Public comment by Dr. Adrian Treves

Preamble. My qualifications

Part 1. Lethal and non-lethal methods for protecting farm animals and property from predators

Part 2. How is individual human tolerance for large carnivores affected by delisting or liberalizing human killing of those carnivores?

Appendix. Rebuttals of specific assertions of fact made by USDA-APHIS-WS

Preamble. My qualifications

1. I am a professor of environmental studies on the faculty of the University of Wisconsin – Madison, a position that I have had since April 2007. I am the director of the Carnivore Coexistence Lab, which I founded in 2007. In these capacities, I have received honors for Public Service from the Society for Conservation Biology North America in 2026, the highest honor for teaching at University of Wisconsin-Madison (the Chancellor's Distinguished Teaching Award in 2025), and awards for best monitoring plan in a project and best education and research, have been recognized by the French Ministry of Environment, and have been a fellow of the Fulbright Scholars Program and for the Organisation for Economic Cooperation and Development

2. I have 36 years' experience as a professional researcher. I have authored or co-authored 115 peer-reviewed scientific publications on the ecology and conservation of wild predators and their prey. I have authored or co-authored another 50 articles on these topics, in addition to the topics of scientific integrity and policy. I have also made hundreds of public presentations at professional conferences and other public speaking engagements on science and wildlife policy.

3. I am best known for my work on large carnivores. I have published three scientific articles relating specifically to grizzly bears (*Ursus arctos horribilis*) and 15 additional articles that pertain to grizzly bears in addition to other carnivores. The three specific articles regard hunter attitudes (published in 2008 and 2011), and on preventing grizzly predation on livestock (published in 2023).

Part 1. Lethal and non-lethal methods for protecting farm animals and property from predators

1. Since 2016 and most recently 2026, we have been reviewing and summarizing the best study designs to evaluate if interventions can protect farm animals from predators (1-6). (Numbered references refer to the literature cited at the end of this section.) I summarize the conclusions from these reviews below.

2. Moreover, we have also completed several field experiments using randomized, controlled experimental designs to evaluate non-lethal methods (7-9). I review some general

conclusions from those field experiments below. The above reviews and field studies have led to several simple conclusions that follow:

3. Non-randomized study designs include anecdotes, simple observations, simple correlations, and before-and-after control-impact (also called comparison of interventions) abbreviated as BACI. Early on I reminded APHIS about the distinction between non-randomized nBACI and randomized BACI, rBACI hereafter, citing Underwood, Murtaugh, and other statisticians dating back to the early 2000s. Since then my own work cited above and that of (10, 11) has made the point again and again with even stronger inference using simulations of data. The over-arching conclusion is that one will be misled by non-randomized study designs.

4. Non-randomized study designs are prone to very high error rates. These errors are not innocuous but can lead to the opposite inference from the true conclusions. Even when the true conclusion matches the inference from such a study often the inferred effect massively exaggerates the strength of the findings.

5. Lethal methods are unreliable. Scientific consensus from 5 or more studies of killing wolves to protect farm animals, from single randomized studies of red fox, dingoes, badgers, all agree that without very careful experimental control and rigorous monitoring, killing predators is most likely to have no effect on farm animal losses, mays sometimes work as desired but equally often back-fires to increase farm animal losses.

6. The appropriate, robust study design using a controlled experiment on lethal management has never been done in the USA on predators of farm animals. Until it is done and the results analyzed rigorously, we will not know if a given specific method of lethal management is effective as an intervention to protect property. Even for modest effectiveness, we will not know under what conditions it is more or less effective without a randomized, controlled experimental study design.

7. Regarding non-lethal methods to protect farm animals, robust randomized controlled experiments have been conducted on night-time lights, fladry, shock collars, livestock-guarding dogs, range riders practicing low-stress livestock handling, studded/spiked collars, and painted eye-spots on farm animals. Regarding protection of electric fences and bear-proof dumpsters, randomized, controlled trials have also been run showing these are effective to protect static (immobile resources such as beehives and garbage dumps for black (*Ursus americanus*), Asiatic (*U. thibetanus*) and grizzly bears (12-14). Also, supplemental feeding has been subject to randomized, controlled experimental tests to protect trees from bear foraging damage that reduces the valuer of timber (15-18).

8. Given the large number of studies using randomized designs, any claim that these are infeasible is false and misleading.

9. Failure to use robust study designs will lead to wasted time and resources, farm animals dying that need not have died, wild predators dying that need not have died, and public mistrust of authorities.

10. The latter conclusion also applies specifically to bears, property damage other than farm animals, and come from an independent source (13, 14, 19, 20).

11. Specific to grizzly bears, the studies of non-lethal methods by Louchouarn et al. (2023) and numerous experiments produced evidence that human approach scares away European brown bears and wolves (21, 22). Therefore, human presence should be considered as potentially the most effective deterrent.

