THE HUMANE SOCIETY OF THE UNITED STATES

Frequently Asked Questions:
Wildlife Killing Contests

Contents

Q: WHAT SPECIES ARE TARGETED IN WILDLIFE KILLING CONTESTS? 1

Q: WHERE DO THESE CONTESTS OCCUR? 1

Q: WHAT PRIZES ARE AWARDED AT THE EVENTS? 1

Q: WHO PARTAKES IN THESE EVENTS? 1

Q: WHAT DOES A BAN ON WILDLIFE KILLING CONTESTS DO? 2

Q: IS A BAN ON KILLING CONTESTS AN ANTI-HUNTING MEASURE? 2

Q: WHAT IS THE DIFFERENCE BETWEEN WILDLIFE KILLING CONTESTS AND BIG BUCK HUNTS? 2

Q: ISN'T THIS A CASE OF URBAN VS. RURAL VALUES AND TRADITIONS? WHAT DO YOU HUNTERS AND WILDLIFE AGENCY PROFESSIONALS SAY ABOUT WILDLIFE KILLING CONTESTS? 2

Q: DON'T WE NEED TO CONTROL COYOTE NUMBERS TO SAVE DEER AND TURKEYS FOR HUNTERS? 4

Q: DON'T KILLING CONTESTS HELP CONTROL WILDLIFE POPULATIONS? 4

Q: DON'T KILLING CONTESTS HELP PREVENT CONFLICTS WITH PETS OR LIVESTOCK? 6

Q: AREN'T THE ANIMALS TARGETED IN THESE CONTESTS JUST PESTS ANYWAY? 6

Q: HAVE ANY STATES BANNED WILDLIFE KILLING CONTESTS? 6

Q: WHO ENFORCES A BAN ON WILDLIFE KILLING CONTESTS AND HOW MUCH DOES IT COST? 7

Q: WHAT SPECIES ARE TARGETED IN WILDLIFE KILLING CONTESTS?

A: Across the U.S. every year, thousands of animals fall victim to these events. Bobcats, coyotes and foxes are the most common targets, but participants also target badgers, crows, prairie dogs, rabbits, raccoons, squirrels, skunks, porcupines, woodchucks, and even cougars and wolves in some states.

Q: WHERE DO THESE CONTESTS OCCUR?

A: These contests occur in nearly every U.S. state every year where they are still legal.

Q: WHAT PRIZES ARE AWARDED AT THE EVENTS?

A: Wildlife killing contest participants typically pay a registration fee to enter. Those fees go toward the prize money, which can amount to thousands—even tens of thousands—of dollars. Other prizes include champion belt buckles and guns, including AR-15s. There may also be raffle prizes and side bets.

Q: WHO PARTAKES IN THESE EVENTS?

A: The events may be organized by individuals, hunting clubs, or even important institutions in our society including 4H clubs, farm bureaus, fire departments, high schools, and even churches. Children as young as five years old may be encouraged to participate. Check-in and weigh-in locations often take

place at bars or banquet halls. The events are often sponsored by hunting outfitter companies or the manufacturers of weapons, ammunition, and other equipment.

Q: WHAT DOES A BAN ON WILDLIFE KILLING CONTESTS DO?

It varies by state, but generally a ban makes it unlawful for any person to organize, sponsor, promote, conduct or participate in a contest in which participants compete for cash or prizes for killing certain wildlife species. None of the state killing contest bans prohibit the otherwise lawful, regulated hunting of wildlife species, including the covered species, nor do they prohibit lawful, regulated fishing or fishing tournaments.

Q: IS A BAN ON KILLING CONTESTS AN ANTI-HUNTING MEASURE?

A: No, the sole objective of proposed bans is to prohibit inhumane, unsporting, and wasteful wildlife killing contests, which do not reflect well on ethical hunters and are opposed by a growing number of wildlife management professionals and state wildlife commissions and agencies.[1] A ban on killing contests would not otherwise affect the lawful, regulated hunting of wildlife species.

Q: WHAT IS THE DIFFERENCE BETWEEN WILDLIFE KILLING CONTESTS AND BIG BUCK HUNTS?

