10-2015

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Arian D. Wallach
Charles Darwin University

Marc Bekoff
University of Colorado

Michael Paul Nelson
Oregon State University

David Ramp
University of Technology Sydney

Recommended Citation

Wallach, A. D., Bekoff, M., Nelson, M. P., & Ramp, D. (2015). Promoting predators and compassionate conservation. Conservation Biology, 29(5), 1481-1484.

Promoting Predators and Compassionate Conservation

Arian D. Wallach[1,2,3], Marc Bekoff[3,4], Michael Paul Nelson[5], and Daniel Ramp[3]

[1] Dingo for Biodiversity Project
[2] Charles Darwin University
[3] University of Technology Sydney
[4] University of Colorado
[5] Oregon State University

Introduction

Predators are at the forefront of a compassionate revolution in conservation. Promoting predators for conservation has deep roots (Leopold 1949), and the reintroduction of wolves (*Canis lupus*) to Yellowstone National Park in 1995 simultaneously enhanced wolf conservation and restored landscapes by suppressing over-abundant deer. It is now widely acknowledged that apex predators provide crucial ecological functions as suppressors of population irruptions, and their recovery is revolutionizing conservation (Chapron et al. 2014; Ripple et al. 2014). However, this success stands in stark contrast to conservation practices premised on killing animals to control populations. Conservation has a long history of striving to save species by killing members of other species. Although death is part of nature, it is becoming apparent that the belief that human-mediated killing can right human-caused disturbance is fallible. For example, an intensive 9-year wolf cull to save declining woodland caribou (*Rangifer tarandus caribou*) in Canada did not provide a long-term solution (Hervieux et al. 2014). Using insights from Australian conservation, we argue that a 3-tiered conservation ethic that encompasses the welfare of individuals, populations, and ecosystems be used to guide decision making for improved conservation and animal welfare outcomes.

Evidence of low efficacy, insufficient monitoring, and deleterious unintended consequences (Warburton & Norton 2009; Carroll 2011; Davis et al. 2011) of killing for conservation are leading some scientists to advocate for restraint in using lethal means to attain conservation goals. Killing raises pernicious ethical questions regarding the values placed on individuals and populations, suppression of one species to promote another, categorization of species as invasive and inherently malicious, eradication of species from their introduced ranges when their populations are jeopardized in their native ranges, and penalizing others for our own misdeeds (Bekoff 2013). Humanity has a moral obligation to help restore threatened populations, but harming sentient beings is a serious matter that cannot be justified solely on the basis of noble aims. Killing for conservation often proves to be unjustified because although the costs to those individuals killed are certain, the benefits to populations and ecosystems are not (Vucetich & Nelson 2007).

Killing for conservation can have human social costs as well. The public, including children, are frequently encouraged to participate in killing. For example, “toadbusting” campaigns engage volunteers, including children, in killing non-native cane toads in Australia. Landholders may also be legally obligated to participate in killing programs (DEPI 2014). Establishing killing as a normative practice is achieved with the use of militarized jargon (Larson 2005) and can alienate society from nature by diminishing compassion and encouraging violence as an appropriate route to problem solving (Clayton 2012).

Although Britain's Hunting Act banned the hunting of native foxes with dogs due to animal-welfare concerns, in Australia similar and possibly more severe hunting practices aimed at wild boar are legitimized because wild boar are not native (Ramp et al. 2013). Compassion is an important motivation driving society's support for conservation, and practitioners risk losing public support when they rely on unsubstantiated dichotomizations of those who deserve to live and those who deserve to die.

Figure 1. Sign warning of 1080 bait deployment to kill foxes in an Australian national park (photo by L. Mullan) and the dingo, an apex predator, which limits fox populations but succumbs to 1080 poisoning (right) (photo by A.W.).

Figure 2. Red fox with a Little Penguin on Middle Island (photo courtesy of Middle Island Maremma Project) and Maremma sheepdog protecting a Gannet colony (seen in the background) (photo by L. van Bommel).


