Willcox 2016)
- What is the post-delisting role of the federal government?
- The rule compromises the states management authority (i.e., requiring the state to establish a hunting season before delisting can occur)
- The Service is overstepping their authority in requiring the states to implement specific hunting regulations prior to a final rule.
- “Management should continue to be the responsibility of the USFWS.”
- The Conservation Strategy must be implemented beyond the minimum 5-years of the ESA
- A Grizzly Bear Management Relocation Plan must be prepared prior to any delisting (i.e., pre-agreed upon relocation sites)
- CS should only be in affect for the 5 years required by the ESA and then management should become the full responsibility of the states
- rule and CS should not use the language “indefinitely” or “in perpetuity” in reference to the implementation of the CS. Instead use the language “the 2016 Conservation Strategy will remain in effect beyond the 5-year monitoring period.
- Tone and specific comments “indicate a level of continued FWS engagement that WSGA believes exceeds your 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.
- Standardize agency responses in the rule and other management plans (CS and state plans)
- The Strategy “includes every possible safety net, including triggers for relisting”
- Although the Service recognizes the lag effects, there are no habitat-based standards (i.e., trends in foods) that would trigger a IGBST or Service review, triggers are based solely on changes in population size.
- 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.
- Status review triggers are inconsistent between the documents. Use of “will” and “may”. Need to use “will” to provide certainty.
- Initiate a status review if the Chao2 population estimate falls below 600 rather than 500.
- The Service fails to 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”.

- 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.
- There should be a status review for failure to meet one or more of the habitat standards (Ch. 3 of the CS) or the monitoring protocols and commitments (Ch. 2-4 of the CS and state plans)

1200 Comments on concurrent documents

- 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.
- The Conservation Strategy should be evaluated and reviewed every 5 years (currently every 5 years or as necessary)
- 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
- The CS 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.
- rule and CS should not use the language “indefinitely” or “in perpetuity” in reference to the implementation of the CS. Instead use the language “the 2016 Conservation Strategy will remain in effect beyond the 5-year monitoring period.
- Agencies should have predetermined relocation sites to ensure appropriate habitat
- Add the requirement that “funding fully procured” for the CS to go into effect
- 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?
- Definition for MFWP not in CS
- The CS needs to mandatory and not “voluntary”
- Details in the Rule missing in the CS including details on definitions of total, background, and discretionary mortalities, clarifying example on how mortality will be calculated, details regarding the process for determining how many bears would be available for hunting (Table 3 and subsequent 3 paragraphs)
- MOA missing from draft CS, essential details necessary to evaluate the rule and CS
- 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.
- Multiple population targets: 500 to ensure genetic health in one place and then the sliding mortality limits in another. What is the population target?
- Post delisting allows for managed population decline
- Concern that the CS sets a minimum population size of 500 animals and at least 48 females with cubs – not a science based limit.

- 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
- The CS fails to include necessary management protections to allow connectivity with other ecosystems.
- The CS states that “500 bears” will “assure the genetic health of the population”, an oversimplification of Franklin 1980 published 36 years ago. See more recent literature Traill et al. 2009 and Willoughby et al. 2015.
- “USFWSF should manage to maintain a level that is represented in the Greater Yellowstone Ecosystem today (at least 700 individuals) while also focusing the strategy on expanding bear populations into suitable habitat and connected areas.”
- No timeline driven and location specific strategies to address the regulation of human-caused mortality through habitat management. Needs to be addressed prior to delisting.
- “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.””
- The final Strategy and state plans need to be available for public review and critique prior to a final delisting rule.
- Population genetics and evolutionary biology of grizzly bears are not adequately reflected in the CS – significance of allele losses, changing genetic compositions, effects of future random and selective processes.
- The CS should include a requirement that all hunters carry bear spray to reduce grizzly bear mortalities as a result of encounters with hunters.
- The CS should provide management requirements, activities, and educational programs to reduce attractants and use proactive and non-lethal means to avoid conflicts from occurring.
- The nuisance bear standards should be applied throughout the DMA... within the entire GYE DPS
- 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 removals.”
 - “Preemptive moves will not be used to stop distribution increases (Dood et al. 2006).”
- State drafts and MOA appended to draft strategy is not available at this time
- Question the functionality of YES/YGCC
- There is no formal outline for budgetary needs to carry out the CS post-delisting
- The MOA 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.
- The MOA does not recognize the loss of genetic material without immigrants or transplants or commit to provide for immigrants or transplants.
- The MOA does not address the impacts of hunting on population generation interval.

