

Some Comments on Grizzly Bear Hunting

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Purpose: These are brief comments on the post-delisting application of sport hunting to grizzly bear management. These comments were requested by some of the Governor's Grizzly Bear Advisory Council. These comments are neither for nor against grizzly bear hunting. They are intended as a review of some of the basic concepts of hunting and the expected effects of hunting on grizzly bear management if hunting was implemented.

Background: Consideration of grizzly hunting involves:

- 1) Facts about the impact of hunting on populations that is managed with a sustainable annual harvest approach.
- 2) Facts about the role of hunting in reducing human/bear conflicts.
- 3) Facts about the role of hunting in reducing the number of human injuries and fatalities due to bear attacks.
- 4) Opinions on the ethics of hunting an animal for sport while not using any part of the animal for food.

In these brief comments, I will address items 1, 2, and 3. Opinions on the ethical issues related to trophy hunting of grizzly bears will not be addressed.

Definitions of hunting. The term sport hunting was developed in the early decades of the 1900s to differentiate the regulated hunting of desirable animals for sport (with the meat usually being used by the hunter) from market hunting, which was the unregulated killing of animals by all means for consumption and sale of their meat and hides, and the unregulated killing of predators. Sport hunting is an appropriate component of wildlife management and is briefly defined as public involvement in scientifically regulated, sustainable, consumptive use of wildlife. The words "consumptive use" are important to this definition in that sport hunting usually involves consumption of the meat of the animal taken in such hunts, and the meat is not sold to others.

There are economic, social, and biological impacts and benefits of the consumptive use of wildlife through hunting. Hunting is a part of America's cultural heritage and is usually viewed as a legitimate outdoor recreation that connects people with nature. Hunting can foster stewardship values in hunters for wildlife and nature. Hunting license fees provide the important funding foundation for most state fish and game agencies who are responsible for state wildlife conservation and management. There are also increasingly popular non-consumptive uses of wildlife that do not involve hunting. Non-consumptive uses involve

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activities such as wildlife viewing and photography. There are also important existence values² of and for natural things such as wildlife that involve no consumption of or interactions with those things except perhaps indirectly via films, books, etc.

For some perspective, a 2016 report³ by the U.S. Fish and Wildlife Service stated that there were 9.2 million big game hunters in the U.S. 16 years and older (see p. 26 of the report), which was 2.8% of the total US population in 2016. This same report stated that 86 million people 16 and older participated in wildlife viewing including both observation and photography, which was 26.7% of the total US population in 2016. A 2011 report⁴ by the U.S. Fish and Wildlife Service revealed that 95,000 Montana residents 16 and older hunted big game, which was 10.5% of the total Montana population in 2010. This same 2011 report stated that 258,000 Montanans age 16 and older participated in wildlife viewing including both observation and photography, which was 28.6% of the total Montana population in 2010.

Trophy hunting is broadly defined as the killing of animals for recreation with the purpose of collecting trophies such as horns, antlers, skulls, skins, tusks, or teeth for display⁵. The meat of the animal killed in a trophy hunt is sometimes consumed by the hunter depending on the species involved. In Montana, the meat of grizzly bears killed in sport hunts was required to be collected by a grizzly hunter until 1951 when legislation was introduced to make the grizzly a “trophy” animal so that the meat was not required to be saved and used by the hunter. In Alaska, meat of hunter-harvested grizzly bears does not have to be collected by the hunter except in the case of special “subsistence” hunts specifically for meat.

The impact of sport hunting on grizzly populations. Sport hunting is scientifically regulated, sustainable, consumptive use of wildlife. The key words here are sustainable and scientifically regulated. Scientific regulation of sport hunts is usually designed to limit the number, sex, age, and distribution of the grizzly bears taken in order to maintain the population at a reasonably stable number maintained within established limits. Such hunts will have minimal negative impact on healthy grizzly bear populations as long as the limits on the number of mortalities are based on sound science and ongoing monitoring of vital rates of the population. Given that there are mortality limits from all causes in place in post-delisting grizzly bear management plans to maintain healthy sustainable populations, any sport hunting mortalities would have to be within those total mortality limits and would not be additional mortalities. In an unusual approach, the state of Alaska has used sport hunting regulations to reduce brown bear

² Existence value is an economic value of an object in the natural world apart of any use of that object by humans. It is the benefit people receive from knowing that a particular environmental resource, such as grizzly bears or remote mountains, exist without any consumption of that resource. See Aldred, J. 1994. *Environmental Economics* 3:381-402.