A: The Wildlife Society, whose mission is "To inspire, empower, and enable wildlife professionals to sustain wildlife populations and habitats through science-based management and conservation," recently issued a statement on wildlife killing contests that reads in part: "Killing contests differ from typical regulated hunting by the very nature of the organized public competition and prizes being given specifically for killing the largest, smallest, or most animals. 'Big Buck' pools or organized record books differ from killing contests because the animals recognized in these competitions are harvested consistent with ordinary and generally accepted hunting practices and then introduced to the competition."[2] Deer and other game species are protected by limits on the number of animals that may be killed in a given day or year, limits on times of year when the animals may be hunted, and by strict penalties for poaching.

Q: ISN'T THIS A CASE OF URBAN VS. RURAL VALUES AND TRADITIONS? WHAT DO YOU HUNTERS AND WILDLIFE AGENCY PROFESSIONALS SAY ABOUT WILDLIFE KILLING CONTESTS?

A: No. When it comes to wildlife, people—whether they live in urban, suburban, or rural areas of the state—do not support practices that they view as pointless, unsporting, or wasteful. This is simply a matter of ethics and it addresses an irresponsible practice that recklessly wastes our wildlife. This issue isn't about the differences in values between rural and urban residents. It's about how we value and treat the public's wildlife. We can support hunting as a tradition and establish restrictions on practices that are irresponsible and unsporting, because our wildlife isn't owned by the small percentage of people who participate in this blood sport. Wildlife, including foxes, coyotes, raccoons, and other species, belong to all the citizens of a state.

Respected outdoor writers, ethical hunters, and wildlife agency professionals have spoken out against wildlife killing contests. For example:

- **Arizona Game & Fish Commission:** "To the extent these contests reflect on the overall hunting community, public outrage with these events has the potential to threaten hunting as a legitimate wildlife management function."[3]

- **Kelly Susewind, director of Washington State Department of Fish and Wildlife:** "[P]art of my job, and frankly part of my soul, is to promote hunting, to get our youth hunting, to really have this be a core piece of what our society supports. And frankly, that job is a lot harder if we're condoning these types of contests."[4]
- **Dan Gibbs, hunter and executive director of Colorado Department of Natural Resources:** "For me, hunting contests don't sit well. As a sportsman I'd never participate in one personally. Hunting is an important reverent tradition in Colorado and powerful management tool but I also think wildlife killing contests give sportsmen and sportswomen a bad name and damage our reputation."[5]
- **Vermont Fish & Wildlife:** "Coyote hunting contests are not only ineffective at controlling coyote populations, but these kinds of competitive coyote hunts are raising concerns on the part of the public and could possibly jeopardize the future of hunting and affect access to private lands for all hunters."[6] The department has also stated, "Although these activities follow laws and regulations, we do not believe such short-term hunts will have any measurable impact on regulating coyote populations, nor will they bolster populations of deer or other game species."[7]
- **Massachusetts Division of Fisheries & Wildlife (MassWildlife):** "[P]ublic controversy over this issue has the potential to threaten predator hunting and undermine public support for hunting in general."[8]
- **Michael Sutton, hunter and then-president of California Fish and Game Commission:** "Awarding prizes for wildlife killing contests is both unethical and inconsistent with our current understanding of natural systems. Such contests are an anachronism and have no place in modern wildlife management."[9]
- **Mike Finley, hunter and then-chair of Oregon Fish and Wildlife Commission:** "Killing large numbers of predators as part of an organized contest or competition is inconsistent with sound, science-based wildlife management and antithetical to the concepts of sportsmanship and fair chase."[10] Finley has also called the events "slaughter fests" and "stomach-turning examples of wanton waste."[11]
- **The Wildlife Society:** "6. Recognize that there is little evidence to support the use of killing contests for controlling predator populations. 7. Recognize that while species killed in contests can be legally killed in most states, making a contest of it may undermine the public's view of ethical hunting."[12]
- **Ted Chu, hunter and former wildlife manager with Idaho Fish and Game:** "Hunting is not a contest and it should never be a competitive activity about who can kill the most or the biggest animals."[13]
- **The late Jim Posewitz, retired biologist with Montana Department of Fish, Wildlife & Parks, and author of *Beyond Fair Chase: The Ethic and Tradition of Hunting* and *Inherit the Hunt: A Journey into American Hunting*:** "Competitive killing seems to lack the appreciation of and the respect for wildlife fundamental to any current definition of an ethical hunter."[14]

