



COEX: Sharing the Land with Wildlife, Inc.
6010 South Hill Drive
Madison, WI 53705, USA
www.coex-wildlife.org
info@coex-wildlife.org

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Introduction from Treves, A., Naughton-Treves, L. (2005) Evaluating lethal control in the management of human-wildlife conflict. *People and Wildlife, Conflict or Coexistence?* (eds. Woodroffe, R., Thirgood, S., Rabinowitz, A.). Cambridge University Press, Cambridge, UK.

INTRODUCTION Throughout human history, agriculturists have used an array of techniques (irrigation, cultivation, fertilizer, herbicides, pesticides, fences, etc.) to give domesticated species a competitive edge over wild plants and animals. Often the cheapest and most practical strategy came down to killing the competition – especially large vertebrates. Government agencies traditionally responded to agriculturalists' needs without concern for wildlife survival. In fact, the original mission of many wildlife management agencies was not to protect wildlife, but rather to kill all wild animals that threatened human safety or agricultural development (Graham 1973). Because of their slow reproductive rates and low density, large vertebrates proved relatively easy to eliminate, especially as people added poison, guns and bounty payments to their arsenal. Thus in the name of economic progress wolves were extirpated from most of the USA in a few decades (Young and Goldman 1944). Similarly, colonial officers 'liberated' vast tracts of fertile land in Africa from elephants, leopards and other threatening species (Naughton-Treves 1999). Elsewhere in the world, formal and informal lethal control programmes have driven the decline and even the extinction of several wildlife species (Breitenmoser 1998; Naughton-Treves 1999; Wilcove 1999); Woodroffe et al., Chapter 1).

Environmentalists today look back on these militaristic, morally charged campaigns in horror. Their calls to restore and protect wildlife are inspired by an increased appreciation of non-materialist values of wildlife. Now wildlife managers must respond to two seemingly contradictory mandates. Part of the public (mainly urbanites) demands wildlife be protected from people, and part of the public (mainly agriculturalists and livestock producers) demands people be protected from wildlife.

In this chapter, we consider the role of lethal control in fostering coexistence between people and wildlife. Despite the devastating history of many lethal control programmes, removal may have a legitimate role in wildlife conservation. First, well-managed lethal control has the potential to reduce threats to human lives and livelihoods without entailing serious extinction risks. Second, removing wildlife may placate local citizens and deter them from illicit killing of wildlife. Similarly, if the removal strategy channels benefits to local citizens (e.g. they obtain meat or hunting revenue) it may build local support for conservation efforts. Third, the elimination of some problem wildlife may select for conspecifics that avoid humans and their property, thereby exerting directional selection for a wilder population of that species (Jorgensen et al. 1978; Treves 2002). However, all of these conjectures must be rigorously evaluated lest lethal control do more harm than good. Indeed, lethal control programmes must be undertaken with care

given the technical challenges surrounding the number and type of animals killed, as well as political and moral issues concerning who is allowed to kill animals and how.

Here we evaluate different forms of lethal control and their effects on long-term coexistence of wildlife and people. If lethal control is to foster coexistence of people and wildlife, it must reduce the impact of wildlife on people or raise public tolerance for damage without a significant reduction in the viability of wildlife populations. Thus, we consider three criteria for evaluating lethal control:

- (1) Effectiveness in reducing future threats to human lives and livelihoods.
- (2) Impact on the viability of wildlife populations.
- (3) Public acceptance and stakeholder participation.

For simplicity we focus primarily on large mammals (>2 kg) but we extract general principles for the management of conflict with other taxa. We also consider translocation as a control method that is intended to be more humane but nonetheless leads to animals being lost from a population.