³ <https://www.census.gov/content/dam/Census/library/publications/2018/demo/fhw16-nat.pdf>

⁴ <https://www.census.gov/prod/2013pubs/fhw11-mt.pdf>

⁵ Sheikh, P. A. and L. Bermeja. 2019. International trophy hunting. Congressional Research Service, R45615. Washington D.C. 28 pp.

numbers in a portion of Alaska⁶, but this use of sport hunting to drive down numbers of a bear population is very rare⁷.

The impact of sport hunting on human/bear conflicts. There is no evidence that a normally managed grizzly bear hunt would reduce human/bear conflicts. There has been some promotion of sport hunting as a method to reduce human/bear conflicts, especially as natural food supplies vary from year to year with corresponding changes in human/bear conflicts (particularly in poor natural food years). However, in a study of black bear hunter harvest levels from 2004-2011, Obbard et al. (2014)⁸ found that there was no evidence that (black bear) harvest numbers influenced levels of human/bear conflicts across the province of Ontario, Canada. They stated: “Human conflict was not correlated with prior (year) harvests, providing no evidence that larger (black bear) harvests reduced subsequent human/bear conflicts. Given the variation in natural foods, harvest is unlikely to prevent elevated levels of human/bear conflict in years of food shortage unless it maintains bears at low densities – an objective that might conflict with maintaining viable populations and providing opportunities for sport harvest”.

There are two conceivable ways that sport hunting could reduce human/bear conflicts:

- 1) To increase harvest numbers to the point that there was a significant reduction in the numbers of bears with resulting reduced bear density across the ecosystem (Obbard et al. 2014). Such a harvest level would have to be significantly above the sustainable mortality limits specified in the post-delisting management plans of the NCDE and the Yellowstone Ecosystem and would therefore be a violation of the mortality management approach requiring that “adequate regulatory mechanisms” be in place that is necessary to achieve delisting.
- 2) To confine sport hunters to the areas where most human/bear conflicts occur, which is the private lands in the NCDE. Most of these private lands are on the periphery of the NCDE and Yellowstone ecosystems. Using the NCDE as an example, within the DMA (the PCA and Zone 1) where all mortalities count against the annual mortality limits, there are 3,404 square miles of private lands. If on the other hand, the objective was to maintain some level of sport harvest opportunity inside the core of the NCDE on public lands, hunters would be allowed to hunt throughout much of the ecosystem. An

⁶ Brockman, C., M.R. Guttery, B.W. Dale, R.A. Schwanke, R.W. Tobey, and D.N. Koons. 2020. Effect of harvest on a brown bear population in Alaska. *Journal of Wildlife Management*. <https://doi.org/10.1002/jwmg.21861>

⁷ Ripple W.J., Miller S.D., Schoen J.W., Rabinowitch S.P. 2019. Large carnivores under assault in Alaska. *PLoS Biol* 17(1): e3000090. <https://doi.org/10.1371/journal.pbio.3000090>

⁸ Obbard, M.E., E.I. Howe, L. L. Wall, B. Allison, R. Black, P. Davis, L. Dix-Gibson, M. Gatt, and M.N. Hall. 2014. Relationships among food availability, harvest, and human-bear conflicts at landscape scales in Ontario, Canada. *Ursus* 25:98-110. <https://doi.org/10.2192/URSUS-D-13-00018.1>

ecosystem-wide hunt (outside National Parks) would greatly reduce the amount of hunter effort where most human/bear conflicts occur. This would decrease any potential effectiveness of sport hunting as a means to reduce human/bear conflicts. Such an ecosystem-wide hunt would not target actual or potential problem bears.