12. The usual critique that human presence is economically infeasible should be met with a request for quantifications that compare those costs to saving damages' and compared to lethal management costs.

13. Also, if human supervisions does turn out to be more costly than the alternatives, then attention should turn to work on electric fencing and bear-proof dumpsters since Jorgensen (23). At least one study found grizzlies deterred by livestock-guarding dogs (24). Experiments run on black bears see above and especially (12) could be repeated for grizzlies. Also see the Blackfoot challenge and its approach to human-grizzly conflict (25).

14. Little of what I have written above is new. As I have cited work going back to 1978 and my own going back to 2003, I feel the need to clarify some history that might otherwise be overlooked. A few features of this history are particularly relevant to-APHIS claims in the present case.

15. The very first such randomized, controlled experiment with crossover design I cite from my work above was conducted in 2003 with a lead scientist from USDA (J. Shivik). APHIS has had 23 years to advance such work.

16. Moreover, much of the information provided here reiterates points I made in a 2018 affidavit filed in U.S. federal litigation involving APHIS so they have seen it before. The elements that are new are consistent with the older information. But replicating our findings adds strength to them. Replications as we have done are grist for the mill of science. One finding can only ever be provisional but the results I report above have been replicated variously and independently.

17. I have noted above when only a single study supports one of my claims. All the others are supported by over a dozen other reviews led by independent authors. In stark contrast, APHIS' apparently follows an approach to asserting facts without evidence, without peer review, and with selective citations (omitting much of the evidence I have cited above).

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Part 2. How is individual human tolerance for large carnivores affected by delisting or liberalizing human killing of those carnivores?

1. The two most important peer-reviewed articles I have authored or co-authored on tolerance for predators are as follows: Treves A, Bruskotter JT, 2014, Tolerance for predatory wildlife, Science 344:476-477; and Bruskotter JT, Vucetich JA, Naughton-Treves L, Lopez-Bao J, Ghasemi B, Sintov N, Teel T, Carter N, Elbroch L, Treves A, 2026, Toward a Synthetic Theory of Tolerance for Carnivores: Learning from a Half-century of Research on Attitudes Toward Wolves, Conservation 6:42.

2. I have studied the topic of societal tolerance for carnivores for 27 years, and have amassed considerable expertise over that span. I have become aware that several government agencies are making unsupported claims about tolerance for carnivores. I am concerned about distortions of evidence in the science-policy interface.

3. In one form or another, several governments have articulated the notion that allowing people to kill a few carnivores will improve tolerance for them among the broader public and thereby protect the surviving carnivores. An early articulation of this notion arose in 2002, and I cite it extensively here because it captures many of the hoped-for outcomes of delisting grizzlies and classifying them as game animals. Mincher (2002) opined, "…a carefully regulated harvest, which might benefit long-term grizzly bear conservation .. Classification of the grizzly bear as a game animal can only improve the acceptability of grizzly bears to the [Greater Yellowstone Ecosystem] public… by increasing public tolerance for increased range. … female bears are believed to engage in foraging in front country areas to avoid competition from males… Thus, nonhunt, human-caused mortality might disproportionately affect females. …Classification of the grizzly bear as a game animal will have the added benefit of creating a new group of pro-grizzly bear conservation stakeholders, sportsmen across the country…" p. 1287-1292(26).

4. The claims that killing carnivores will increase social tolerance were not substantiated by any evidence. For this opinion article, Mincher described himself as "a volunteer member of the Safari Club International Foundation's Conservation Committee for which he reviews proposals, raises funding for wildlife conservation and research projects, and writes articles on those projects for sportsmen's magazines." p. 1287-1292, Ibid.

5. In its proposed 4(d) Rule for grizzly bears, the U.S. Fish and Wildlife Service promotes lethal removal of grizzly bears in response to conflicts with livestock or as advancing the conservation of the species by "fostering increased public tolerance and support for conservation efforts." These hopeful ideas have several assumptions: After delisting, broad public acceptance of surviving grizzlies will improve if bears (especially males) are killed legally; grizzly hunters, in particular, will become champions of grizzly protection; and grizzly conservation in general, or specifically the population range and female survival, will improve with regulated hunting — as acceptance reduces "non hunt" mortality. Note that non-hunt mortality presumably refers to intentional human-induced causes of death other than permitted kills during a legal hunting season for grizzlies.

