Conservation Biology

Comment

Killing with compassion for the sake of conservation: response to Lynn et al. 2019

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Debating the morality of invasive species, eradication fetters action against exotic species that threaten native biodiversity. Lynn et al. (2019) suggest that goals to eradicate domestic cats from the wild are founded on a moral panic. Yet, this extremely common species is subsidized by humans and threatens many already endangered species. As humans, we must decide whether it is more ethical to merely control invasive species while surrendering native species to extinction or to eradicate invasive species to save native species.

Conservation science is normative in that it considers the diversity of organisms, ecological complexity, and evolution to be good and biotic diversity to have intrinsic value (Soulé 1985). As a corollary then, it is arguable that humans do not have the right to reduce what is good about life (Naess 1973; Devall & Sessions 1985). Thus, conservationists confront threats to biodiversity, question society's role in them, and devise solutions to them without impinging on human life. A particular threat to life is species introduced by humans (wild and domesticated) to ecosystems with naïve biological communities. It is not nativeness or non-nativeness of a species that elicits danger (Davis et al. 2011). Rather, it is the chain of ecological processes that occur after introduction, which ultimately may change ecosystem functions, reduce populations, and lead to extinctions, that bestows invasive status to species (Richardson et al. 2000). Addressing the major threat invasive species pose is a priority for biodiversity conservation (Aichi Target 9; Convention on Biological Diversity 2010).

The onus falls on humans to deal with the consequences of invasive species. Conservationists speak for organisms without a voice through science and practice. It is our ethical responsibility to avoid the irreversible loss of biodiversity. Actions taken to right human wrongs range from population control, to relocation, to eradication. The eradication of invasive mammals—as a conservation measure—is necessary to maintain the existence of the world's most imperiled fauna and ecosystems (Jones et al. 2016). Eradication should be as humane as possible, but ultimately if the quest to do no harm to invasive individuals results in native species' extinctions, then conservation fails. Conservationists are faced with tough choices, but the conservation goal should prevail.

Loss and Marra (2018) highlight that animalist movements create doubt by spreading misinformation about the need to eradicate invasive species, particularly feral cats. Lynn et al. reply by calling for a precautionary approach to eradication of invasive species. They claim that conservationists who employ such measures are "overgeneralizing their science and losing their moral compass." Lynn et al. imply the evidence is insufficient to treat free-ranging cats as a threat to native biodiversity and argue that the precautionary principle, which focuses on harm reduction, should not be instrumentalized to justify management that harms animals. We counterargue that evidence of the negative impacts of free-ranging cats is convincing and the benefits of their eradication for native wildlife are widely sought (Jones et al. 2016).

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Effects of free-ranging cats on native species on oceanic islands are particularly dramatic and well known (Medina et al. 2011). At least 284 studies show cats as the primary cause of species decline on oceanic islands (Doherty et al. 2016). Free-ranging cats on the mainland are also harmful because natural areas that support native biodiversity in urban and suburban areas are habitat islands surrounded by an inhospitable matrix that serves as a continuous source of free-ranging cats (Crooks 2002). At least 15 studies report that mainland vertebrate mortality is substantially associated with cat predation (Loss & Mara 2018), and cat-related museum accessions of birds can reach 30.3% (Jessup 2004). In the United States alone, free-ranging cats kill 1.3–4 billion birds (69% by unowned cats) and 6.3–22.3 billion (89% by unowned cats) mammals annually (Loss et al. 2013). In Australia, free-ranging cats kill 1.14 billion mammals/year (85% by unowned cats), at least 40% of which are native (459 million individuals killed/year) (Murphy et al. 2019). Cats are linked to the extinction of 63 native vertebrates and threaten 430 species (Doherty et al. 2016). Knowing this and not acting on it is tantamount to losing one's moral compass.

Lynn et al. suggest the effects of cats on wildlife populations do not differ from the effects of native predators (citing Wallach et al. [2010]) and that cats might suppress other unknown threats to local biodiversity. Their contentions are wrong. Cats receive human subsidies in the form of food and shelter that make them nonresource limited (Churcher & Lawton 1987; Crooks & Soulé 1999; Schmidt et al. 2007). This allows cat population densities to far outpace densities of similar-sized native predators (Nowell & Jackson 1996; Liberg et al. 2000; Beutel et al. 2017); estimates range from 0.27 to 13.3 cats/km^2 (Legge et al. 2017; Hand 2019). These anthropogenic cat densities generate predation rates with depensatory effects on low-density wild prey (a common attribute of most threatened species) that can lead to extinction (Holt 1977). Moreover, high cat densities create strong source patches that result in constant streams of rescue effects (Hanski 1982), putting further pressure on native species. Due to human subsidies, free-ranging cats and native wildlife tend not to coexist wherever they co-occur.

Trap-neuter-return (TNR) tactics seem a humane way to deal with cats, but only relative to cat lives because billions of bird and mammal lives will still be lost since neutered predators must keep feeding or will hunt from instinct alone. Once TNR is applied, the predatory effects of subsidized high-density colonies of cats on wildlife populations already in decline could persist for years. In practice, TNR has not been successful (Longcore et al. 2009). Conservationists should minimize and, if possible, eliminate anthropogenic impacts, such as invasive species, which cats introduced by humans certainly are. We should not be willing to let billions of native animals die even if harm comes to invasive species and we feel bad about it.

Cats do not deserve to suffer, but neither do native species; both have intrinsic value. All conservationists and followers of the compassionate conservation movement (Wallach et al. 2018), which asks that conservation for all be guided by compassion for the few, must ask themselves which animals should be saved but do so quickly because there is no time to prioritize saving both cat and native species lives before extinctions occur. The core tenets of compassionate conservation mandate no harm, contend individuals matter, and advocate peaceful coexistence between humans and animals (Hayward et al. 2019), but these tenets are breached by allowing cats to roam and ignoring the suffering of native species individuals. The data are robust and clearly document the vast harm to native species caused by cat predation. The anthropogenic nature of the presence of cats in the wild ultimately disallows peaceful coexistence between humans and native animals.

This debate is reminiscent of the trolley problem, the ethics thought experiment whereby one must choose whether killing one person is justifiable to save more lives. Are we willing to save invasive animal lives, such as cats, which may number in the hundreds of millions (Jarvis 1990), while billions of native animal lives are lost? Most species are rare and limited in abundance (Preston 1948), and all have unique and priceless evolutionary histories. Hubris may lead to the belief that ecological functions lost by native species extinctions can be replaced, but even if omniscience were a human trait, the intrinsic value of a species or its individual members could never be replaced.

Compassion unites all conservationists. It granted Leopold his conversion after he witnessed life desert the eyes of a wolf he killed, which began his life-long crusade to inspire an ecological conscience (Leopold 1966), and it is what guides all of our moral compasses. Nonnative and invasive animals deserve compassion (Nagy & Johnson 2013), and it is not misplaced in them. However, compassion should not deter us from acting when drastic times call for drastic measures. The longer we waver and argue about the solution to invasive species, the more lives are lost and the more species arrive at the brink of extinction. Let us right our wrongs, acknowledge the necessary harm, and let it weigh heavy on our shoulders.

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