Declaration of Dr. Adrian Treves

I, Adrian Treves, declare under penalty of perjury that the following statements are true and correct, and am prepared to testify to their accuracy under oath:

1. I reside at ….REDACTED….

2. 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, the highest honor for teaching at University of Wisconsin-Madison (the Chancellor's Distinguished Teaching Award), 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.

3. 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 predators and their prey. I have authored or coauthored 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.

4. I am best known for my work on large carnivores. I have published three scientific articles relating specifically to grizzly bears (*Ursus arctos horribilis*) regarding hunter attitudes (published in 2008 and 2011), and on preventing grizzly predation on livestock (published in 2023). At least 15 of my published scientific articles address grizzlies in addition to other carnivores.

5. 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.

6. 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.

7. 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[1].

8. 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.

9. 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.

10. 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.[2] 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 .[3]

11. 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.

12. 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.

13. First, Karns et al. (2018: 2451) [4] 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.[4] 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.

14. The second study was by Treves et al. [5,6] 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.[5,6] 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.[5,6]

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.[5,6] 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.[5,6]

15. 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 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).

16. 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.

17. 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. 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.

23. 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.

24. 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.[7-14]

25. 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.[7,9-13]

26. 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.[15]

27. One dataset from Wisconsin presented by Olson & Goethlich 2024[16] seems to contradict our findings. Only 276 respondents answered their survey compared to the thousands in the studies I cited above.[7,9-13] Olson & Goethlich 2024[16] 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[8] 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.[8] 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.[17] 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.[18-31]

28. 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.[7,9-11] 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].

29. 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.

30. 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]

31. 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]

32. 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.[32] That hunt overshot the legal quota by a large margin[32] and led to renewed calls for a second wolf-hunt again that year.[33-36]

33. Finally, a multi-authored review of tolerance and how it changes, written by Bruskotter et al.[37] 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.[37]

34. Hundreds of studies of attitudes have reported that hunters — especially hunters of carnivores — have the most negative attitudes to wolves.[38] The latter review also showed that removing protections for wolves was unlikely to improve attitudes toward wolves.[38]

35. 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.

36. Legalizing grizzly hunting does not prevent illegal killing of grizzlies[39,40]. 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.[39,40] Likewise, red wolves died of similar causes (shooting mainly) at similar seasons as coyotes that could be legally hunted in the same places.[41] 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.[41-43] 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.

37. A study of grizzly bears in British Columbia[40] 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.[40]

38. Like grizzlies in the McLellan study above, poaching is a greater hazard for uncollared wolverines[44] 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.[45,46] 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.

39. 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.

40. 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.[45]

41. Poaching is also the major cause of wolf mortality in four other U.S. populations.[43] 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.[41,43,47-51] However, most poaching is not detected because perpetrators conceal evidence, tamper with telemetry equipment, bury the carcass, etc.[41,43,47,48] 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;[52] or for red wolves, during coyote-hunting and after such hunting was liberalized.[41,53]

42. Ever since Chapron & Treves,[54-57] 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,[58,59] especially poorly conducted studies and rebuttals.[60,61] By relaxed or liberalized killing, the field means issuance of permits, delisting, and implementation of wolf-hunting.

43. Some further detail might help to explain why Olson et al. made such weak rebuttals.[60,61] Olson et al. [60] made the mistake of treating reported poaching as if it were total poaching, thereby ignoring the foundational work of Liberg et al.[62] 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.[63] explained Olson's results on reported poaching by showing the alleged decline in poaching trumpeted by Olson et al.[60] 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.[60] Nevertheless, Olson has not corrected his error and the USFWS continues to cite[60] 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).

44. Olson et al. 2017[61] added to the confusion by claiming several wolf populations showed negative density-dependent population growth when many of the studies showed no such thing.[57] 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 [64,65] 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[64] and by the survival of individual wolves in several populations.[52,53,63-65]

45. Indeed, an unprecedented number of wolves died every time ESA protections were relaxed.[54,55,63] Illegal wolf-killing in Michigan increased since the 2016 presidential administration delisted wolves nationwide, when compared to prior presidential administrations.[65]

46. 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)[52,53,63-66] — again withstanding weak rebuttals.[50,67-69] .