6. The first official articulation of these ideas to my knowledge was by USFWS arguing for permitting wolf-killing in a 2003-2006 federal court case.(27) In said case, the defendant, USFWS, argued, "…in the absence of adequate measures to control known depredating wolves, public support for wolf recovery and wolf reintroduction programs will likely erode

and individuals will resort to illegal killing to protect their pets and livelihood'' (*Humane Society of the United States v. Kempthorne*, 2006, D.DC 1:06-cv-1279-CKK, Slip Op. at p. 8). Also a long-time representative of USFWS for midwestern states responsible for wolf policy communications at the time repeated the myth of delisting will raise tolerance for wolves.(28)

7. The *Humane Society* court sided with plaintiffs Humane Society, chiding the USFWS for an unsubstantiated claim, stating "it is clear from the language, framework, and legislative history of the ESA that a depredation control program involving the lethal taking of an endangered species[2] contravenes the clear intent of Congress as set forth in the ESA." Slip Op. at 14. Wolves were listed as endangered under the federal ESA at the time and the plaintiffs were petitioning the court to stop the USFWS from permitting private take.

8. Hereafter, I unpack the notion that 'People who are prohibited from killing grizzly bears legally will not tolerate the bears, therefore those people will kill them illegally or its close cousin, 'People who can kill grizzly bears legally will tolerate them, therefore those people will defend them against intolerance and illegal killing.' Both statements of the central ideas contain a premise with an empirical claim preceding the word "therefore") and a consequence with its own empirical claim following the word "therefore"). These are empirical claims of fact, not value-based claims about what people should feel or ought to do. As empirical claims, a scientist like me is qualified to test them. Indeed, we have evidence to examine them critically. Next, I explain what we know from scientific investigations about people's tolerance for grizzlies, views of delisting, and inclinations to kill them outside of a legal hunt. Two studies of attitudes to grizzlies exist that address related issues but do not directly test the claims. Yet, their result suggest caution.

9. First, Karns et al. (2018: 2451)(29) surveyed hundreds of grizzly researchers from agencies, non-profits, and from academia. Karns et al. found that agency staff were significantly more likely to make the value judgment that grizzlies should be delisted than were other scientists. The different sets of scientists did not differ in years of experience or measures of scientific output but differed in their participation in hunting, especially big game hunting. Karns et al. concluded that one's professional environment or the pre-existing values that led one into agency work were associated with a higher inclination to manage grizzlies lethally.(29) These data indicate a predisposition among agency staff to delist grizzlies perhaps to hunt the grizzlies themselves, or perhaps to satisfy a constituency who wants to hunt grizzlies.

10. The second study was by Treves et al.(30, 31) from a questionnaire-based mail-back survey of residents of Idaho, Montana, and Wyoming living adjacent to the Yellowstone National Park or in a non-adjacent zip code within the species range of grizzlies or wolves. Although the results for grizzlies were never peer-reviewed, the methods used were peer-reviewed and published in 2011. Treves et al. showed that supporters of conservation of grizzlies were in the minority in 2007, following the first government proposal to delist grizzlies. Support for grizzly conservation was lower among hunters and even lower among hunters of carnivores than among non-hunters. Almost one-quarter of respondents opposed "any restrictions on hunting grizzlies" in 2007.(30, 31) We also asked hunters and non-hunters which rules they endorsed if grizzlies were reclassified as game. A smaller number of hunters endorsed a complete prohibition on hunting grizzlies than the number of hunters who endorsed no rules to limit hunting grizzlies; carnivore hunters were even less supportive of rules such as protecting breeding females with

cubs, prohibitions on bait, traps, hounds, and out-of-state hunters.(30, 31) The observations above that hunters — and especially hunters of carnivores — were least supportive of grizzly conservation and a majority supported every mode of hunting led us to infer they would not become champions of grizzlies after delisting.(30, 31) When we asked hunters which conditions they would like to see if public hunting of grizzlies were legalized, majorities of hunters wanted immediate hunting, not hunting to remove grizzlies that damage property, not hunting predicated on sustainability or wildlife management goals, but immediate hunting.(30, 31)

11. An alternative explanation might be that would-be hunters of grizzlies desperately wanted to hunt in any way they could and would turn into champions for grizzly bear conservation thereafter. We cannot evaluate that claim. However, the support for hunting breeding females with cubs suggests the desire to hunt was not motivated as Mincher (2002) thought for the trophy male grizzly or to prevent male grizzly damages to properties (above).

12. In summary, the above two studies indicate a predisposition to delist and hunt grizzlies among agency staff and a disproportionate intolerance of grizzlies among hunters of carnivores, in particular, with non-hunters more tolerant and supportive of grizzly conservation and protection than hunters.

13. There is little scientific evidence supporting the idea that those who cannot hunt grizzlies “become intolerant” or those who are allowed to hunt grizzlies “become tolerant,” and these results undermine ideas that public tolerance, in general, for ESA-listed grizzlies was low and would be improved by delisting followed by public hunting.