Additionally, wildlife killing contests do not resolve wildlife conflicts occurring in rural communities. Scientific studies show that randomly killing large numbers of coyotes will not mitigate conflicts with livestock, pets, or people, and may even increase their numbers by disrupting their stable breeding structure. Other studies have found, and wildlife management professionals are increasingly pointing out, that killing coyotes will not increase numbers of white-tailed deer or turkeys for hunters to pursue.[15]

Q: DON'T WE NEED TO CONTROL COYOTE NUMBERS TO SAVE DEER AND TURKEYS FOR HUNTERS?

A: No. The best available science indicates that indiscriminately killing native carnivores is not an effective method for increasing game species abundance, including populations of ungulates, small game animals, and game birds. In response to hunters' concerns that wild carnivores are diminishing populations of small game animals, the Pennsylvania Game Commission issued a statement refuting this argument in 2016:[16] "After decades of using predator control (such as paying bounties) with no effect, and the emergence of wildlife management as a science, the agency finally accepted the reality that predator control does not work…To pretend that predator control can return small game hunting to the state is a false prophecy…[Predators] don't compete with our hunters for game. The limiting factor is habitat – we must focus our efforts on habitat."

On its website the National Wild Turkey Federation states, "Removing a random predator from the landscape has no impact whatsoever on widespread turkey populations," and goes on to say that instead of worrying about predation, the focus should instead be on improving habitat.[17] An article in *Ducks Unlimited* magazine adds, "Predator control cannot result in meaningful increases in duck numbers or birds in the bag and threatens to undermine the broad coalition of public support on which modern waterfowl conservation depends."[18] That *Ducks Unlimited* magazine article continues, "The Mississippi Flyway Council (MFC) does not support the practice of predator removal as a viable management practice to improve waterfowl recruitment over the long term or over large geographic areas. The MFC believes that the highest conservation priorities for improving waterfowl recruitment are the landscape-level wetland and grassland habitat restoration strategies advocated by the North American Waterfowl Management Plan (NAWMP)."[19]

Regarding the impact of coyotes specifically on small game populations, the North Carolina Wildlife Resources Commission, citing a long list of studies, found that coyotes are beneficial to a wide array of game bird species, including ducks and quail, because they suppress populations of smaller mammals, including feral cats, opossums, raccoons, red foxes, and skunks, and lessen their effects on other species, including birds. The Commission also found that "most coyote diet studies document low to no prevalence of wild turkey or other gamebirds in diets."[20]

Killing native carnivores also is ineffective in protecting larger game animals such as deer. The best available science demonstrates that killing native carnivores to increase ungulate populations is unlikely to produce positive results because the key to ungulate survival is access to adequate nutrition through habitat protection, not reducing predation.[21] Comprehensive studies, including those conducted in Colorado[22] and Idaho,[23] show that killing native carnivores fails to increase deer herds. Recent studies found that removal of native carnivores had no beneficial impact on mule deer populations.[24] Furthermore, a recent study of several eastern U.S. states found that coyotes are not adversely impacting deer populations in that region.[25] Find out more at humanesociety.org/coyotes.

Q: DON'T KILLING CONTESTS HELP CONTROL WILDLIFE POPULATIONS?