47. 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).[52,53,63,64,66]

48. Several studies isolated the most important correlation with disappearance of collared wolves was the policy period (delisted or liberalized wolf-killing) or presidential administration[52,53,63-66] — again withstanding weak rebuttals.[50,67-69] 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.[52,53,63-66]

49. 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%.[65] 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.[27,43,48] Therefore, most collared wolves who disappear were poached and their collars were destroyed by poachers following a behavior termed 'shoot, shovel, and shut up.' [62]

50. 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.[70-74] 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.[75]

51. 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.[43,62] 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.[43,62,74]

52. 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.

53. 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.

54. 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.[76-78] 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.

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

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

57. 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.”

58. 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.

59. 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.

60. 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]

61. 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.

62. 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.

REDACTED

_____
Adrian Treves, PhD

1 Mincher, B. J. Harvest as a component of Greater Yellowstone Ecosystem grizzly bear management. *Wildl. Soc. Bull.* **30**, 1287-1292 (2002).

2 Humane Society of the U.S. et al. v U.S. Department of the Interior. (District Court, Washington D.C. 2006).

3 Refsnider, R. in *Recovery of gray wolves in the Great Lakes region of the United States: An endangered species success story* (eds A. P. Wydeven, T. R. Van Deelen, & E.J. Heske) 311-330 (Springer, 2009).

4 Karns, G. R. *et al.* Should Grizzly Bears Be Hunted or Protected? Social and Organizational Affiliations Influence Scientific Judgments. *Canadian Wildlife Biology & Management* **7**, 18-30 (2018).

5 Treves, A., Martin, K. A., Wydeven, A. P. & Wiedenhoeft, J. E. Forecasting environmental hazards and the application of risk maps to predator attacks on livestock. *Bioscience* **61**, 451-458, doi:10.1525/bio.2011.61.6.7 (2011).

6 Treves, A., Martin, J. & Holden, J. State management of grizzly bears and wolves in the Northern Rocky Mountains:: Preliminary report on a survey of public opinion in 2007., (online report to the Wilburforce Foundation and Y2Y Conservation Network, 2008).

7 Naughton-Treves, L., Grossberg, R. & Treves, A. Paying for tolerance: The impact of livestock depredation and compensation payments on rural citizens' attitudes toward wolves. *Conserv. Biol.* **17**, 1500-1511. (2003).

8 Hogberg, J., Treves, A., Shaw, B. & Naughton-Treves, L. Changes in attitudes toward wolves before and after an inaugural public hunting and trapping season: early evidence from Wisconsin's wolf range. *Environ. Conserv.* **43**, 45-55 (2015).

9 Treves, A., Jurewicz, R. L., Naughton-Treves, L. & Wilcove, D. The price of tolerance: Wolf damage payments after recovery. *Biodivers. Conserv.* **18**, 4003–4021 (2009).

10 Treves, A. & Martin, K. A. Hunters as stewards of wolves in Wisconsin and the Northern Rocky Mountains, USA. *Society and Natural Resources* **24**, 984-994 (2011).

11 Treves, A., Naughton-Treves, L. & Shelley, V. S. Longitudinal analysis of attitudes toward wolves. *Conserv. Biol.* **27**, 315–323 (2013).

12 Treves, A. & Bruskotter, J. T. Tolerance for predatory wildlife. *Science* **344**, 476-477, doi: 10.1126/science.1252690 (2014).