14. To evaluate if delisting leads to intolerance or being able to kill wildlife raises tolerance for those wild animals, we must turn to studies of tolerance for wolves. Research that is not focused on grizzlies in the US recovery area, but is focused on wolves (even in other geographies, is still relevant, and may in fact represent the best available science applicable to grizzly bears. Scientific research is rarely tailored to specific time, place, or questions raised in a court case. Nevertheless, one of the hallmarks of reliable science is that its findings can be generalized from the specific to other situations.

15. Generalizable science can be recognized and distinguished from non-generalizable evidence when (a) a single finding is replicated, and (2) when robust inference is generated from research that identifies causal mechanisms that are general or even universal. For example, we know that grizzlies eat massive amounts before hibernating because they need energy to survive a long, cold hibernation during which they will eat little or nothing. The cause of the enormous appetite of grizzly bears is thus understood generally. These are generalized findings from a few replicated studies that apply very well or perfectly to grizzlies in North America and to brown bears (also *Ursus arctos,* the same species) throughout Eurasia.

16. Likewise, findings about human tolerance to grizzlies in one study maybe generalized to other situations if the studies are robust against errors and biases, are replicated, and identify causal mechanisms. For our present context, the species (humans) whose tolerance is at question is the same species being studied when we measure human tolerance for wolves or any other wildlife. For sure, tolerance for wolves is not identical to tolerance for grizzlies, but we also have zero evidence that it should differ qualitatively.

17. Finally, even if one has scientific evidence from a very different system but that evidence is about causal mechanisms, one may be able to generalize and extrapolate to new systems. For example, we know that all humans are members of the same species and therefore our biology is very similar from individual to individual. Therefore, if we understand the causal connection between attitude and behavior in a sample of people, we might be able to say something intelligent about a sample of people we have not studied.

18. On the strength of these generalized mechanisms of human tolerance, I present the peer-reviewed research on tolerance for wolves. The research on tolerance for wolves also covers the effect of delisting, the effect of allowing the public to kill wolves legally, and research on patterns of wolf-poaching.

19. These studies stand out in comparison to single 'snapshots' of attitudes because (a) several of the cited studies measured the change in attitudes of the same individual humans over time as killing wolves was first legalized and then liberalized (from a few permits to public hunting); and (b) several of the studies identified who was least tolerant and why they reported tolerance or intolerance.

20. Intolerance for wolves was associated with competitiveness over deer as game, residing in wolf range, or associated with being a hunter of bears or coyotes.(32-39)

21. Intolerance for wolves was associated with intentions to kill wolves illegally. This established the probabilistic correlation between intolerance (negative attitudes) and a declared inclination or intention to poach wolves.(32, 34-38)

22. Also from Wisconsin, focus groups conducted by Browne-Nuñez et al.[15] before and after changes in rules that legalized wolf-killing by government agents or permitted private landowners to kill wolves have documented that the hunters then demanded public hunts of wolves; i.e., permitted private wolf-killing was not enough.(40)

23. One dataset from Wisconsin presented by Olson & Goethlich 2024(41) seems to contradict our findings. Only 276 respondents answered their survey compared to the thousands in the studies I cited above.(32, 34-38) Olson & Goethlich 2024(41) reported that respondents anticipated their tolerance for wolves would increase when wolves were delisted, the state resumed authority for wolves, and public regulated hunting resumed. There are three problems with that study that render its findings dubious. First the small sample size (28%) leaves one wondering if there was sampling bias or self-selection bias, i.e., the respondents with a particular view chose to answer the survey and the other 72% felt very differently. Such low response rates often reflect something in the survey administration turned off potential respondents. Second, even if accurate, people's self-report about how their tolerance might change in some hypothetical future is twice removed from their actual behavior towards wolves. First it is removed by the hypothetical scenario, and second it might represent wishful thinking or telling the researcher what the respondent thinks they want to hear. As evidence for the latter, Hogberg et al. 2015(33) analyzed respondents' self-reported prediction about their own tolerance before the 2012 Wisconsin wolf hunt, the same respondents reported tolerance for wolves after the hunt, and third, Hogberg used an objective measure of their tolerance based on questions that did not use the word 'tolerance' but measured attitudes and intentions toward wolves. Hogberg et al. found that predictions were strongly leaning towards 'my tolerance will

increase if I can hunt wolves' before the hunt, people claimed their tolerance had improved after the hunt, but the objective measure of their tolerance had declined after the hunt.(33) Third, it seems telling that Olson did not cite Hogberg's, Browne-Nuñez's, or Treves' [7-15] studies of attitudes to wolves before and after the relevant changes in policy. Indeed, Olson shows a pattern of selective citation that violates the National Academies of Science Medicine and Engineering guidelines on fostering research integrity.(42) A consistent pattern of selective citation they noted appeared to be an attempt to mislead readers about work that had come before. I've pointed out to my field and to agencies in multiple public comments some of the ingredients of research integrity, so Olson has no excuse for not realizing what he was doing was wrong.(4, 43-55)

24. The latter finding of escalating demands for wolf-killing authorizations and increased quotas for wolf killings from agencies also emerge from questionnaire-based studies that ask hunters which conditions they would like to see if public hunting of wolves were legalized. Invariably majorities of hunters want immediate hunting, not hunting to remove wolves that damage property, not hunting predicated on sustainability or wildlife management goals, but immediate hunting.(32, 34-36) This argues against tolerance improving after some few permits for wolf-killing were issued. The bear hunters were most outspoken about demanding public hunting, trapping, and hounding of wolves, whether measured by anonymous focus groups, anonymous questionnaires after those focus groups, or mail-back survey questionnaires[7-14].