A: No. The indiscriminate killing that wildlife killing contests promote is counterproductive to effective wildlife population management. Scientific studies have shown that some wildlife populations that are depleted by unnatural means simply reproduce more quickly due to the sudden drop in competition for resources.[26]

This effect is well documented in the case of coyote populations in particular. Lethal control of coyotes is a temporary fix that ultimately leads to an increase in the population. The evidence is clear: More than 100 years of coyote killing has not reduced their populations. In fact, since 1850 when mass killings of coyotes began, the range of this species has tripled in the United States.[27]

Indiscriminate killing of coyotes stimulates increases in their populations because it disrupts their social structure, thereby encouraging more breeding and migration, which ultimately results in more coyotes.[28] Unexploited coyote populations are self-regulating based on the availability of food and habitat and territorial defense by resident family groups. Typically, only the dominant pair in a pack of coyotes reproduces, which behaviorally suppresses reproduction among subordinate members of the group. But when one or both members of the alpha pair are killed, other pairs will form and reproduce, lone coyotes will move in to find mates, coyotes will breed at younger ages, litters are larger, and pup survival has been documented to be higher. These factors work synergistically to increase coyote populations following exploitation events.[29]

In 2018, the North Carolina Wildlife Resources Commission published its Coyote Management Plan. Developed using a large body of scientific and peer-reviewed literature, the plan concluded that indiscriminate, lethal methods of controlling coyotes—including bounty programs, which are similar to wildlife killing contests—are ineffective and counterproductive, that coyotes provide benefits to humans and ecosystems (even outside of their historic range), and that non-lethal measures are the best way to address conflicts with coyotes.[30] The North Carolina Commission stated that, "numerous bounty program case studies have led to conclusions that bounties are ineffective in achieving real declines of predators (including coyotes), at addressing livestock depredation, or at positively affecting populations of species targeted for protection."[31] It further noted that killing predators in bounty programs may have undesirable effects, such as increasing prey species viewed as pests and killing non-offending coyotes, which creates a niche vacancy for coyotes that have learned to prey on livestock.[32] The North Carolina Commission reached the following conclusions:

a. Intensive removal of coyotes is time-consuming and expensive, and research has yet to show it to be effective.[33]
b. Coyotes rapidly increase their populations when large numbers of coyotes are removed from an area.[34]
c. A review of 34 studies that undertook intensive coyote removal found no reduction of coyote numbers over the long term.[35]
d. Intensive hunting and trapping efforts aimed at lowering coyote numbers either maintained or increased coyote populations.[36]
e. A coyote population can rebound in less than five years even when 90 percent of the population is eliminated from an area.[37]

New coyotes will quickly replace vacant territorial niches where coyotes have been removed. Coyote pairs hold territories, which leaves single coyotes ("floaters") continually looking for new places to call home.[38] Find out more at humanesociety.org/coyotes.

Q: DON'T KILLING CONTESTS HELP PREVENT CONFLICTS WITH PETS OR LIVESTOCK?

A: No. These events do not prevent conflicts with wildlife and may even increase them. Disrupting the family structure of native carnivores may increase attacks. For example, exploited coyote populations tend to have younger, less experienced coyotes that have not been taught appropriate hunting behaviors. These coyotes are more likely to prey on easy targets like livestock or pets. Additionally, exploited coyote packs are more likely to have increased numbers of yearlings reproducing and higher pup survival. Feeding pups is a significant motivation for coyotes to switch from killing small and medium-sized prey to killing sheep.[39] Killing contests do not target specific, problem-causing coyotes. Most killing contests target coyotes in woodlands and grasslands where conflicts with humans, livestock, and pets are minimal—not coyotes who have become habituated by human-provided attractants such as unsecured garbage, pet food, or livestock carcasses.

Furthermore, common arguments regarding the impact of predator-livestock conflict are exaggerated. According to U.S. Department of Agriculture ("USDA") data, livestock losses to wild carnivores are minuscule. In 2015, U.S. cattle and sheep inventories (including calves and lambs) numbered approximately 118.8 million animals.[40] Of that total, 474,965 cattle and sheep (including lambs and calves) were lost to all carnivores combined (including coyotes, unknown predators, and dogs), or 0.39 percent of the inventory.[41] The predominant sources of mortality to livestock, by far, are non-predator causes including disease, illness, birthing problems, and weather.[42] The North Carolina Commission has noted that, based on USDA data, dogs are an equal or greater risk to sheep, goats, and cattle as compared to coyotes.[43]

Prevention—not lethal control—is the best method for minimizing conflicts with coyotes.[44] Eliminating access to easy food sources, such as bird seed and garbage, supervising dogs while outside, and keeping cats indoors reduces conflicts with pets and humans. Practicing good animal husbandry and using strategic nonlethal predator control methods to protect livestock (such as electric fences, guard animals, and removing dead livestock) are more effective than lethal control in addressing coyote-human conflicts.[45] Find out more at humanesociety.org/coyotes.

