

## Compassionate conservation, where to from here?

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### Why Compassionate Conservation?

The field of conservation, at its core, is based on a number of ethics (Nash, 1967) which include appreciating nature (Thoreau, 1854; Whitman, 1855), understanding there is a need to protect it (Muir, 1890), and a belief that land should be shared between humans and wilderness (Leopold, 1949). Therefore, contemporary practitioners of conservation are, in a sense, emissaries of a society that values protecting nature.

Modern conservation biology has merged the intrinsic value of appreciating nature together with an understanding that, in the modern age ecosystems, habitats and wildlife populations need to be managed and protected from rapid changes primarily caused by human activity. In particular, invasion biology asserts that native ecosystems and the species that comprise them need to be protected from species/populations established recently by humans (Soulé, 1987), and that the collective (e.g. a species or population) is always more important than the individuals themselves.

The need to protect ecosystems from change, safeguard certain wildlife species from harm by other species, and manage human-wildlife conflicts, coupled with a disregard for the individual wild animal, has given rise to conservation management practices that cause significant harm, in the form of death and pain, to wildlife by humans (Bekoff, 2013; Dubois et al., 2017). For example, non-native wildlife are routinely shot and poisoned to dilute their numbers and the supposed impact on native wildlife and ecosystems; emergent (a positive term for the negative term “irruptive”) species are killed to lessen their impact on other wildlife; human-wildlife conflict in agricultural and urban contexts is usually resolved by killing wildlife; and, trophy hunting is supported by many conservationists as sustainable conservation.

Whilst the aim is usually the removal of the offending wildlife, the methods used often cause much suffering in the form of acute stress and injury (Dubois et al., 2017). For example kangaroos in Australia, and boars and deer around the world are culled and often miss shot to die a slow and painful death. Millions of foxes and dingoes in Australia, and possums in New Zealand, are poisoned by 1080 every year causing severe pain before death. Coyotes and wolves are leg trapped in the US to suffer an inevitably painful

death. Surviving young of all animals often die of dehydration, starvation and exposure. These are just a few examples that show the staggering extent of harm to wildlife in the name of conservation and conservation management.

In the cases in which conservation practices cause harm to wildlife, there is a growing conflict between those who wish to protect nature and those who believe in the emerging ethic of animal protection (Bruskotter et al., 2017; van Eeden et al., 2017). Interestingly, this growing ethic of animal protection can often be seen expressed in a population's dietary choices. In Israel, for example, an estimated 12–15 % of the population are now vegetarian or vegan (Zieve, 2018), and dramatically increasing vegan/vegetarian populations are also found in other countries (Wikipedia, 2018). In addition to diet, a recent US study (Bruskotter et al., 2017) found that the animal protection ethic, in relation to wildlife, is broadly accepted in society:

“Regardless of their group identities, respondents had a widespread tendency to acknowledge wildlife's intrinsic value. This was found among 69 percent of the general population, and it was even higher among those who strongly identified as hunters (79 percent), conservationists (84 percent) and animal rights advocates (87 percent). While these groups may understand that acknowledgement in very different ways, non-anthropocentrism appears to be an important point of common ground (Vucetich et al., 2015).”

Compassionate conservation strives to resolve the conflict between conservation and animal protection by creating an ethically broader and more inclusive approach to conservation. It is an evolving framework in conservation biology which merges conservation and animal protection for improved conservation outcomes (Bekoff, 2013; Ramp and Bekoff, 2015; Wallach et al., 2018).

### Compassionate Conservation in Practice

On a practical level, where values of animal protection conflict with predominant conservation policies such as invasion biology, ecosystem management through culling, and wildlife research and management where direct harm

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or death is caused to wildlife, conservation management efforts are increasingly thwarted by public outcry. High profile examples include the public opposition to the culling of street cats in Israel, removing hippopotamus from Columbian rivers, shooting wild horses in Australia, and many more. In cases like these, conservation practitioners need a new conservation management approach in order to meet their goals, which may necessitate some short-term compromises but will produce improved conservation outcomes in medium to long-term.

Compassionate conservation management is often achievable if practitioners avoid knee jerk reactions (due to political expediency or lack of consideration), to wildlife management needs such as culling non-native species. Its management theory prescribes a decision-making process to facilitate compassionate solutions (Draper et al., 2015; Ramp and Bekoff, 2015). First, do no harm; that is, in the medical sense. Second, individual wild animals are important; they have intrinsic value, and are often a repository of information and important for social stability. Third, wild animals should be de-categorized because the categorization of animals shapes our attitudes towards them, for example, 'pest', 'feral', 'invasive'. Fourth, we should strive for peaceful co-existence with wildlife, by sharing space with nature and minimizing conflict between humans and wildlife.

### Compassionate Conservation in Theory

Surprisingly, the inquiry into compassionate conservation and the integration of animal protection and related areas of research such as ethology, trophic cascades, novel ecosystem functioning, is leading to a new perception of what conservation should be about (Wallach et al., 2018). Extensive research indicates that ecosystems are dynamic (Pickett, 2013), and adaptive over time (Pearce, 2017). Another important concept is that individual wild animals matter more than expected to their social communities (Wallach et al., 2018a, Table 2), and to ecosystem functioning, as is particularly the case with (but not to restricted to) predators (Dickman et al., 2014; Ripple et al., 2014). Furthermore, introduced populations may contribute rather than detract to ecosystem resilience (Lundgren et al., 2018).