25. Therefore, carnivore hunters were not, as a rule, easily satisfied by incremental increases in permissions to kill wolves. These studies argue against a notion that carnivore hunters are ready to be tolerant of wolves if conditions change. As the least tolerant group, the bear hunters who used hounds have a long way to go to become the most tolerant as Mincher predicted by analogy.

26. The last study from Wisconsin clarifies the issue even further (Hogberg, 2015: 1941). After the inaugural public wolf-hunting and wolf-trapping season of Fall 2012, tolerance for wolves declined in the same respondents studied before and after the hunt. And that decline was sharpest among men living in wolf range who had familiarity with hunting wildlife (Hogberg, 2015: 1941).[8]

27. Similar findings from Montana suggest the hunters of big game were the least tolerant of wolves even though wolves were legal game at the time of the survey (Metcalf et al., 2025: 3554).[79]

28. The tendency for bear hunters who use hounds to demand more and more killing was also shown by the 2021 wolf-hunt in Wisconsin, in which >80% of permitted wolf-kills were accomplished by hunters who used bear-hunting hounds.(56) That hunt overshot the legal quota by a large margin(56) and led to renewed calls for a second wolf-hunt again that year.(57-60)

29. Finally, a multi-authored review of tolerance and how it changes, written by Bruskotter et al.(61) concludes that social norms expressed within an identity group or in-groups are the most or one of the most powerful influences on individual attitudes and intentions to behave in certain ways towards wildlife.(61)

30. Hundreds of studies of attitudes have reported that hunters — especially hunters of carnivores — have the most negative attitudes to wolves.(62) The latter review also showed that removing protections for wolves was unlikely to improve attitudes toward wolves.(62)

31. It stands to reason that the colleagues of individuals who hunt carnivores or those who are intolerant of carnivores, many of whom also hunt, would share such attitudes around the bar, kitchen, or workplace. Such social norms might facilitate intolerant behaviors such as speaking out or acting to harm carnivores.

32. Legalizing grizzly hunting does not prevent illegal killing of grizzlies(63, 64). There are few studies of grizzly bear poaching that reveal much about who specifically committed the poaching. Yet those implicated in illegal killing (poaching) seem to be among the same people as are involved in legal killing of grizzlies.[40] Reams of studies of carnivore mortality show that illegal and legal killing occur in similar locations at similar times of year using similar methods, e.g., grizzlies die legally in similar situations as grizzlies that die of illegal causes and shooting is the primary cause of both.(63, 64) Likewise, red wolves died of similar causes (shooting mainly) at similar seasons as coyotes that could be legally hunted in the same places.(65) Every study of reported poaching, i.e., the minority fraction of poaching that authorities document, concludes that endangered wolves are vulnerable to being killed by hunters who thought they were coyotes.(65-67) The same may occur in ecosystems containing both grizzly bears and black bears, because the similarity of appearances makes hunters with a permit prone to error especially under poor-visibility field conditions.

33. A study of grizzly bears in British Columbia(64) reported that significantly more uncollared bears were poached than collared ones in the same study site and period. Apparently, hunters were being selective about not reporting their kills of uncollared bears, but some were found by authorities anyway. The author also inferred that the ease of enforcing grizzly protection laws did reduce grizzly poaching, i.e., few if any grizzlies were killed illegally in proximity to roads, tourist lodges, or warden offices.(64)

34. Like grizzlies in the McLellan study above, poaching is a greater hazard for uncollared wolverines(68) and uncollared Alaskan gray wolves. For Alaskan gray wolves, uncollared individuals die at higher rates than collared ones, in a site where virtually all wolf mortality is human-caused.(69, 70) This demonstrates that the risk of getting caught in an illegal act of poaching, not social tolerance, is the primary motivator determining likelihood to engage in poaching.

35. McLellan[39] reviewed grizzly mortality and repeated earlier claims that “Results from remote study areas in Alaska suggest that between 78 and 100% of the human-caused deaths of radio-collared grizzly bears were from hunting….” McLellan (1999: 918)[39] also reported that grizzly poaching rivaled legal hunting of grizzlies in his study area even though some permitted hunting of grizzlies was allowed[40]; and 80-100% of grizzly mortality was human-caused. That undermines the notion that permitting a few to be killed legally would prevent more from being killed illegally.