Q: AREN'T THE ANIMALS TARGETED IN THESE CONTESTS JUST PESTS ANYWAY?

A: No. All wildlife species play integral roles in healthy ecosystems, and indiscriminately killing them harms our environment and our communities. Coyotes and foxes, for example, are filling the role of top carnivore in the American northeast, following the eradication of wolves and cougars. They provide a number of free, natural ecological services, and help to control disease transmission by keeping rodent populations in check, curtailing tick-borne diseases like Lyme.[46] In addition, coyotes consume carrion, increase biodiversity, remove sick animals from the gene pool, and disperse seeds. Coyotes have trophic cascade effects such as indirectly protecting ground-nesting birds from smaller carnivores and increasing the biological diversity of plant and wildlife communities.[47] Find out more at humanesociety.org/coyotes.

Q: HAVE ANY STATES BANNED WILDLIFE KILLING CONTESTS?

A: Yes. As of September 2020, seven U.S. states have outlawed killing contests—five did so through the state wildlife agency or commission, and two did so through the state legislature. In 2014, the California Fish and Game Commission banned contests that offer a prize, inducement, or reward for killing

furbearing and nongame mammals, including bobcats, coyotes and foxes. The Vermont legislature followed with a ban on coyote killing contests in 2018. The New Mexico legislature prohibited coyote killing contests in early 2019, and the Arizona Game and Fish Commission's statewide ban on killing contests for predator and furbearer species went into effect in November 2019. In December of 2019, the Massachusetts Fisheries and Wildlife Board approved a statewide ban on killing contests for predator and furbearer species. Colorado Parks and Wildlife prohibited killing contests for furbearers and other species, including coyotes and prairie dogs, in May 2020. In September 2020, the Washington State Fish and Wildlife Commission passed a ban on contests for classified and unclassified species without bag limits, including coyotes, foxes, bobcats, raccoons, and crows.

Q: WHO ENFORCES A BAN ON WILDLIFE KILLING CONTESTS AND HOW MUCH DOES IT COST?

State wildlife management agencies are responsible for enforcing bans on killing contests. Each of the states that have banned wildlife killing contests so far have specifically prohibited the holding of contests that offer cash, prizes, or, in some states, other inducements for the killing of certain species. We have found that the main prizes in almost all wildlife killing contests are a distribution of the cash pot from the registration fees (which can range from $25 per person to hundreds of dollars for 2- or 3-person teams), and equipment like weapons, ammunition, calling devices, spotlights, or night vision devices that are donated by manufacturers who are also sponsors of the contests.

These laws eliminate the primary incentive for these contests—cash and prizes—in three ways: by prohibiting organizers from offering prizes, participants from competing (thus reducing the cash pot), and manufacturers from sponsoring events (thus removing donated prizes such as hunting equipment). Without cash and prizes, few are likely to attend the event and, without participants, organizers no longer have an event. The manufacturers of hunting equipment, which traditionally sponsor these contests, may be unlikely to put their businesses on the line by doing so unlawfully. These factors work together to serve as a natural enforcement mechanism that does not rely heavily on law enforcement resources.

Second, in order to accumulate a substantial cash pot and items of any worthwhile amount to award as prizes, the organizer must charge a registration fee, pursue corporate or business sponsorships, and advertise the event well in advance. These activities would likely put the event on the radar of law enforcement or individuals who might report the event to law enforcement. Law enforcement would then alert the organizer that they cannot hold the event. So, most of the enforcement will be in advance of the contest, rather than being an additional burden on conservation officers in the field.