The current Conservation Strategy approach in both the NCDE and the Yellowstone ecosystem is to have core areas called demographic monitoring areas (DMAs) where annual mortality limits apply and are carefully monitored, and areas outside this core area (called Zone 3 in the NCDE) where annual mortality limits do not apply. These peripheral areas, such as Zone 3 in the NCDE, are mostly private lands and there are occasional human/bear conflicts in the areas in both the NCDE and the Yellowstone ecosystem. Sport hunting of grizzly bears in these areas could be implemented. However, it is important to recognize that as stated by Obbard et al. (2014) there is no evidence that bear harvest influenced human/bear conflict levels. Sport hunting in areas like Zone 3 as a tool to try and reduce human bear conflict would have to be so intense as to significantly reduce grizzly numbers and density. Such an approach could potentially emphasize that this was not a sport hunt but instead a bear reduction/elimination program using sport hunting (see Ripple et al. 2019; footnote #7).

Hunting as an alternative to agency management removal of bears in human/bear conflict.

State agencies and tribal governments have had in place for more than 30 years bear management programs to address human/bear conflict. These programs, staffed by experienced bear managers, rapidly respond to human/bear conflicts, usually on private lands, to either assist landowners in securing attractants from bears and/or capture and relocate offending bears or remove offending bears depending on the situation and if it is a repeat offense. This system employs an efficient, rapid response by trained professionals who can attempt to capture and remove the bear as necessary. This system also allows a careful approach using site investigations, track sizes, radio collars (when available), and family group characteristics to be sure the offending bear is the bear captured and either relocated or removed.

In the past, there has been some consideration of using sport hunters to remove such bears instead of agency bear management specialists. The use of sport hunters might involve maintaining a list of interested hunters who would be called when a conflict takes place and asked to appear at the site of the conflict. The hunter would then be directed to the conflict site with a description of the offending bear(s) in order to shoot the bear if and when it returns. Such an approach still requires the involvement of the agency bear management specialists to guide the hunter to the correct area and to describe the bear. Limitations to this approach include: 1) a delay in response to and resolution of the conflict as the hunter has to be called and has to wait to see if the bear returns when it can be seen, identified, and shot; 2) the likelihood that the bear will not return during daylight as many of these conflicts occur during hours of darkness and bears are wary of human use areas and are more active a night when they cannot be shot by a hunter; 3) the possibility of the hunter shooting the wrong bear if he/she does see a bear as many of these human/bear conflicts occur in areas with multiple bears; and 4) public perception that this is not a fair chase sport hunt of a grizzly bear but

instead a sort of execution by a licensed hunter. These and other complications make the use of sport hunters to manage bears involved in human/bear conflicts ineffective, inefficient, and ethically questionable.

Sport hunting as a way to reduce bear attacks on humans. There has been some discussion about the idea that hunting of bears makes bears wary of people and therefore less likely to attack people. There is minimal information to support this. A bear that is unwary of humans might be more vulnerable to hunters as it could be more visible. National Parks like Yellowstone have some bears that are somewhat habituated to humans and are more visible to Park visitors, but such bears are rare outside of National Parks even after more than 40 years with no sport hunting in the lower 48 states. The relationship between hunting and bear wariness depends on the theory that bears can develop a wariness to humans if they are hunted even if they are not shot at or wounded by hunters. The idea that wildlife in general can become wary of humans if hunted may have some behavioral basis in social animals like elk and deer where animals in social units can be shot and killed (or wounded) and the other animals in the social unit become aware that this traumatic event is associated with the presence of humans. This behavioral learning basis is less credible in non-social, generally solitary animals like bears where generally when an animal is shot and killed (or wounded) there are no other bears present to “learn” anything about humans from the event. And of course, the animal shot and killed “learns” nothing from its death.

It is useful to look at how hunting might have influenced the bears involved in recent human deaths and injuries. Since 2011, there have been 9 human fatalities in the lower 48 states due to grizzly bear attacks. Of these 9 fatalities, 2 involved female bears with offspring approaching humans gutting elk (a strong attractant to the bear), 1 involved a high speed mountain biker crashing directly into an unsuspecting bear, 1 involved a human approaching a drugged bear that was awakening after a research capture, 3 involved day hikers who had surprise encounters with bears on trails, 1 was a person eating lunch alone next to a trail in YNP, and 1 was a person in a tent in a campground attacked at night by a female in poor body condition accompanied by offspring. Of the bears involved, we know that 5 of the 9 were adult females accompanied by young (an age/sex class that would not be subject to hunting), 2 were adult males (the drugged bear and the bear that was run into by the mountain biker), and 2 were unknown age/sex. Of these 9 fatalities, it is difficult to see how hunting could have prevented any of them.