- The MOA misuses Miller and Waits (2003)
- The MOA does not commit to transplanting bears or allowing for interconnection for natural gene flow between the GYE and the NCDE.
- MOA: the NPS must be invited to participate in the annual meeting to review population monitoring data
- MOA: "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.
- MOA: 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.
- MOA: 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.
- CS: if the population is increasing by 3-4% per year and harvest have 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.
- The CS does not consider the affects that artificial selection in the place of natural selection will have on genetic drift.
- The livestock allotment 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.
- Allowing private interests to control the phase out of allotments (i.e., willing permittees) may violate Section 7 of the ESA and other laws.
- Standardized tables across the 3 documents.
- The WY draft management plan does not commit to the MOU agreeing to terms of the Revised CS.
- The WY draft management plan does not address the review process by the IGBST or a commitment to remain a part of it.
- WY state plan does not commit to maintain a specific number of radio-collared females or other data collection addressed in the rule. States alone cannot manage all of the data collection and analysis.
- The Forest Service plan needs to address the issue of human activity at moth aggregation sites.
- The description of calculation for background mortality and availability of discretionary mortality in the MOA is not in agreement with the Rule.
- 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.
- CS: revise 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.
- Request to reopen the public comment period once state plans and regulations are finalized

- There has been no analysis of the Conservation Strategy under NEPA, NFMA, or the ESA. A draft EIS needs to be completed as this is a change from current management on public lands. What is the expected increase in grizzly bear mortality and habitat reduction upon delisting?
- CS: pg. 21 says current entire population was 58 but does not discuss FCOY in the DMA
- 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”.
- CS: 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.
- CS: P.7 identifies four habitat criteria to be measured and reported but p.57 only discusses 3 in detail. Who assembles the information, when is it due and to whom is it reported?
- CS: p.48 provide a more thorough explanation of the mortality definitions for “annual unknown and unreported”
- CS: 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?
- CS: 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?
- CS: 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?
- CS: 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?
- CS: 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?
- CS: 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
- CS: 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?
- CS: Ch.4 – no discussion of confliction resolutions within tribal lands.

- CS: 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?
- CS: Ch.5 – 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)
- CS: p. 105 – 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”.
- CS: who is responsible for tasks, preparation, and what is the timetable for completion
- CS: update all tables, graphs, etc with the 2015 Annual Report Summary prior to a final rule making.
- CS: appendices were not available for public review. Consider reopening public comment for final draft CS, including all appendices and agreements.
- CS: Appendix C: concern about new population goals and mortality limits in the future are dictated through adoption of a new population estimator
- CS: consider how implementation and management of the CS will adversely impact private landowners within the DMA
- CS: Failure to obtain outside peer view by other scientists is not addressed.
- CS: needs to clarify when referring to the total grizzly bear population versus the population within the DMA
- CS: need to monitor the population outside of the DMA
- CS: update all of the data through 2015 (esp. population is increasing at 3-4% per year and increasing in distribution)
- CS: a precautionary approach should be taken when assigning sex to probably bear mortalities and assume all probable deaths are female. Service should use data from 2002-2015 not the data from 1975-1998 ratio of 59:41, male: female.
- The RP says “grizzly bear occupancy will not be actively discouraged outside the DMA and grizzly bears will not be persecuted just because they are present there” but this language is not in the CS or the state plans.
- All documents need to reflect the same definition and language of total mortality and how unknown/unreported mortality will be accounted for.
- The Service’s assignment of sex to orphaned cubs is not conservative enough in its use of random number assignments. In another statement the sex will be assigned at 50:50 ratio. The Service should be cautionary and assign all probably deaths as female.
- The MOA and CS need to 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.

- RP: The criteria should not apply only to bears present in the DMA. Bears outside of the DMA may be important genetically or may be breeding females or even females with cubs.
- RP: The data needed to assess these criteria must be collected over a period of time longer than the normal 5-year post-monitoring period required by the ESA. If the Service only monitors for the minimum 5-year period they would never know if Criterion 2 is being met or not.
- RP
 - **Criterion #1**
 - The Service selected 500 as a minimum to maintain short-term genetic fitness. Adjust the minimum number upwards to ensure long-term genetic fitness.
 - The trigger for Criterion 1 is inadequate. Explain why the 3-year trigger and not a 1 or 2-year trigger.
 - For 48 FCOY, the method needs to be consistent using Chao2 or a new method needs to be calibrated.
 - Discrepancy between the RP and the CS in whether the criterion has not been met if it was two or three consecutive years and if it will be changed the Service needs to justify why three years is appropriate. Should be 2 years.
 - **Criterion #2**
 - Explain why this trigger is appropriate and based on the best available science.
 - “[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.
 - **Criterion #3**
 - 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 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?
 - 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

