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Subject: Grizzly Bear Discussion
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Attachments: [GYE.FWS.Response.docx](#)

Scott, Jeff and Virgil,

When we met on March 30, we committed to responding to your proposal in 3 weeks. Attached please find that response. While I think most of it is self-explanatory, we all might benefit from a conversation where we walk through this document. After you have reviewed it, let me know if you agree and we will try to set something up for later this week or next week depending on your schedules. Thanks.

Matt

An updated approach to Yellowstone Recovery and delisting

Important points to recognize about this updated approach:

1. This approach has the objective of maintaining the number of bears in the population as of 2007 when the population was first delisted. Using the Chao2 estimate¹, the 2007 population was 683 bears. The population is annually estimated by the IGBST based on aerial surveys and that year's population estimate is available in the fall. The next year's mortality allocation will then be set based on this fall estimate. Under this updated approach, population estimates above 683 will result in increases in mortality to adjust the population back to the 2007 level. This adjustment is on a sliding scale for both male and females mortalities.
2. There has been some discussion of moving to the mark-resight population estimator in the future and maintaining the population at the 2007 mark-resight estimate instead of the 2007 Chao2 estimate. The 2007 mark-resight estimate was 1229 (the 3-yr running average). Since the 2013 mark-resight estimate was 1000 (the 3-yr running average), management based on the mark-resight estimate would require an overall reduction of mortality to achieve the 2007 population estimate.
3. All numbers and the scientific basis for each number or percentage will require justification by the Service in the proposed rule and how these numbers result in overall conservation of the bear in the proposed rule.
4. Under the original state approach, if the population were below 683, the independent female mortality level of 7.6% would result in keeping the population at that lower level rather than allowing it to increase back to 683. Accordingly, we made an adjustment to the state proposal in the attached detail of the plan so that there is reduced mortality to females (but not to males) when the population falls below 683 based on the Chao2 estimate.
5. We assume the states wish to keep the revised DMA for counting mortalities. Note that the harvest levels in the table below on pp. 4 are in addition to any mortality that will occur outside the DMA. This means that the states have increased management flexibility in areas outside the DMA, the area where most conflicts will occur on private lands.
6. We do not know if the state proposal contemplated allocations of mortalities inside the DMA to the Wind River Reservation (WRR). This allocation has been added to this update. An allocation system of mortality amongst the management entities will be necessary for clarity in any proposed rule. Such an allocation methodology must be explained and shown to be consistent with long-term conservation of the bear.
7. We are unclear if the state proposal discussed their willingness to get the demographic regulatory mechanisms into state policy and regulation. Such state regulation stating this demographic management system in state policy would be desirable for maximum defensibility of these management

¹ This is the model-averaged Chao2 estimate.

- regulations as indeed having regulatory authority under state law. The USFS has made the habitat criteria regulatory by amending their forest plans and making the habitat standards for a recovered population regulatory under NFMA.
8. The state proposal was silent about the triggers that would be in place if the mortality limits are exceeded or there are departures from the agreed-upon management system. This updated approach revises the triggers presented at the meeting in Denver and makes them simpler and less complex. Based on recent precedents in the court system, the Service believes that legally enforceable triggers must be in place in the conservation strategy and referenced in the rule. Preferably these would also be in state regulations in order to have a legally defensible delisting rule.
 9. It is important to maximize the opportunity for occasional male movement between the NCDE and Yellowstone to address concerns about negative long-term isolation impacts to Yellowstone. To achieve this objective, it will be desirable to minimize discretionary mortality in the genetic connector area between the NCDE and Yellowstone through the Madison Range, Tobacco Roots, Highland Mountains, Boulder Mountains and Nevada Mountains. This can be accomplished by not permitting sport hunting in these connector areas. Management of any human-bear conflict in these connector areas will still proceed as necessary and appropriate; only sport hunting would be curtailed in these connector areas. Since there are few if any grizzly bears currently in these areas, there is little loss of hunter opportunity by implementing this conservation objective.

Table 1. An updated approach to post-delisting management based on the state proposal of March 20.

	Expansion on the State proposal of March 20²
1. Area within which mortality limits apply.	19,279 square miles Demographic Monitoring Area (DMA)
2. 2014 population estimate.	Using annual Chao2 and the new vital rates ^a (2014 estimate is 757)
3. Mortality limits.	To stabilize the population at approximately the 2007 Chao2 population estimate of 683, and to annually measure population size using the Chao2 method to assess the success of this management objective.
4. Population goal.	A population close to the 2007 Chao2 estimate of 683

² States suggest using the Chao2 method as the population estimate method and basing the annual mortality limits in the yearly Chao2 estimates made by the IGBST.

