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2014

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Kurt C. VerCauteren

USDA-APHIS-Wildlife Services, kurt.c.vercauteren@aphis.usda.gov

Michael J. Lavelle

USDA/APHIS/WS National Wildlife Research Center, michael.j.lavelle@aphis.usda.gov

Jean-Marc Landry

Institute for the Promotion and Research on Guarding Animals, Martigny, Switzerland

Laurie Marker

Cheetah Conservation Fund, Otjiwarongo, Namibia

Thomas M. Gehring

Central Michigan University

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VerCauteren, Kurt C.; Lavelle, Michael J.; Landry, Jean-Marc; Marker, Laurie; and Gehring, Thomas M., "Use of Dogs in the Mediation of Conservation Conflicts" (2014). *USDA National Wildlife Research Center - Staff Publications*. 1788.

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Use of Dogs in the Mediation of Conservation Conflicts

Kurt VerCauteren and **Michael Lavelle**

USDA APHIS Wildlife Services, National Wildlife Research Center, Fort Collins, Colorado

Jean-Marc Landry

Institute for the Promotion and Research on Guarding Animals, Martigny, Switzerland

Laurie Marker

Cheetah Conservation Fund, Otjiwarongo, Namibia

Thomas M. Gehring

Central Michigan University, Mount Pleasant, Michigan

ABSTRACT: Conflicts between wildlife and humans are of global importance and are increasing. These conflicts may negatively impact wildlife, humans, and other resources, primarily livestock. Human safety and economic well-being can be adversely impacted by depredation of livestock and perpetuation of wildlife-borne diseases in agricultural systems. Conversely, management approaches to mitigate these conflicts may employ primarily lethal control methods that can negatively impact wildlife populations of conservation importance. Dogs, principally livestock protection breeds, have been used for centuries in some cultures to protect livestock from predators. Dogs have also been used for a variety of other conservation-specific practices. Here we provide an overview of a chapter we developed on this topic for a book entitled *Free-ranging Dogs and Wildlife Conservation*, just released by Oxford University Press (2013). We will review past and current use of dogs for mediating wildlife-human conflict and highlight future areas of research that are needed to more effectively use dogs for mediating conservation conflicts.

KEY WORDS: *Canis familiaris*, cattle, damage, guardian, livestock protection dog, predation, sheep, wildlife, wolf

Proc. 26th Vertebr. Pest Conf. (R. M. Timm and J. M. O'Brien, Eds.)
Published at Univ. of Calif., Davis. 2014. Pp. 411-412.

Domestic dogs (*Canis familiaris*) have been used throughout history and across the globe for alleviating conflict between humans and wildlife. Their traditional role involved protecting domestic goats and sheep from predators. More recently, humans explored the limits of the abilities of dogs in protecting non-traditional resources such as larger livestock, wildlife species (VerCauteren et al. 2008, VerCauteren 2013), and inanimate objects such as crops (Coppinger et al. 1987, Beringer et al. 1994). Subsequently, dogs have demonstrated an astonishing ability to adapt and excel in protecting a wide array of resources. Whether intentional or not, “man’s (people’s) best friend” has gained the reputation as an ever-vigil protector of its owner’s well-being and property.

Generally, when predation on livestock by predators exceeds a tolerable level, offenders are addressed through lethal or a combination of lethal and non-lethal means. When used alone, lethal means are not always consistent or long-lasting solutions (Gehring and Potter 2005). Although lethal means remain an important component of successful predator management (Shivik 2006), non-lethal methods are gaining attention, evaluation, and use (Shivik 2004). Livestock protection dogs (LPDs) can provide an effective and long-term non-lethal approach to mitigating predation (Gehring et al. 2010).

Breeds of dogs vary considerably in behavior and physical characteristics. These variations were developed over many generations to select for traits that enabled the dogs to meet the needs of a particular job. Current approaches are not so much directed at developing a breed to fit a role, but more to select the current breed existing that is best suited to fit a role. For example, the increasing prevalence of predation by large predators [i.e.,

grizzly bears (*Ursus arctos*) and wolves (*C. lupus*)] in the northern Rocky Mountains of the United States has created the need for more aggressive and physically capable LPD breeds beyond those traditionally employed in this region to fend off coyotes (*C. latrans*) and foxes (*Vulpes vulpes*) (Gehring et al. 2010, Urbigkit and Urbigkit 2010, VerCauteren et al. 2013). Dogs of these breeds are currently being imported and deployed to meet the needs of increasing demands (Urbigkit and Urbigkit 2010).

Capitalizing on particular protective traits, the utility of LPDs is further enhanced as pups are raised with the animals they are destined to protect, thus resulting in the formation of a bond to those animals. Breeders and researchers have explored the bounds of this phenomenon by rearing and evaluating pups with various livestock species (VerCauteren et al. 2012). For example, with the goal of minimizing disease transmission from potentially disease-infected deer to cattle, LPDs were reared and kept with cattle, and positive results showed dogs minimized direct and indirect interactions between deer and cattle (VerCauteren et al. 2008). Although LPD breeds excel in providing protection to animals they are bonded to, they are unlikely a good fit for short-term deployments directed at protecting inanimate objects such as a stand of saplings. However, several studies demonstrated dogs of mixed breeds proved well suited for protecting vegetable crops (VerCauteren et al. 2005), orchards (Curtis and Rieckenberg 2005), and timber (Beringer et al. 1994).

Employing dogs in diverse applications is demonstrating their adaptability and utility in efforts to directly and indirectly conserve sensitive wildlife species through alleviating damage. In Africa, the use of LPDs in protecting goats from predation by cheetahs (*Acinonyx*

jubatus) has provided an alternative to lethal means for addressing the problem while concurrently enabling cheetahs, livestock, and herders to coexist on the landscape (Marker et al. 2005). Researchers have found herding dog breeds such as border collies effective in hazing nuisance wildlife species such as waterfowl from parks and elk (*Cervus canadensis*) from urban areas (Castelli and Sleggs 2000, Kloppers et al. 2005, Walter et al. 2010). Aggressive hunting breeds such as the Karelian bear dog are being successfully incorporated into routine wildlife management to alleviate conflicts between bears and humans, thus minimizing the need for lethal strategies (Beckmann et al. 2004).

Although dogs demonstrate unparalleled potential in addressing a variety of wildlife damage issues, their use does have its challenges. For example, overlap among livestock grazing areas and recreational interests have been a source of contention, especially when communication and education amongst users is lacking. Fortunately, private and governmental entities are working to educate people on both sides of the issue to alleviate this situation. Behavioral issues such as overt aggression, wandering, and inattention to livestock can put a dog, livestock, and humans at risk and should be remedied as soon as realized. Retraining and repurposing dogs is a positive alternative to culling dogs not functioning as expected. Though there have been thousands of years of selective breeding LPDs to meet the needs of protecting livestock, each LPD is an individual, varied and versatile, and their users and trainers must remain versatile as well as innovative. Understanding the behavior of LPDs as well as that of adversaries they are guarding against requires continued research and adaptation. Continued growth in the use of LPDs will require further training of LPD users and education of the public at large.

For a more detailed discussion of this subject and similar dog-related topics, please refer to Gompper (2013) and VerCauteren et al. (2013).

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