13 Treves, A. *et al.* in *Conservation Criminology* (ed M. L. Gore) 197-212 (John Wiley & Sons, 2017).

14 Agan, S., W., , Treves, A. & Willey, E. L. Majority positive attitudes cannot protect red wolves (Canis rufus) from a minority willing to kill illegally. *Biol. Conserv.* **109321**, doi:DOI 10.1016 (2021).
15 Browne-Nuñez, C., Treves, A., Macfarland, D., Voyles, Z. & Turng, C. Tolerance of wolves in Wisconsin: A mixed-methods examination of policy effects on attitudes and behavioral inclinations. *Biol. Conserv.* **189**, 59–71 (2015).
16 Olson, E. R. & Goethlich, J. Changing the Tolerance of the Intolerant: Does Large Carnivore Policy Matter? *Animals (Basel)* **14**, doi:10.3390/ani14162358 (2024).
17
18 Treves, A. *et al.* Predators and the public trust. *Biological Reviews* **92**, 248-270 (2017).
19 Treves, A. Scientific ethics and the illusion of naïve objectivity. *Front. Ecol. Environ.* **7**, 361, doi:doi:10.1002/fee.2091 (2019).
20 Treves, A. & Santiago-Ávila, F. J. Myths and assumptions about human-wildlife conflict and coexistence. *Conserv. Biol.* **34**, 811–818, doi: 10.1111/cobi.13472 (2020).
21 Treves, A. *et al.* Transparency about values and assertions of fact in natural resource management. *Frontiers in Conservation Science: Human-Wildlife Dynamics* **2**, e631998, doi:10.3389/fcosc.2021.631998 (2021).
22 Treves, A. & Batavia, C. Improved disclosures of non-financial competing interests would promote independent review. *Academia Letters* **Article 514**, 1-9 (2021).
23 Treves, A. Best available science" and the reproducibility crisis. *Front. Ecol. Environ.* **20**, 495, doi:10.1002/fee.2568 (2022).
24 Treves, A., Elbroch, L., Koontz, F. & Papouchis, C. M. How should scientific review and critique support policy? *PLoS One* **Comment on Laundré & Papouchis**, doi:https://journals.plos.org/plosone/article/comment?id=10.1371/annotation/5bed4c0f-9676-4b24-a598-ea3bb5bbfd80 (2022).
25 Treves, A. Replace the ivory tower with the fire tower. *Frontiers in Ecology and the Environment (guest editorial)*, doi:10.1002/fee.2676 (2023).
26 Treves, A., Bruskotter, J. T. & Elbroch, L. M. in *Wildlife Conservation & Management in The 21st Century–Issues, Solutions, and New Concepts* (ed G. Proulx) Chap. 6, pp 159-180 (Alpha Wildlife Publications, 2024).
27 Treves, A. *et al.* Response to Roberts, Stenglein, Wydeven, and others. *J. Mammal.* **105**, 1473–1479, doi:10.1093/jmammal/gyae088 (2024).
28 Treves, A. 'Authors declare no competing interest' — really? *Front. Ecol. Environ.* **22**, e2772, doi::10.1002/fee.2772 (2024).
29 Treves, A. A court decision on endangered species holds lessons for us all. *Front. Ecol. Environ.* **23**, e70006, doi:10.1002/fee.70006 (2025).
30 Treves, A., Chinn, S. & Krofel, M. Irreproducible research and a typology of replication efforts. *Research Integrity and Peer Review* **11**, 1-19, doi:10.1186/s41073-026-00203-4 (2026).
31 Treves, A. & Fisher, A. R. A code of ethics for peer reviewers. . *Front. Ecol. Environ.* **24**, e70032, doi:10.1002/fee.70032 (2026).

32 Treves, A., Santiago-Ávila, F. J. & Putrevu, K. Quantifying the effects of delisting wolves after the first state began lethal management. *PeerJ* **9**, e11666, doi:10.7717/peerj.11666 (2021).

33 Treves, A. & Louchouarn, N. X. Uncertainty and precaution in hunting wolves twice in a year. *PLoS One* **17**, e0259604, doi:10.25.465697 (2022).

34 Treves, A. & Louchouarn, N. X. Comment on Treves & Louchouarn 2022: Considering a possible error in infant survival estimates in Thiel et al. 2009 and whether Wydeven et al. 2009 might be more precise and accurate. *ResearchGate pre-print*, doi:10.13140/RG.2.2.20984.52484 (2022).

35 Treves, A. Corrected parametrization for Treves & Louchouarn 2022 proportion of packs breeding. *ResearchGate pre-print*, doi:10.13140/RG.2.2.31627.40481 (2024).

36 Treves, A. Uncertainty and precaution in hunting wolves twice in a year: reanalysis of Treves and Louchouarn: Reply to Stauffer et al. *PLoS One* **20**, e0319800., doi:10.1371/journal.pone.0319800 (2025).

37 Bruskotter, J. T. *et al.* Toward a Synthetic Theory of Tolerance for Carnivores: Learning from a Half-century of Research on Attitudes Toward Wolves. *Conservation* **6**, 42, doi:10.3390/conservation6020042 (2026).

38 Bruskotter, J. T., Vucetich, J. A., Enzler, S., Treves, A. & Nelson, M. P. Removing protections for wolves and the future of the U.S. Endangered Species Act (1973) *Conservation Letters* **7**, 401-407 (2013).

39 McLellan, B. N. *et al.* Rates and causes of grizzly bear mortality in the Interior Mountains of British Columbia, Alberta, Montana, Washington, and Idaho. *J. Wildl. Manage.* **63**, 911-920 (1999).