36. Wolves are similar. A study of regulated and unregulated wolf-killing by Indigenous hunters in the Brooks Range of Alaska revealed that the vast majority of human-killed

wolves were not reported to the Alaska state wildlife agency, making the agency's monitoring inaccurate and their estimates of sustainability invalid.(69)

37. Poaching is also the major cause of wolf mortality in four other U.S. populations.(67) Wolves die from shooting most often in both legal and illegal cases, at similar times of year and in similar places with similar methods, mainly shooting and trapping.(65, 67, 71-75) However, most poaching is not detected because perpetrators conceal evidence, tamper with telemetry equipment, bury the carcass, etc.(65, 67, 71, 72) Studies of the rates of reported wolf-poaching and unreported poaching (disappearances under suspicious circumstances) of collared wolves showed a close association between bear-hunting, deer-hunting, and hound-training seasons;(76) or for red wolves, during coyote-hunting and after such hunting was liberalized.(65, 77)

38. Ever since Chapron & Treves,(78-81) we know that a slow-down in wolf population growth rates has been associated with liberalized wolf-killing caused by delisting and other relaxations of ESA protections.— and withstanding rebuttals,(82, 83) especially poorly conducted studies and rebuttals.(84, 85) By relaxed or liberalized killing, the field means issuance of permits, delisting, and implementation of wolf-hunting.

39. Some further detail might help to explain why Olson et al. made such weak rebuttals.(84, 85) Olson et al. [(84)] made the mistake of treating reported poaching as if it were total poaching, thereby ignoring the foundational work of Liberg et al.(86) that showed reported poaching (the component detected by authorities) is a minority of total poaching with the majority accounted for by cryptic poaching (disappearance of known wolves due to perpetrators destroying the collar and other evidence). That insight has been replicated repeatedly in several regions for wolves and for grizzlies (see below). Moreover, Santiago-Ávila et al.(87) explained Olson's results on reported poaching by showing the alleged decline in poaching trumpeted by Olson et al.(84) was instead due to a shift from cryptic poaching to reported poaching with a net increase in poaching during the periods Olson et al. thought there had been a decrease in (reported) poaching.(84) Nevertheless, Olson has not corrected his error and the USFWS continues to cite(84) because they seem to like the erroneous conclusion. I explained the error in a letter to then Assistant Director Gary Frazer of USFWS in December 2020 (see Attachment 1 to this Declaration).

40. Olson et al. 2017(85) added to the confusion by claiming several wolf populations showed negative density-dependent population growth when many of the studies showed no such thing.(81) This was relevant to the debate over wolf population growth slow-down after delisting as poaching increased, which Olson et al. would like to deny. We showed again and again that such slow-downs had occurred (88, 89) and that the simplest explanation was an increase in poaching. The increase in poaching following delisting and other policy changes that liberalized wolf-killing was independently shown through population dynamics(88) and by the survival of individual wolves in several populations.(76, 77, 87-89)

41. Indeed, an unprecedented number of wolves died every time ESA protections were relaxed.(78, 79, 87) Illegal wolf-killing in Michigan increased since the 2016 presidential administration delisted wolves nationwide, when compared to prior presidential administrations.(89)

42. We also know from studies of individual collared wolves that the risk, hazard, and incidence of poaching increase when policies are permissive of legal wolf-killing (reported and unreported poaching termed cryptic poaching)(76, 77, 87-90) — again withstanding weak rebuttals.(74, 91-93) .

43. Several of the above studies inferred the unobserved phenomenon of cryptic poaching after perpetrators destroyed evidence. They did so by analyzing disappearances of radio-collared wolves because the timing and location of the last transmission of that collar was known (Louchouarn, 2023: 3364).(76, 77, 87, 88, 90)

44. Several studies isolated the most important correlation with disappearance of collared wolves was the policy period (delisted or liberalized wolf-killing) or presidential administration(76, 77, 87-90) — again withstanding weak rebuttals.(74, 91-93) A recurrent rebuttal to the findings that wolf-poaching rises when protections are relaxed is that most red wolves and Mexican wolves disappear only because their collars fail or they move out of range of telemetry monitoring teams. This canard is easily disproven by the following evidence. While some collars do fail, the red wolves and Mexican gray wolves are in small, intensively monitored populations, so GPS- and radio-collars cannot simply disappear without a trace — unless they are tampered with.(76, 77, 87-90)