Most human injuries due to bear attacks are due to 3 types of human/bear encounters: 1) surprise encounters at close range usually on trails; 2) an adult female defending her offspring should a human unwittingly get close to her and her offspring; and 3) a bear defending a food source like a carcass when an human unwittingly approaches the carcass and the bear. Most encounters that result in human injury are surprise encounters. Surprise encounters with bears at close range happen when both the bear and the human are surprised, and the bear reacts defensively before fleeing the area. When we teach bear safety to the public, we stress the importance of avoiding surprise encounters by making noise especially in conditions when surprise encounters could occur like hiking/biking in thick vegetation or along noisy streams

where the bear cannot hear you approaching, and when hiking into the wind when the bear cannot smell you approaching⁹. Bear safety training by all agencies is based on the fact that most grizzly bears avoid humans (even after 40+ years without sport hunting) and if given warning of human approach, grizzlies will almost always avoid encounters with humans.

We do know that some bears can lose their normal avoidance response to humans through repeated encounters. This is called habituation. This sometimes occurs in National Parks when bears encounter humans and have no adverse effects. These are often the roadside bears you can see feeding within sight of roads in YNP for example. Such bears are not dangerous to humans, they just tend to ignore humans.

We also know that certain bears can be fed by humans or obtain food around human use areas such as garbage, livestock carcasses, or bird feed. Such bears are called food conditioned. Food conditioned bears are usually not habituated and tend to avoid human use areas except when people are not around or under cover of darkness. In some cases, bears can be both habituated and food conditioned. These bears may approach humans and human use areas in broad daylight seeking food. Such bears can be dangerous and are almost always immediately destroyed by bear managers.

There is a limited role for sport hunting to remove such bears as they are either habituated in National Parks or food conditioned and managed by bear managers when they are encountered. In summary, there is little information to support the idea that sport hunting will make bears more wary of humans and thereby reduce the number of human injuries and human fatalities due to bear attacks.

In summary:

- There are economic, social, and biological impacts and benefits of the consumptive use of wildlife through hunting. Hunting is a part of America's cultural heritage and is usually viewed as a legitimate outdoor recreation that connects people with nature. Hunting can foster stewardship values in hunters for wildlife and nature, and hunting license fees provide the important funding foundation for most state fish and game agencies.
- There are also increasingly popular non-consumptive uses of wildlife that do not involve hunting and the killing of animals.
- Sport hunting is scientifically regulated, sustainable, consumptive use of wildlife. Such sustainable hunts will have minimal negative impact on healthy grizzly bear populations as long as the limits on the number of mortalities are based on sound science and ongoing monitoring of vital rates of the population.
- There is no evidence that a normally managed grizzly bear hunt would reduce human/bear conflicts, unless:

⁹ See this report for a summary of recommendations how to avoid bear attacks:
http://igbconline.org/wp-content/uploads/2016/03/160629_BOR_Recomm_Treat_NCDE.pdf

- The mortalities from the hunt were excessively high and exceeded sustainable mortality limits and departed from post-delisting management plans with a resulting significant decrease in population size and density.
 - Hunters were restricted to private lands where most human/bear conflicts occur in an attempt to assure that hunted bears were only potential conflict bears.
- The use of sport hunters to manage specific bears after they have been involved in human bear conflicts has many complications and is ineffective, inefficient, and ethically questionable.
- There is a theory that bears can develop a wariness to humans if they are hunted, even if they are not shot at or wounded by hunters, but there is little information to support this. Most grizzly bears outside of National Parks are wary of humans and avoid humans in almost all cases, even after 40+ years without sport hunting. The information on nine recent human fatalities due to bear attacks and human/bear encounters that result in injuries does not suggest how sport hunting could have prevented or reduced the numbers of these events.