---

[1] In 2017, Vermont Fish & Wildlife said, "Coyote hunting contests are not only ineffective at controlling coyote populations, but these kinds of competitive coyote hunts are raising concerns on the part of the public and could possibly jeopardize the future of hunting and affect access to private lands for all hunters." See https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Hunt/trapping/Eastern-Coyote-Position-Statement.pdf. In its May 2019 proposal to ban killing contests for predator and furbearer species, the Arizona Game and Fish Commission said, "To the extent these contests reflect on the overall hunting community, public outrage with these events has the potential to threaten hunting as a legitimate wildlife management function." See https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/2019/03/25093742/R12-4-303-NPRM.pdf. And on July 25, 2019, the Massachusetts Division of Fisheries and Wildlife stated that it proposed its newly-enacted ban on killing contests for predator and furbearer species by "...recognizing that public controversy over this issue has the potential to threaten predator hunting and undermine public support for hunting in general..." See https://www.mass.gov/news/masswildlife-proposes-regulations-to-ban-predator-contests-and-prohibit-wanton-waste.

[2] The Wildlife Society: "Issue Statement: Wildlife Killing Contests," March 7, 2019 at https://wildlife.org/wp-content/uploads/2018/05/TWS_IS_WildlifeKillingContest_ApprovedMarch2019.pdf.
[3] The Arizona Game and Fish Commission: Notice of Proposed Rulemaking, Title 12. Natural Resources Chapter 4. https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/2019/03/25093742/R12-4-303-NPRM.pdf
[4] Washington State Fish and Wildlife Commission Meeting, August 1, 2020 https://www.tvw.org/watch/?eventID=2020081003
[5] Colorado Parks and Wildlife Commission Meeting, April 30, 2020 https://www.youtube.com/watch?v=5Vk7x_gx5PY
[6] "Eastern Coyote Issues – A Closer Look," Vermont Fish & Wildlife, January 2017 https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Hunt/trapping/Eastern-Coyote-Position-Statement.pdf
[7] "Eastern Coyote Issues – A Closer Look," Vermont Fish & Wildlife, January 2017 https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Hunt/trapping/Eastern-Coyote-Position-Statement.pdf
[8] Massachusetts Division of Fisheries & Wildlife, "Proposed Regulations to Ban Predator Contests and Prohibit Wanton Waste," July 25, 2019 https://www.mass.gov/news/masswildlife-proposes-regulations-to-ban-predator-contests-and-prohibit-wanton-waste
[9] Ted Williams, "Coyote Carnage: The Gruesome Truth about Wildlife Killing Contests," *Yale Environment 360*, May 22, 2018 https://e360.yale.edu/features/coyote-carnage-the-gruesome-truth-about-wildlife-killing-contests
[10] Testimony by Mike Finley to the Oregon Senate Judiciary Committee, March 18, 2019 https://olis.leg.state.or.us/liz/2019R1/Downloads/CommitteeMeetingDocument/200547
[11] Todd Wilkinson, "A Death Of Ethics: Is Hunting Destroying Itself?" December 12, 2018, https://mountainjournal.org/hunting-in-america-faces-an-ethical-reckoning
[12] The Wildlife Society: "Issue Statement: Wildlife Killing Contests." Approved March 7, 2019 https://wildlife.org/wp-content/uploads/2018/05/TWS_IS_WildlifeKillingContest_ApprovedMarch2019.pdf
[13] Todd Wilkinson, "Shoot biggest wolf, win trophy and cash." *Jackson Hole News & Guide*, December 18, 2013 https://www.jhnewsandguide.com/opinion/columnists/the_new_west_todd_wilkinson/article_260cbc66-0bf6-544b-bcf2-b5e9220247bb.html