40 McLellan, B., Mowat, G. & Lamb, C. Estimating unrecorded human-caused mortalities of grizzly bears in the Flathead Valley, British Columbia, Canada. *PeerJ* **6**, e5781 (2018).

41 Agan, S. W., Treves, A. & Willey, E. L. Estimating poaching risk for the critically endangered wild red wolf (Canis rufus). *PLoS One* **16**, e0244261, doi:10.1371/journal.pone.0244261 (2021).

42 Newsome, T., Bruskotter, J. T. & Ripple, W. J. When shooting a coyote kills a wolf: Mistaken identity or misguided management? *Biodivers. Conserv.* **24**, 3145-3149 (2015).

43 Treves, A., Artelle, K. A., Darimont, C. T. & Parsons, D. R. Mismeasured mortality: correcting estimates of wolf poaching in the United States. *J. Mammal.* **98**, 1256–1264, doi:10.1093/jmammal/gyx052 (2017).

44 Milleret, C. *et al.* GPS collars have an apparent positive effect on the survival of a large carnivore. *Biol. Lett.* **17**, 20210128, doi:10.1098/rsbl.2021.0128 (2021).

45 Adams, L. G., Stephenson, R. O., Dale, B. W., Ahgook, R. T. & Demma, D. J. Population dynamics and harvest characteristics of wolves in the Central Brooks Range, Alaska *Wildlife Monographs* **170**, 1-25 (2008).

46 Schmidt, J. H., Johnson, D. S., Lindberg, M. S. & Adams, L. G. Estimating demographic parameters using a combination of known-fate and open N-mixture models. *Ecology* **56**, 2583–2589 (2015).

47 Treves, A., Krofel, M. & López-Bao, J. V. Missing wolves, misguided policy, a comment on Creel et al. 2015. *Science* **350**, 1473-1475, doi:10.1126/science.aac4768 (2016).

48 Treves, A., Langenberg, J. A., López-Bao, J. V. & Rabenhorst, M. F. Gray wolf mortality patterns in Wisconsin from 1979 to 2012. *J. Mammal.* **98**, 17-32, doi:10.1093/jmammal/gyw145 (2017).

49 Wydeven, A. P. *et al.* Road density as a factor in habitat selection by wolves and other carnivores in the Great Lakes Region. *Endangered Species Update* **18**, 110-114. (2001).

50 Stenglein, J. L. *et al.* Mortality patterns and detection bias from carcass data: An example from wolf recovery in Wisconsin. *J. Wildl. Manage.* **79**, 1173-1184 (2015).

51 Stenglein, J. L., Wydeven, A. P. & Van Deelen, T. R. Compensatory mortality in a recovering top carnivore: wolves in Wisconsin, USA (1979–2013). *Oecologia* **187**, 99–111, doi:10.1007/s00442-018-4132-4 (2018).

52 Santiago-Ávila, F. J. & Treves, A. Poaching of protected wolves fluctuated seasonally and with non-wolf hunting. *Scientific Reports* **12**, e1738 doi: 10.1038/s41598-022-05679-w (2022).

53 Santiago-Ávila, F. J., Agan, S., W., Hinton, J. W. & Treves, A. Evaluating how management policies affect red wolf mortality and disappearance (registered report). *Royal Society Open Science* **9**, 210400, doi:10.1098/rsos.2104001 (2022).

54 Chapron, G. & Treves, A. Blood does not buy goodwill: allowing culling increases poaching of a large carnivore. *Proceedings of the Royal Society B* **283**, 20152939 (2016).

55 Chapron, G. & Treves, A. Correction to 'Blood does not buy goodwill: allowing culling increases poaching of a large carnivore'. *Proceedings of the Royal Society B* **283**, 20162577 (2016).

56 Chapron, G. & Treves, A. Reply to comment by Pepin et al. 2017. *Proceedings of the Royal Society B* **284**, 20162571 (2017).

57 Chapron, G. & Treves, A. Reply to comments by Olson et al. 2017 and Stien 2017. *Proceedings of the Royal Society B* **284**, 20171743 (2017).

58 Stien, A. Blood may buy goodwill - no evidence for a positive relationship between legal culling and poaching in Wisconsin. *Proceedings of the Royal Society B* **284**, 20170267. (2017).

59 Pepin, K., Kay, S. & Davis, A. Comment on: "Blood does not buy goodwill: allowing culling increases poaching of a large carnivore". *Proceedings of the Royal Society B* **284**, e20161459 (2017).