	bears using the Chao2 estimator as the population measurement tool.											
5. Allocation process for managed mortalities and response if limits are exceeded.	Management within the mortality limits within the DMA. Coordination to manage within the mortality limits among states is assumed. The Wind River reservation will receive a portion of the available mortality limit based on the % of the WRR geographic area within the DMA.											
6. Management review every 5 years to assure that management actions are achieving the objective of a stable population at the estimated number at time of delisting.	The management review will assess if the management system is achieving the desired objective to maintain a stable population at the 2007 Chao2 estimated level. The management review is a science-based process that will be led by the Study Team (which includes all state and federal agencies and the WRR Tribes) using all recent available scientific data to assess population numbers and trend against the management objective. Vital rates such as age/sex-specific survival and reproductive rates will also be reevaluated using the most recent data to adjust sustainable mortality levels as necessary.											
7. Mortality limit for % of independent FEMALES.	<table><tr><td><683</td><td>683³</td><td>684-757</td><td>>757</td></tr><tr><td><7.6%</td><td>7.6%</td><td>9%</td><td>10%</td></tr></table>				<683	683 ³	684-757	>757	<7.6%	7.6%	9%	10%
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8. Mortality limit for % of independent MALES.	<table><tr><td><683</td><td>683</td><td>684-757</td><td>>757</td></tr><tr><td>15%</td><td>15%</td><td>20%</td><td>22%</td></tr></table>				<683	683	684-757	>757	15%	15%	20%	22%
<683	683	684-757	>757									
15%	15%	20%	22%									
9. Mortality limit for % of dependent young.	<table><tr><td><683</td><td>683</td><td>684-757</td><td>>757</td></tr><tr><td><7.6%</td><td>7.6%</td><td>9%</td><td>10%</td></tr></table>				<683	683	684-757	>757	<7.6%	7.6%	9%	10%
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<7.6%	7.6%	9%	10%									
10. Expected background level of annual mortalities from management and other causes – Using average yearly total mortality ^c of independent bears (≥2 years) from all causes including unknown/unreported estimates, 2011 to 2014.	38 expected deaths/year due to management, illegals, and other deaths (17 F, 21 M) (This includes dead bears from inside the DMA only.)											

³ Population ranges based on Chao2 method. The mortality limits for independent females and males change as this estimate changes.

11. Independent FEMALE (≥2 years) <u>total mortality limit.</u>	609 (as an example) at <7.6% mortality	609-683 <7.6% mortality	683 at 7.6% mortality	684-757 at 9% mortality	>757 at 10% ⁴ mortality	
	<16	16 to 18	18	21 to 24	≥26	
12. Independent MALE (≥2 years) <u>total mortality limit.</u>	609 at <15% mortality	<683 15% mortality	683 at 15% mortality	684-757 at 20% mortality	>757 at 22% mortality	
	<32	36	36	48 to 53	≥58	
13. Examples of the number of independent female and male bears “available” for hunting and additional management removals inside the DMA. This is the number available in excess of the expected annual mortality from other causes.	Examples: For 683 bears: (manage for population stability) F limit = 18 – 17 background morts = 1 F available (1 state, 0 WRR) M limit = 36 – 21 background morts = 15 M available (15 state, 0 WRR) For 757 bears: (manage for population decline) F limit = 24 – 17 F background morts = 7 F available (7 state, 0 WRR) M limit = 53 – 21 M background morts = 32 M available (31 state, 1 WRR) (+ Independent bears outside DMA)					
14. State’s allocation (based on % of area within the DMA).	609 (as an example)	683 ⁵	684-757	>757		
	F: 0 M: 10⁶	F: 1 M: 15⁶	F: 4 to 7 M: 25 to 31	F: ≥9 M: ≥36		
15. Wind River Reservation allocation (based on % of reservation within the DMA)	609 (as an example)	683	684-757	>757		
	F: 0 M: 0	F: 0 M: 0	F: 0 M: 1	F: 0 M: 1		

⁴ A 10% mortality level of females will result in rapid return to lower population numbers with resulting rapid reductions in available discretionary mortality. Such a high female mortality rate will result in inconsistent year to year discretionary mortality levels and challenges in season setting and management. A lower level such as 8% or 9% would result in a less rapid decline in population down to the 2007 level of 683.

⁵ Between 609 and 683 there would be a fraction of an adult female available. A determination would need to be made at some point whether that bear is actually available.

⁶ Functionally, with 0 or 1 females available and the difficulty of the average hunter to distinguish between males and females in the field, the states may consider what hunting management for males is actually available.

^a New vital rates based on analyses of 2002-2011 data (IGBST 2012, p. 33).

^b Analyses by IGBST indicate that the goal of 95% probability of a stable or increasing population is not attainable for either the 9% or 7.6% sustainable mortality limits for independent females, given the new vital rates and slowing of population growth documented in IGBST (2012, p. 33 and 34).

^c Includes estimate of unreported mortalities.

Table 2. Suggested triggers in response to departures from recovery criteria. *Blue items in italics* would be desirable in state regulations.

Triggers	Response
<i>1. Exceeding independent female mortality limit at any time during the year.</i>	<i>Cease grizzly hunting in the DMA upon exceeding the limit.</i>
<i>2. Exceeding independent female mortality limit for 3 consecutive years</i>	<i>No grizzly hunting the following year. FWS status review.</i>
<i>3. Exceeding independent male mortality limit for 3 consecutive years.</i>	<i>No grizzly hunting the following year. IGBST biology and monitoring review.</i>
<i>4. Exceeding dependent young mortality limit for 3 consecutive years.</i>	<i>No grizzly hunting the following year. IGBST biology and monitoring review.</i>
5. Failure to meet distribution of reproductive females criterion.	IGBST biology and monitoring review.
6. Failure to meet habitat standards in forest plans.	IGBST biology and monitoring review.
7. Failure to receive adequate funding to implement monitoring and management requirements in the Conservation Strategy.	IGBST biology and monitoring review. Could lead to a FWS status review.
8. Total population less than 500 bears necessary for genetic health as measured with Chao2 method.	No grizzly hunting inside the DMA the following year. FWS status review and possible relisting.
9. Changes in Federal, State, or Tribal laws, rules, regulations, or management plans that depart significantly from the specifics in the Conservation Strategy.	FWS status review and possible relisting.

Literature cited

Updated approach Yellowstone - June 2, 2015

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