45. Second, the rates of collared wolf disappearance range from 25-55% of all collared wolves, whereas, comparable large mammals with collars (e.g., elk and strictly protected grizzly bears) disappear at rates of 5-12%.(89) Third, careful consideration of migration of collared wolves and discovery of some wolves with failed collars suggests it is a small proportion of the total number of disappeared wolves.(51, 67, 72) Therefore, most collared wolves who disappear were poached and their collars were destroyed by poachers following a behavior termed ‘shoot, shovel, and shut up.’ (86)

46. This scientific debate over causes and correlates of wolf-poaching is also contentious in European countries, in which poaching is often the major cause of wolf mortality.(94-98) Wolf-poaching in the Netherlands is politically motivated, carried out by members who coordinate over social media and derive from rural, traditional, hunting-oriented, anti-immigrant subcultures that view wolf-poaching as helping one’s neighbors.(99)

47. Finally, we know that traditional methods for calculating the risk of poaching produce severe under-estimates of the frequency of poaching because of perpetrators who destroy collars worn by wolves who succumb to poaching.(67, 86) That can lead to misidentifying the cause of death accounting for more wolf killings, whether legal or illegal hunting. The latter pattern for gray wolves – illegal killings – is similar in Scandinavia, Poland, and four wolf populations in the USA.(67, 86, 98)

48. Therefore, taking all the wolf evidence above into account, the notion that where carnivore-killing is permitted, permit-holders such as hunters become champions of protecting the carnivores seems unsupported for gray wolves, red wolves, and Mexican gray wolves.

49. A stronger conclusion supported by all the above studies is that hunters with or without permits are involved in most carnivore-poaching and their propensity to do so is increased when enforcement of protections is lower. In effect, delisting a species of large

carnivores makes poaching less risky and therefore it is more likely that the species will suffer increased poaching.

50. The evidence from wolves summarized above shows patterns of replication by several independent teams, across several regions, and using the best approaches to scientific publication and analysis. Those best methods are registered reports in top-ranked journals, before-and-after comparisons of control-impact, in which the outcomes for subjects are followed after experiencing no (control) or some (treatment) intervention. Studies that control potentially confounding effects of temporal autocorrelation (effects after interventions are influenced by events prior to the intervention) or competing risks using Fine-gray models from cancer research are the strongest.(1, 6, 20) In particular, the studies by Santiago-Ávila et al. above from 2020 and 2022, and Louchouarn above from 2021 and 2023 followed all or many of the preceding steps. These most robust studies all conclude that delisting and liberalizing killing of wolves leads to more poaching of wolves. Furthermore, they conclude that the balance of reported and cryptic poaching shifts depending on how tolerant the presidential administration is of wolf-poaching, or how lenient the state hunting laws are about errors that lead to the death of a protected wolf.

51. In sum, relaxing protections for wolves has spurred an increase in the illegal killing of wolves, not the opposite.

52. Grizzlies would be expected to be affected in the same way as wolves.

53. Although we have less evidence for grizzlies, the claim that intolerant people will kill grizzlies if the bears are protected faces the burden of explaining how intolerant people react to the strict protections afforded grizzlies in national parks such as Yellowstone, Grand Tetons, and Glacier. Because illegal killing of grizzlies is not a problem in national parks as far as I am aware, one should probably add a codicil to the claim, such as "intolerant people will kill grizzlies if they have the opportunity and won't be prosecuted."

54. That codicil exposes a weakness in the claim. If intolerant would-be poachers need an opportunity free of prosecution, delisting provides both opportunity and freedom from prosecution.

55. First the federal penalty for poaching would be removed (or at least, penalties would be significantly weakened) after delisting and second, federal enforcement on and off federal lands would be removed after delisting.

56. Already, opportunities for grizzly-poaching are numerous. Off federal lands, we have evidence that legal hunting outside of Yellowstone National Park (YNP) draws grizzlies out of the protection of the park and into conflict with hunters because of grizzly attraction to the elk gut piles left by hunters. After delisting, such attractants could be used to kill grizzlies that would be otherwise safely protected in YNP. Similar results for a Canadian study of grizzlies found bears drawn out of strictly protected areas fell victim to humans.[22]

57. When state and tribal enforcement, under weaker statutes and penalties, replace federal enforcement of the Endangered Species Act, state and tribal regulations will not be feared as much as federal prohibitions on take.

58. Proponents of the social tolerance hypothesis ask us to imagine that the same hunters who poach grizzlies will change overnight into protectors of grizzlies. They provide no evidence that this will occur. The data cited above from British Columbia suggest long after grizzlies become legal game, hunters continue to poach them. The evidence from several populations of wolves suggests that even after reclassifying wolves as game or issuing permits for private wolf-killing, poaching persists and is usually the major cause of wolf mortality. In conclusion, I find the proposition that allowing more grizzly bear killing, or relaxing regulations, to raise tolerance contradicts the best available scientific evidence, and also common sense about how one prevents illegal activities.