60 Olson, E. R. *et al.* Pendulum swings in wolf management led to conflict, illegal kills, and a legislated wolf hunt. *Conservation Letters* **8**, 351-360, doi: 10.1111/conl.12141 (2015).

61 Olson, E. R. *et al.* Flawed analysis and unconvincing interpretation: a comment on Chapron and Treves 2016. *Proceedings of the Royal Society of London B* **284**, 20170273, doi:0.1098/rspb.2017.0273 (2017).

62 Liberg, O. *et al.* Shoot, shovel and shut up: cryptic poaching slows restoration of a large carnivore in Europe. *Proceedings of the Royal Society of London Series B* **270**, 91-98 (2012).
63 Santiago-Ávila, F. J., Chappell, R. J. & Treves, A. Liberalizing the killing of endangered wolves was associated with more disappearances of collared individuals in Wisconsin, USA. *Scientific Reports* **10**, 13881, doi:10.1038/s41598-020-70837-x (2020).
64 Louchouarn, N. X., Santiago-Ávila, F. J., Parsons, D. R. & Treves, A. Evaluating how lethal management affects poaching of Mexican wolves (registered report). *Royal Society Open Science* **8**, 200330 (2021).
65 Louchouarn, N. X. *Don't judge the roar by its echo: Tests of assumptions, tools and policies for human-carnivore coexistence in North America*, University of Wisconsin-Madison, (2023).
66 Louchouran, N. X., Renn, E. J., Anderson, G., Parsons, D. R., Putrevu, K., & Santiago-Ávila, F. J., & Treves, Adrarn. Mexican wolf management needs transparency in methods and data to support policy decisions. *J. Appl. Ecol.* **63**, e70059, doi:10.1111/1365-2664.70059 (2025).
67 Roberts, N. M. *et al.* Commentary: Gray wolf mortality patterns in Wisconsin from 1979 to 2012. *J. Mammal.* **105**, P1469–1472, doi:10.1093/jmammal/gyad084 (2024).
68 Stenglein, J. L., Gilbert, J. H., Wydeven, A. P. & Van Deelen, T. R. An individual-based model for southern Lake Superior wolves: A tool to explore the effect of human-caused mortality on a landscape of risk. *Ecol. Model.* **302**, 13-24 (2015).
69 Breck, S. W. *et al.* Factors affecting the recovery of Mexican wolves in the Southwest United States. *J. Appl. Ecol.* **60**, 2199–2209, doi:10.1111/1365-2664.14483 (2023).
70 Liberg, O. *et al.* Poaching-related disappearance rate of wolves in Sweden was positively related to population size and negatively to legal culling. *Biol. Conserv.* **243**, e108456, doi:10.1016/j.biocon.2020.108456 (2020).
71 Suutarinen, J. & Kojola, I. Poaching regulates the legally hunted wolf population in Finland. *Biol. Conserv.* **215**, 11–18, doi:10.1016/j.biocon.2017.08.031 (2017).
72 Suutarinen, J. & Kojola, I. One way or another: predictors of wolf poaching in a legally harvested wolf population. *Anim. Conserv.* **21**, 414-422, doi:10.1111/acv.12409 (2018).
73 Treves, A., Louchouarn, N. X. & Santiago-Ávila, F. J. Modelling concerns confound evaluations of legal wolf-killing. *Biol. Conserv.* **249**, 108643, doi:10.1016/j.biocon.2020.108643 (2020).
74 Nowak, S., Żmihorski, M., Figura, M., Stachyra, P. & Mysłajek, R. W. The illegal shooting and snaring of legally protected wolves in Poland. *Biol. Conserv.* **264**, 109367, doi:https://doi.org/10.1016/j.biocon.2021.109367 (2021).
75 Verheij, P. M. & Louchouarn, N. X. Back in the Crosshairs: Wolf poaching in the Netherlands. 1-122 (EcoJust, 2026).
76 Khorozyan, I. Defining practical and robust study designs for interventions targeted at terrestrial mammalian predators. *Conserv. Biol.* **36**, e13805, doi:10.1111/cobi.13805 (2021).

77 Treves, A. & Khorozyan, I. Robust inference and errors in studies of wildlife control. *Scientific Reports* **15**, 33131, doi:10.1038/s41598-025-18497-7 (2025).
78 Treves, A. *et al.* Removing wolves did not reliably prevent domestic animal losses. *Conservation Science & Practice*, doi:10.1111/csp2.70388 (in press).