Other

- Delisting would cause economic and cultural harm to the GYE communities. Visitation to the parks, especially to see grizzly bears, is a multi-million dollar industry that may decline once grizzly bears are allowed to be hunted on park boundaries.
- The Service should establish a population in the Bitterroots and should relocate bears that would otherwise be removed from the GYE
- The cultural and religious aspects of Native American tribes need to be evaluated
- The GYE overlays aboriginal territory and the tribes retain treaty rights in the area
- The grizzly bear is a species of great spiritual, cultural, and ecology significance to Native American tribes.
- Executive Order 13175, meaningful consultation must be held by all federal agencies when decisions that affect Native American tribes are being considered. The Service has failed to uphold this obligation. "The conduct of the Service in accommodating states' interests over those of federally recognized Indian Tribes in the matter of delisting and trophy hunting the grizzly bear on ancestral tribal and treaty lands threatens irreparable harm to tribal rights." (Kingman 2016)
- 60% of grizzly bear biologists "believe delisting would be an incorrect decision, or at the very least a violation of the precautionary principle" Szarek, Harmony. "Subjectivity in Expert Decision Making: Risk Assessment, Acceptability, and Cognitive Heuristics Affecting Endangered Species Act Listing Judgments for the Greater Yellowstone Ecosystem Grizzly Bear." Electronic Thesis or Dissertation. Ohio State University, 2015. Ohio LINK Electronic Theses and Dissertations Center. 11 Dec 2015.
- Grizzly bears contribute to the enjoyment of wild areas.
- 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 grizzly bear should be delisted for the entire state of Montana (Environmental Quality Council)
- Bears are worth more alive than dead.
- The CS and proposed rule have expanded the DMA (the area within which the population is annually surveyed and estimated within which the total mortality limits apply, and is based on the suitable habitat area) to include significant areas outside the 2014 grizzly bear distribution boundary. (i.e., the Big Sandy and Popo Agie Management Units) (Wyoming Stockgrowers Assc)
- State wildlife agencies have spent millions to study and monitor grizzly bears and conserve their habitat. This revenue was generated by hunting and fishing licenses and will be significantly enhanced with the opportunity for grizzly bear hunting.
- Bear Trust International independently analyzed data and agrees that the demographic recovery criteria have all been met.

- The Service cannot conclude that the combined impacts of various threats to the GYE grizzly bears is not substantial simply because their population has not declined. This is a concerning conclusion given the record-breaking mortality levels in 2015.
- update all tables, graphs, etc with the 2015 Annual Report Summary prior to a final rule making.
- Problematic language on the mortality limits poster from the public hearing that says “managed decline”. Would like the Service to ensure that there will not be “managed decline” (Center for Biological Diversity).
- 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.

Editorial

- Figure 2, is difficult to read and the gray shades are not easily distinguished
- Add GTNP boundary to Figure 2
- Upper CI is reported at both 757 and 747
- Unclear if carrying capacity has been reached inside the PCA or DMA
- Discretionary hunting mortality and discretionary mortality are used interchangeably though one is a sub-set of the other
- Correct references to JDR in elk reduction program. The elk reduction program and bear spray requirement only apply to GTNP, JDR is not a National Park and the language should be changed to reflect that.
- Executive summary, noted in the table of comments, not included in the CS?
- The FWS should cite the expert opinion of three appropriate and independent species specialists.
- CS p. 28 – the bear population is increasing by 3-4% per year
- Table 2, item 5 does not address YNP as a participant but they are listed in the text of the rule. Assume YNP will be involved in discussions related to allocating discretionary take.
- Terminology of ‘discretionary’ versus ‘non-discretionary’ is confusing – recommend management (hunting and management removals) and other instead.
- Remove the sentence from the RP “grizzly bears will not be persecuted just because they are present there” in reference to outside the DMA. Unnecessarily inflammatory and each state will manage as a trophy game animal. (Park County Commissioners)
- Criterion 2: will not drop below 48 females with cubs in 2 consecutive years in the CS and 3 consecutive years in the RP.
- CS: p. 76 typo second line: “d”