[14] Quote by Jim Posewitz, retired biologist with Montana Department of Fish, Wildlife & Parks, and author of *Beyond Fair Chase* and *Inherit the Hunt: A Journey into American Hunting*, in the article "Better off alive" by Karen E. Lange in the Humane Society of the United States *All Animals* magazine, September 1, 2018 https://www.humanesociety.org/news/better-alive
[15] Kobilinsky: "JWM: Coyotes don't reduce deer populations." At https://wildlife.org/jwm-coyotes-dont-reduce-deer-populations/.
[16] B. Frye. (July 25, 2016). "Habitat, not predators, seen as key to wildlife populations," *Trib Live*, http://triblive.com/sports/outdoors/10756490-74/game-predator-predators.
[17] David Hart: "Coexist with Predators" by the National Wild Turkey Federation at http://www.nwtf.org/conservation/article/coexist-predators.
[18] Chuck Petrie: "Prairies Under Siege: Ducks, Habitat Conservation & Predators," in the November/December 2003 *Ducks Unlimited* magazine. https://www.ducks.org/conservation/where-ducks-unlimited-works/prairie-pothole-region/prairies-under-siege-ducks-habitat-conservation-predators.
[19] Ibid.
[20] Coyote Management Plan. (Mar. 1, 2018). North Carolina Wildlife Resources Commission: 16.
[21] C.J. Bishop, G. C. White, D. J. Freddy, B. E. Watkins, and T. R. Stephenson. 2009. Effect of Enhanced Nutrition on Mule Deer Population Rate of Change. *Wildlife Monographs*:1-28; Hurley, M. A., J. W. Unsworth, P. Zager, M. Hebblewhite, E. O. Garton, D. M. Montgomery, J. R. Skalski, and C. L. Maycock. 2011. Demographic Response of Mule Deer to Experimental Reduction of Coyotes and Mountain Lions in Southeastern Idaho. *Wildlife Monographs*:1-33.; T.D. Forrester, and H. U. Wittmer. 2013. A review of the population dynamics of mule deer and black-tailed deer Odocoileus hemionus in North America. *Mammal Review* 43:292-308.; K.L. Monteith, V. C. Bleich, T. R. Stephenson, B. M. Pierce, M. M. Conner, J. G. Kie, and R. T. Bowyer. 2014. Life-history characteristics of mule deer: Effects of nutrition in a variable environment. *Wildlife Monographs* 186:1-62.
[22] C.J. Bishop, G. C. White, D. J. Freddy, B. E. Watkins, and T. R. Stephenson. 2009. Effect of Enhanced Nutrition on Mule Deer Population Rate of Change. *Wildlife Monographs*:1-28.
[23] M.A. Hurley, J. W. Unsworth, P. Zager, M. Hebblewhite, E. O. Garton, D. M. Montgomery, J. R. Skalski, and C. L. Maycock. 2011. Demographic Response of Mule Deer to Experimental Reduction of Coyotes and Mountain Lions in Southeastern Idaho. *Wildlife Monographs*:1-33.
[24] T.D. Forrester and H. U. Wittmer. 2013. A review of the population dynamics of mule deer and black-tailed deer Odocoileus hemionus in North America. *Mammal Review* 43:292-308.
[25] Dana Kobilinsky: "JWM: Coyotes don't reduce deer populations." By The Wildlife Society, March 21, 2019 at https://wildlife.org/jwm-coyotes-dont-reduce-deer-populations/.
[26] F. F. Knowlton, E. M. Gese, and M. M. Jaeger, Coyote Depredation Control: An Interface between Biology and Management, Journal of Range Management 52, no. 5 (1999); Robert Crabtree and Jennifer Sheldon, Coyotes and Canid Coexistence in Yellowstone, in Carnivores in Ecosystems: The Yellowstone Experience, ed. T. Clark et al.(New Haven [Conn.]: Yale University Press, 1999); J. M. Goodrich and S. W. Buskirk, Control of Abundant Native Vertebrates for Conservation of Endangered Species, Conservation Biology 9, no. 6 (1995).
[27] Robert Crabtree and Jennifer Sheldon, Coyotes and Canid Coexistence in Yellowstone, in *Carnivores in Ecosystems: The Yellowstone Experience*, ed. T. Clark et al.(New Haven [Conn.]: Yale University Press, 1999)
[28] *Id.*; *see also* S.D. Gehrt. 2004. Chicago Coyotes part II. *Wildlife Control Technologies* 11(4):20-21, 38-9, 42.

