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Commentary

Wildlife management professionals need to redefine the terms: lethal control, nonlethal control, and live trap

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Abstract: I argue that the terms lethal control, nonlethal control, and live trap are no longer sufficiently precise for continued use in the scientific community. Their continued use confuses the public and allows animal protectionists to use them as cudgels in political discourse. Alternative terms are recommended to resolve the semantic and subsequent political issues surrounding the traditional terms.

Key words: definitions, cage trap, human–wildlife conflicts, less-lethal control, lethal control, live trap, nonlethal control

Lethal-nonlethal: a false dichotomy

PRACTITIONERS IN THE FIELD of wildlife damage management commonly classify control methods into 2 categories, namely lethal and nonlethal methods (USDA/APHIS/Wildlife Services 2004). Lethal methods are considered to be those techniques that cause or are closely associated with the death of animals. Shooting, toxicants, and fumigants are examples of lethal control methods. In contrast, nonlethal control methods encompass techniques that do not directly lead to animal death, such as repellents and physical exclusion barriers (Littin and Mellor 2005). Because trapping does not necessarily result in animal death (e.g., animals may be translocated), wildlife management professionals have attached the adjective "live" to "trapping" to distinguish lethal forms of trapping from nonlethal forms (Wegner 2010).

While these terms have functioned well over the years in categorizing the effect of different control methods on wildlife, I believe that these terms lack the definitional precision appropriate for science-based wildlife management and need further refinement (Barnett 2001, Nature 2008). Specifically, the continued use of the nonlethal classification begs the question of whether said techniques classified as nonlethal are actually nonlethal.

I am not alone in my recognition of this problem. Barnes (1999), though blurring the distinction between exclusion as prevention and eviction wrote: "Although exclusion or 'building out' wildlife is viewed as a nonlethal way to solve a problem, this is not always true. When an animal's shelter is removed, the animal is forced to find alternative cover. The animal might have to go a tremendous distance to find suitable habitat not already occupied by other members of the species. In search for a new home, an animal can die from starvation, predation, a collision with a vehicle, or a fight with members of its own kind if it invades their territory." My interest lies not in debating the merits of nonlethal versus lethal control of wildlife. I simply wish to suggest that wildlife managers, as scientists, should be mindful of the accuracy and precision of the terms they use.

Consider bat exclusion, perhaps the most successful use of a nonlethal control technique to manage nuisance bats. Brittingham and Williams (2000) cite various studies showing that exclusion of bat colonies, though resulting in fewer deaths than outright extermination, still have some mortality and negative impacts on bat reproduction. Perhaps more pointedly, wildlife officials have learned that captured white-tailed deer (*Odocoileus virginianus*) may be so stressed by human handling that they die in the days following their release (Beringer et al. 2002). This is a phenomenon that we now call capture myopathy.

Until research demonstrates the extent to which nonlethal techniques are truly nonlethal,

I recommend that wildlife managers adopt the term "less lethal" to refer to techniques where legitimate questions remain regarding the lethality of those techniques. Law enforcement officers have already confronted a similar problem. The label of less-lethal has been applied to the Taser™ after some individuals died after being shot with the device (White and Ready 2007, DeLone and Thompson 2009, Hall 2009). Even the manufacturer calls the technology "safer" than other force alternatives (Taser International Inc. 2010). I believe the same kind of tentative statement should be used to classify and describe exclusion and other types of presumably nonlethal control techniques until research shows that they are truly nonlethal.

Practically speaking, wildlife managers should define how long an animal must live after being exposed to a particular technique before that technique can be considered nonlethal or less lethal, similar to a censor period for individuals marked for scientific study (e.g., Pollock et al. 1989). I suggest the following standard: a given technique may be considered nonlethal provided that at least 90% of the animals experiencing that technique survive for a minimum of 30 days. Techniques that result in rates of death >10% and <100% within 30 days should be designated as less lethal. I admit that these values were chosen somewhat arbitrarily, but they may serve as a starting point to discuss standards (DelGuidice et al. 2005).

Live trap: a vague and misleading term

Live trap is another commonly used term in the lexicon of wildlife managers that is in desperate need of greater semantic precision. The Merriam-Webster (2011) online dictionary defines a live trap as one used for catching an animal alive and uninjured. In contrast, wildlife managers predominantly use the term live trap to refer to devices that physically enclose animals in a structure rather than restrain an animal by a part of the body (Müller-Schwarze and Haggart 2005). Live traps in this definition have walls constructed of mesh, sheet metal, or plastic materials (Wildlife Control Supplies, LLC 2010). The scientific community also predominantly uses the term live-trap to distinguish cage and box devices from footholds. The problem with using the designation live-trap to refer to cage and box traps is that it reinforces the popular myth that traps that do not capture an animal by envelopment must be kill traps (Muth 2006). The public's ignorance of this fact is understandable. Given the way animal protectionists have vilified other traps during their lobbying efforts (Vantassel 2009) and the way cartoons have portrayed them, it is no surprise that the public considers any trap that does not look like a box or cage to be a kill trap and perhaps an inhumane one.

Ideally, I would like to eliminate the designation of live trap from our vocabulary. Unfortunately, this is unlikely to occur. Therefore, I suggest that the term live-trap be applied to any device that, as a function of its design, captures and holds an animal alive. The designation of live-trap would apply to footholds, cable-restraints (i.e., nonlethal snares; Vantassel et al. 2010), as well as box and cage traps. I would also support using Schemnitz's (2005) classification of restraining traps and killing traps.

In like manner, researchers wishing to mention traps that restrain without holding any part of their body should use the terms box traps and cage traps, as these are more descriptive and accurate designations. Box traps are those that use solid walls to restrain animals without grasping any part of their body. Sherman (H.B. Traps, Tallahassee, Fla.) and Dura Poly Plastic Trap (Tomahawk Live Trap Co., Tomahawk, Wis.) would be examples of box traps. Cage traps, by contrast, would perform the same as box traps but would have walls made of mesh, typically woven or welded wire. This suggestion is not unusual in that Schemitz (2005) also employs similar designations.

Conclusion

Wildlife managers should adopt these recommendations for 2 interrelated reasons. First, these changes more accurately reflect the facts. Science needs to be accurate, precise, and consistent in its terms to avoid confusion. Second, such adjustments in terms help address the misleading arguments and statements frequently made by animal protectionists. In print, protest, and political lobbying, animal protectionists frequently assert that lethal control is overused and at times unnecessary (Hadidian et al. 2002, Hadidian et al. 2007, Vantassel 2008). Animal protectionists also suggest that the continued use of lethal control

methods not only exemplifies cruelty, but also has negative impacts on the larger biotic environment. Sometimes these ethical values are implicitly rather than explicitly proffered by the animal protectionists (Kanstoroom 2002). Frequently, animal protectionist authors fail to hide their preferences at all. There is no doubt, however, regarding the animal protectionist insinuation, that nonlethal control is somehow humane and that lethal control is cruel. In light of this political manipulation of terms, should anyone be surprised when animal protectionists are able to convince voters and officials to ban non-live traps (i.e., footholds) and other tools on the grounds of their inhumanness (Minnis 1998, District of Columbia 2010)? If wildlife managers fail to counter these actions of animal protectionists, then wildlife managers should not be surprised to lose even more tools.

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