The papers in this special edition provide further insight into where the field of compassionate conservation is heading by exploring core principles, research methodology, and management approaches. Dembitzer (2017) contemplates the conservation status of the hippos (*Hippopotamus amphibius*) in Columbia who were escaped from the property of Pablo Escobar, the notorious drug lord, after his death. Questions are raised about their overall potential to contribute to Columbian nature and the conservation role of introduced wildlife. Wallach et al. (2017) argue that species introduced to Israel should be protected alongside native species. They found that 27% of Israel's introduced species (as assessed by the IUCN) are threatened or decreasing in their native ranges and that these introduced species have in fact increased Israel's plant and vertebrate richness by 104 species. In a case study of eastern grey

kangaroos (*Macropus giganteus*) on Australian grasslands, Ben-Ami and Mjadwesch (2017) demonstrate how a wildlife management decision-making process that is sensitive to animal protection could be successfully implemented. Similarly, Yashpe and Kubotera (2017) show that when the effectiveness of lethal and non-lethal coyote management is compared, non-lethal can be equally (if not more) effective. Blaustein et al. (2017) high-lite the potentially devastating impact of non-native species and explore minimally invasive research techniques on the endangered fire salamanders (*Salamanca infraimmaculata*). Finally, Baker (2017) reviews the developing research and understanding of the personalities of individual wild animals and demonstrates practical implications in translocation management of Stephen's kangaroo rat (*Dipodomys stephensi*).

The compassionate conservation studies included in this special issue and elsewhere suggest a new paradigm for conservation theory and practice and raise questions about the future of conservation research and management. Stand out concepts include the following: adaptive ecosystems; non-native species may contribute to ecosystems in positive ways; coexistence with predators is possible; individual wild animals matter; and wildlife management and research can be humane and inclusive of all species. More ideas and areas of inquiry are sure to arise as the field of compassionate conservation matures.

### Where To From Here?

The common conservation practice of attempting to suppress or eradicate wild populations for the purported good of ecosystems, or of particular threatened species, may impede the adaptive action of ecosystem functioning and delay the attainment of a new equilibrium. This is why the concept of an adaptive ecosystem and valuing all wildlife species (whether native or not) is so important. We need to better understand ecosystem functioning and discuss potential consequences of our findings. If a lighter touch is indeed required to manage contemporary ecosystems and remnant habitats, what role is left for the conservation practitioner?

Another dilemma stems from emerging studies that show that animal sentience is widespread amongst species (Bekoff and Pierce, 2017), making the moral cost of culling and harming wildlife much higher than previously thought. Although compassionate conservation includes the formative value of conservation, of preserving the wild and ecosystem functioning, the inclusion of the animal protection ethic, emphasizes the de-categorizing of wildlife. If we accept that non-native and emergent species are sentient and of equal ecological value compared to any other endemic and endangered species, and that novel ecosystems are as desirable as pre-existing ecosystems, then where does that leave conservation management?

### There Is Much To Be Done

Compassionate conservation can be developed so that it addresses practical aspects of wildlife management (and

research) and the theoretical fields of ecology. On a practical level, resources such as money, time and work hours which are freed from the traditional conservation management activities can be redirected. For example, the culling of feral pigs, non-native cats and foxes in Australia is ongoing and less than successful (Johnson, 2015). These successful species may require culling of up to 70% of new recruits simply to stem population growth (Invasive Species Research Council, 2012), a typically impossible task in non-island contexts. In another example, a third of conservation studies in Israel currently address invasion biology (Wallach et al., 2017); some of this effort could be redirected to research ecosystem functioning and restoration. Conservation managers can rather expend more energy on maintaining and protecting natural spaces from destruction, i.e. preventing habitat loss (not restoring a previous balance), and conversely increasing nature in human dominated landscapes. More effort can be expended on maintaining clean air, water and soils. Importantly, more effort can be directed to protecting wildlife from direct harm by humans (Dubois et al., 2017), as opposed to harm from other 'non-native' or 'emergent' wildlife.

Practicing conservation ethically can and should start immediately. However, expanding our knowledge in several fields of ecology that strongly relate to ecosystem function will greatly enhance the theoretical underpinnings of compassionate conservation. For instance, a greater understanding of community ecology, trophic dynamics and cascade effects (and there are likely to be additional fields) could contribute to a more robust framework for compassionate conservation. The emerging and important fields of rewilding (Soule and Noss, 1998; Svenning et al., 2016) which promotes restoring self-regulating land communities, and reconciliation ecology (Rosenzweig, 2003) which encourages biodiversity in human dominated landscapes, can be further developed to augment for the habitat loss and ecosystem degradation caused by human development.

There is also great potential in engaging the sectors of the public who appreciate nature and animals in conservation practice. At present, traditional conservation management is increasingly divisive due to shifting values towards animal protection (Bruskotter et al., 2017). Compassionate conservation has the potential of unifying two very strong but often conflicting social movements into a unified force for the protection of ecosystems and the lives of all sentient beings. In summary, there is much work to be done in research and implementation of compassionate conservation as energy and effort is redirected from existing practices of invasion biology and wildlife management that cause harm, to ones that restore wilderness, protect wildlife and individual wild animals from harm, and support ecosystem functioning.

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