[29] F.F. Knowlton. 1972. Preliminary interpretations of coyote population mechanics with some management implications. *J. Wildlife Management*. 36:369-382.
[30] Coyote Management Plan. (Mar. 1, 2018). North Carolina Wildlife Resources Commission: 11, 21-28, at: https://www.ncwildlife.org/Portals/0/Learning/documents/Species/Coyote%20Management%20Plan_FINAL_030118.pdf.
[31] *Id.* at 11-17.
[32] *Id.*
[33] *Id.* at 20.
[34] *Id.*
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] Gehrt, S.D. 2004. Chicago coyotes part II. *Wildlife Control Technologies* 11(4):20-21, 38-9, 42.
[39] F. F. Knowlton, E. M. Gese, and M. M. Jaeger, "Coyote Depredation Control: An Interface between Biology and Management," *Journal of Range Management* 52, no. 5 (1999); B. R. Mitchell, M. M. Jaeger, and R. H. Barrett, "Coyote Depredation Management: Current Methods and Research Needs," *Wildlife Society Bulletin* 32, no. 4 (2004).
[40] See USDA. 2015. "Cattle and Calves Death Loss in the United States Due to Predator and Nonpredator Causes, 2015." USDA–APHIS–VS–CEAH, available at: https://www.aphis.usda.gov/animal_health/nahms/general/downloads/cattle_calves_deathloss_2015.pdf; USDA. 2015. "Sheep and Lamb Predator and Nonpredator Death Loss in the United States, 2015." USDA–APHIS–VS–CEAH–NAHMS, available at https://www.aphis.usda.gov/animal_health/nahms/sheep/downloads/sheepdeath/SheepDeathLoss2015.pdf.
[41] *Id.*
[42] For an in-depth discussion, see: Wendy Keefover, "Northern Rocky Mountain Wolves: A Public Policy Process Failure: How Two Special Interest Groups Hijacked Wolf Conservation in America," *WildEarth Guardians www.wildearthguardians.org/site/DocServer/Wolf_Report_20120503.pdf* 1, no. 1 (2012).
[43] Coyote Management Plan. (Mar. 1, 2018). North Carolina Wildlife Resources Commission: 10.
[44] Fox, C.H. and C.M. Papouchis, Coyotes in Our Midst.
[45] Adrian Treves et al., "Forecasting Environmental Hazards and the Application of Risk Maps to Predator Attacks on Livestock," *BioScience* 61, no. 6 (2011); Philip J. Baker et al., "Terrestrial Carnivores and Human Food Production: Impact and Management," *Mammal Review* 38, (2008); A. Treves and K. U. Karanth, "Human-Carnivore Conflict and Perspectives on Carnivore Management Worldwide," *Conservation Biology* 17, no. 6 (2003); J. A. Shivik, A. Treves, and P. Callahan, "Nonlethal Techniques for Managing Predation: Primary and Secondary Repellents," *Conservation Biology* 17, no. 6 (2003); N. J. Lance et al., "Biological, Technical, and Social Aspects of Applying Electrified Fladry for Livestock Protection from Wolves (Canis Lupus)," *Wildlife Research* 37, no. 8 (2010); Andrea Morehouse and Mark Boyce, "From Venison to Beef: Seasonal Changes in Wolf Diet Composition in a Livestock Grazing Environment," *Frontiers in Ecology and the Environment* 9, no. 8 (2011).
[46] Fox, C.H. and C.M. Papouchis. 2005. Coyotes in Our Midst: Coexisting with an Adaptable and Resilient Carnivore. Animal Protection Institute, Sacramento, California.
[47] S. E. Henke and F. C. Bryant, "Effects of Coyote Removal on the Faunal Community in Western Texas," *Journal of Wildlife Management* 63, no. 4 (1999); K. R. Crooks and M. E. Soule, "Mesopredator Release and Avifaunal Extinctions in a Fragmented System," *Nature* 400, no. 6744 (1999); E. T. Mezquida, S. J. Slater, and C. W. Benkman, "Sage-Grouse and Indirect Interactions: Potential Implications of Coyote Control on Sage-Grouse Populations," *Condor* 108, no. 4 (2006); N. M. Waser et al., "Coyotes, Deer, and Wildflowers: Diverse Evidence Points to a Trophic Cascade," *Naturwissenschaften* 101, no. 5 (2014).