



TALKING POINTS FOR CPW PLAN TO KILL BLACK BEARS AND COUGARS IN THE PICEANCE BASIN, COLORADO

→ Numerous studies have shown that killing native carnivores to increase deer populations is unlikely to be successful.

Cites: 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; Bishop, C. J., 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.

→ CPW acknowledges that it has been unable to confirm whether predation is limiting overall fawn survival or whether predators are killing weaker fawns that may not make it to adulthood regardless of predation, but still wants to kill predators. CPW should consider other, nonlethal approaches, to study the effects of predation.

→The existence of predators on the landscape may actually benefit mule deer populations. For example, science has shown that predators, and especially mountain lions, may play an important role in reducing the spread of disease amongst other wildlife, including ungulates such as deer and elk.

Cites: Wild, Margaret et al. “The Role of Predation in Disease Control: A Comparison of Selective and Nonselective Removal on Prion Disease Dynamics in Deer.” *Journal of Wildlife Diseases* 47(1): 78-93 (2011); Wild, Margaret et al. “The Role of Predation in Disease Control: A Comparison of Selective and Nonselective Removal on Prion Disease Dynamics in Deer.” *Journal of Wildlife Diseases* 47(1): 78-93 (2011).

→Studies have shown that carnivores may increase prey kills as a result of stress from hunting or lethal removal.

Cite: Smith, J.A., Y. Wang and C.C. Wilmers, “Top carnivores increase their kill rates on prey as a response to human-induced fear.” *Proc. R. Soc. B.* 282: 20142711 (2014).

→Colorado has a legal duty to act as trustees to protect all wildlife for the citizens of Colorado. The public trust doctrine includes a duty to protect black bear and mountain lion populations for those who enjoy having these predators on the landscape.

Cite: Treves, Adrian et al. 2015. Predators and the public trust. *Biological Reviews*. doi: 10.1111/brv.12227.

→Removing predators from the landscape may have other unexpected consequences. Large carnivores, including mountain lions and black bears, have substantial effects that benefit the function of diverse ecosystems such as the Piceance Basin. Removing predators may have negative ecological impacts that CPW must consider.

Cites: Ripple, W.J. & R.L. Beschta, "Linking a cougar decline, trophic cascade, and catastrophic regime shift in Zion National Park." *Biol. Conserv.* 133: 397-408 (2006). doi: 10.1016/j.biocon.2006.07.002; Ripple, W.J. & R. L. Beschta, "Trophic cascades involving cougar, mule deer, and black oaks in Yosemite National Park." *Biol. Conserv.* 141: 1249-1256 (2008); Ripple, W.J. *et al.*, "Status and Ecological Effects of the World's Largest Carnivores." *Science* 343: 1241484 (2014). doi: 10.1126/science.1241484; Estes, J.A. *et al.*, "Trophic downgrading of planet Earth." *Science* 333: 301-306 (2011).

→Most studies have shown that malnutrition is the primary factor impacting mule deer survival. Extensive oil and gas development, habitat loss, winter severity, and other factors may all be impacting fawn survival rates in the Piceance Basin.

Cites: Forrester, T. D., 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; Monteith, K. L., 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.

→Studies have shown that mule deer predation is largely compensatory, not additive, when accounting for mule deer mortality rates. In other words, mule deer that die from predation were likely to die from other causes of mortality, including malnutrition.

Cites: Forrester, T. D., 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; Monteith, K. L., 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.

→We urge CPW to consider a less deadly and more scientific approach to study how it can manage habitat to support a healthy mule deer population.