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Appendix 1. Direct quotes from USFA-APHIS-WS DEIS, which lack evidentiary support

On p. 67 of the pdf, APHIS writes:

Where APHIS apparently claimed “Reducing negative associations with grizzly bears may increase social tolerance (Morales-Gonzales et al 2020).”

The cited article never used the word tolerate or tolerance in any of its forms EXCEPT to refer to brown bears tolerating people!!!! The article never used the word attitude or accept either!

In their entire conclusion section of the above authors, none speaks to human attitudes or tolerance and indeed they recommend curbing human activities in wilder areas. They list human-induced mortality as the primary threat to brown bears.

Therefore, the cited article does not support any of APHIS policy or claims. It appears to me that APHIS just made up some fiction there.

p. 25-26 of the pdf, APHIS writes:

As stated in Section 1.4.3, in some cases, cooperators are likely to tolerate some damage and loss until it reaches a threshold where it becomes an economic, physical, or emotional burden.

Evidence?

The appropriate threshold or level of tolerance before using nonlethal and lethal methods differs among cooperators, their economic circumstances, and the extent, type, duration, and chronic nature of damage situations.

Evidence? And who decides what is appropriate? Is APHIS really ceding to landowner control?

.In cases where individuals are concerned with the threat of damage, they may have experienced damage in the past, resulting in lower levels of tolerance.

Evidence? Also, the opposite can happen. Some populations exposed to wolves for long periods are more tolerant of them, see Part 2 above and the recent review of tolerance for wildlife by Bruskotter et al. (2026) that I cited.

p. 26 of the pdf:

For example, swift, targeted responses to grizzly bear damage provide rural communities with a mechanism to coexist with them, thus building social tolerance in a landscape where grizzly bears were once persecuted.

Evidence? Part 2 contradicts some interpretations of that unsupported claim.

p. 34 of the pdf

Second, ending continuous damage caused by a single individual increases social tolerance for bears that are not causing damage.

Evidence? Part 2 contradicts some interpretations of that unsupported claim.

p. 64

WS-Montana has also emplaced as many as 5 range riders on summer grazing allotments with grizzly bear occupied range through the NLI. This has been helpful in monitoring predator, including grizzly bear, activity and increasing social tolerance in these areas.

Evidence? See Louchouarn for the only rigorous experimental test of range riders using a specific design (low-stress livestock-handling, LSLH) not any old rider thrown into the field without proper training in LSLH.

Also where are these alleged data on monitoring grizzlies?

On p. 67 of the pdf, WS writes:

Lethal removal of grizzly bears by WS-Montana may have indirect impacts including a reduction in the rate of range expansion, changes in age/sex ratios within populations, disruption of ecosystem connectivity, and increased social tolerance for grizzly bear….

Evidence? Part 2 contradicts some interpretations of that unsupported claim.

.Social tolerance for grizzly bears may increase as tools for lethal and nonlethal GBDM become more available. Kleiven (2004) found negative associations between acceptance of large carnivores and lack of personal control, economic loss, and respondents' age.

Personal control is a specific social psychology construct. Did APHIS measure it? See below that it does not equate to any old concept of control. Moreover Kleiven (2004) report ". The results showed that general measures of attitudes alone toward large carnivores were of limited value in wildlife management." So I'm not sure why APHIS citers this old study and none of the newer more pertinent eons I cited.

\Further undermining APHIS' claim here, an extensive quotation from Kleiven (2004) shows that the Norwegian sample did not support killing bears unless a human casualty occurred.

From Kleiven, J., T. Bjerke, and B. P. Kaltenborn, 2004. Factors influencing the social acceptability of large carnivore behaviours Biodiversity and Conservation 13: 1647-1658.) reports the following "A survey on attitudes toward large carnivores was conducted in a representative sample of the Norwegian population (n = 3134). People were asked about the acceptability of carnivores living in remote wilderness, close to where people live, killing livestock, killing pets, or threatening humans. Large differences in acceptability appeared across the five situations. Wolves and bears were less acceptable than lynx and wolverines when observed close to where people live. Negative associations were found between acceptability and lack of personal control, economic loss, and respondents' age. Acceptability was higher among males than among females, and higher among urban than among rural residents. The results showed that general measures of attitudes alone toward large carnivores were of limited

value in wildlife management. .. It has been shown that the association between attitudes and behaviour was stronger when measured at a ‘corresponding level of specificity’ (Ajzen and Fishbein 1977). For example, people’s attitude toward wolves in their home state was a better predictor of their behavioural intentions to oppose or support wolf reintroduction, compared with their attitudes toward wolves in general (Bright and Manfredo 1996). Similarly, Zinn et al. (1998) found little support for killing a mountain lion that had killed a pet, but found support to destroy a lion that had killed a human being.”

GBDM provides people living with grizzly bears additional personal control and control over their economic losses

Evidence? See above for misstating the evidence.