There is growing interest in developing creative ethical and ecological dialogue when balancing the welfare of individuals and populations (Harrington et al. 2013; van Dooren 2014). Compassionate conservation is an emerging field promoting the protection of individuals and populations within conservation (Bekoff 2013; Ramp & Bekoff 2015). It asserts that there are limits to the ability to predict the outcomes of human intervention in ecosystems and adopts as a founding principle *first do no harm* (Bekoff 2010). These principles remind practitioners that some interventions may fail or even exacerbate problems and give rise to alternative management objectives and to alternative avenues for resolving problems. Several examples showcase how actions consistent with compassionate conservation provide more effective and ethical outcomes.

Trophic cascade theory explains the role of apex predators in regulating populations of their prey and mesopredators. Many apex predators are, however, endangered, primarily due to persecution by humans (Ripple et al. 2014). Consequently, both native and introduced species, that otherwise would be constrained, have irrupted and caused harm (Wallach et al. 2015). Lethal control is society's attempt to assume the ecological function once performed by apex predators. But, these shoes do not fit us well (Berger 2005). Predator–prey interactions involve not only killing but communication, and prey respond to danger in complex ways, including predator avoidance behaviors (Brook et al. 2012).

Australia provides a continental-scale case study of both killing for conservation and trophic cascades. Introduced animals, particularly mesopredators, have contributed to an extinction wave—the highest in the world in the past 2 centuries (Johnson et al. 2007). Therefore, much conservation effort in Australia is devoted to killing introduced species, particularly red foxes (*Vulpes vulpes*). Yet the most common method used to control foxes, 1080 poison-baiting, also kills dingoes (*C. dingo*), an apex predator (Fig. 1). Thus, dingoes are persecuted across both pastoral and conservation regions. Across the continent, dingo distribution is a major predictor of low fox densities and high survival of native mammals (Johnson et al. 2007; Letnic et al. 2011). The very method used to promote biodiversity has paradoxically driven its decline (Wallach et al. 2010; Colman et al. 2014); thus, violating the ethical commitment to individuals, populations, and ecosystems (Vucetich & Nelson 2014).

The loss of apex predators has also resulted in higher densities of their native prey and, in turn, to conservation killing. The Dingo Proof Fence, Australia's 5500 km predator exclusion fence, has created 2 ecological universes in which kangaroos (and other herbivores) dominate inside the fence and vegetation productivity is higher outside the fence (Letnic et al. 2012). Due to dingo persecution, over 3 million kangaroos are killed annually for commercial harvest and as pests (Ramp 2013). Similarly, the eradication of wolves (*C. lupus*) from parts of North America increased deer densities, spurring culling operations (Ripple & Beschta 2004). Restoration of apex predators has widespread application consistent with individual, population, and ecosystem values.

Compassionate solutions can even trump killing in regions where apex predators are absent. A breeding colony of Little Penguins (*Eudyptula minor*) in Middle Island, Australia, decreased from 600 to 10 birds in 5 years due to fox predation. Killing foxes with poison, den fumigation, traps, and guns did not address the threat because foxes recolonized the island at low tide. In 2006, a trial was initiated to use Maremma sheepdogs to guard the colony (Fig. 2). Since its implementation, fox predation has been eliminated, the penguin population has increased, and the project has expanded to protect a colony of Australasian Gannets (*Morus serrator*) (van Bommel 2010). This success prompted Zoos Victoria to invest over half-a-million dollars in the trial use of guardian dogs to facilitate a bandicoot (*Perameles gunnii*) reintroduction (Zoos-Victoria 2014).

Faith in, and tolerance for, killing for conservation is waning (Bekoff 2013; Ramp & Bekoff 2015). Despite this, killing still monopolizes conservation. Visions of restoring ecological communities to ancestral configurations are fantasies that continue to harm millions of animals globally each year. Rather than paralyzing action, compassion can help restrain impulsive decisions that cause harm and provide a guiding framework that enables innovation in conservation. Landholders who choose not to kill can experience immense pressure to toe the line (Ford-Thompson et al. 2012; Estévez et al. 2014). As a first step, testing of non-lethal approaches must be allowed. One avenue is the establishment of a predator-friendly network to support these landholders. What would happen if killing was moved to the bottom of the conservation toolkit or removed altogether? The time has come to find out.

Acknowledgments

The authors thank M. Burgman, T. van Dooren, and 3 anonymous reviewers for insightful comments on earlier versions of this work.

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