

Will hunters steward wolves? A Reply to Treves and Martin

Running head: Will hunters' steward wolves?

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Abstract

As wolf conservation transitions away from federally-sponsored protection and recovery toward sustainable management under state fish and game agencies, researchers and policy-makers are interested to know what role hunters will play. Based upon hunters' responses to three recent surveys in Wisconsin and the northern Rockies, Treves and Martin question the assumption that hunters will steward wolves, noting that the majority of hunters that responded were unsupportive of wolf conservation. However, this conclusion largely depends upon what is meant by stewardship and what actions are required for wolves to be conserved. This paper discusses the meaning of three concepts either explicitly or implicitly discussed by Treves and Martin—tolerance, acceptance, and stewardship—and offers a conceptual model of wildlife conservation behavior that clarifies the relationship among these concepts.

Keywords: acceptance, carnivores, conservation, hunters, intolerance stewardship, tolerance

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Introduction

As wildlife managers and policy-makers transition from the reintroduction and recovery of gray wolves (*Canis lupus*) toward sustainable management, hunters will undoubtedly play a role in wolves' continued conservation. However, the exact nature of that role is yet unclear. Will hunters act as stewards of wolves, or will they take actions designed to negatively impact the species? To address this question, Treves and Martin (*in press*) explored hunters' potential stewardship of wolves in Wisconsin and the northern Rocky Mountains by measuring attitudes toward a hypothetical wolf hunt and various wolf management policies.

Based on their analysis, Treves and Martin made two broad conclusions regarding wolf conservation: first, they suggested that non-hunters in Wisconsin and the northern Rockies will endorse wolf hunting—especially to remedy conflicts with wolves; and second, they concluded that the majority of hunters were “unsupportive of wolf conservation.” Thus, Treves and Martin cautioned managers against assuming that past support for other types of game conservation will translate to support for wolf conservation. While their analysis is sound, a few key assumptions concerning the theoretical concepts (i.e., stewardship, tolerance, intolerance) that underlie their second conclusion deserve highlighting and some further elaboration. We discuss how the conceptualization of these theoretical constructs can impact researchers' conclusions about wolf conservation as well as associated management recommendations, and offer a general framework for conceptualizing wildlife conservation behaviors.

Stewardship, intolerance, or something in between?

As implied by the title, Treves and Martin focus their analysis on the likely *stewardship* of hunters, noting that their data can provide managers with “insight into the acceptability of policy and the likelihood that individuals...will follow or thwart regulations.” However, they also argue that their analysis represents a “stringent test of the assumption of hunter *tolerance*...” (emphasis added). We suggest that stewardship and tolerance are distinct, albeit closely-related, concepts that are likely to be predicated on a different set of social, psychological and ecological conditions. Importantly, the management recommendations put forth by researchers could vary considerably depending on whether the conservation of a species requires active stewardship of that species, or merely tolerance, as explained below.

Although stewardship and tolerance appear often in conversations about large carnivore conservation, there has been little discussion as to how these terms are best conceptualized and measured, or how they relate to one another. In a study about anglers’ stewardship of fisheries resources Bruskotter and Fulton (2007; 2008), conceptualized stewardship using norm theory (e.g., Schwartz 1968; Stern et al. 1999; Vaske and Whittaker 2004). Norms refer to evaluative standards for how one should behave in a given situation. Stewardship can be said to be “normative” when individuals believe that a particular behavior is appropriate—that is, when they believe that they *should* engage in that behavior. Accordingly, Bruskotter and Fulton (2007, 2008) operationalized anglers’ stewardship by asking respondents about the appropriateness of a series of behaviors designed to positively impact fish populations and other aquatic resources. Following this conceptualization, the term “stewardship” denotes actions/behaviors specifically undertaken to care for, benefit or improve a valued resource. In the context of wildlife conservation, stewardship can be viewed as direct actions (i.e., behaviors) undertaken to positively impact a wildlife population, species, or the habitat on which they depend.

The concept of “tolerance” for a species is distinct from, albeit related to, stewardship, and can be generally equated with Wildlife Stakeholder Acceptance Capacities (or WSACs), an oft-studied concept in the wildlife management literature (e.g., Lischka et al. 2008; Riley and Decker 2000a; 2000b). WSACs, conceptualized as reflecting the “maximum wildlife population level in an area that is acceptable,” are modeled after the concept of biological carrying capacity, which suggests that environmental factors such as the availability and quality of food, water and cover limit wildlife populations within a given area (Decker and Purdy 1988, p. 53). Decker and Purdy (1988) proposed WSAC as an analogous concept for explaining how human tolerance could ultimately limit the frequency and distribution of species within a given area (see Carpenter, Decker, and Lipscomb 2000; Gigliotti et al. 2000; Riley and Decker 2000a). From an individual perspective, when a population of animals is perceived to have exceeded some critical threshold, it becomes *unacceptable* and the individual is motivated to take some form of action to reduce the population. Tolerance and acceptance share two important traits: (1) for both, passive restraint or inaction on the part of affected individuals or societies is the default or “normal” state, and (2) both concepts posit (either explicitly or implicitly) that there is some point at which individuals’ or societies’ inaction ceases, and actions designed to negatively impact species/populations are undertaken (i.e., intolerance, or unacceptability). Thus, researchers who study tolerance for and acceptance of wildlife are fundamentally interested in the same question: *at what point do individuals or societies take up action designed to negatively impact wildlife populations?*

Gigliotti et al. (2000, p. 77) asserted that WSACs suffered from a lack of a “robust theoretical framework and standard terminology,” which caused confusion among researchers and managers alike. Indeed, clear and consistent conceptualization and operationalization of the

constructs being assessed is critical in an interdisciplinary field such as ours, where researchers bring divergent methodological practices and theoretical traditions to bear on a wide variety of issues. We contend that, *tolerance* and *stewardship* suffer from the same conceptual ambiguity, which is an impediment both to research (Cronbach and Meehl 1955) and effective communication with managers, stakeholders and other scientists. A parsimonious solution is to treat these concepts as representing opposing poles on a continuum of behaviors undertaken to positively impact (stewardship) or negatively impact (intolerance) a given species (Figure 1). In contrast with stewardship, tolerance/acceptance is a distinctly passive concept—again, tolerating the presence of a species or population of that species requires no involvement nor action on the part of individuals. Conversely, intolerance, like stewardship, implies action. Like stewardship, intolerance can take different forms, such as purposeful killing of individual animals, writing one’s congressmen, donating to an interest group that opposes a species/population, or even attending a political rally in opposition to a species/population.

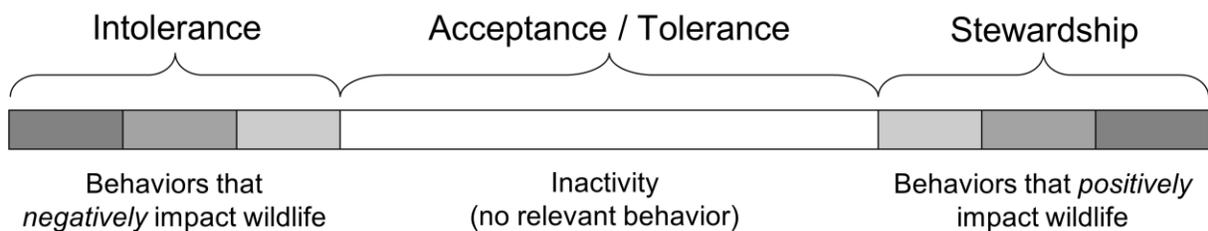


Figure 1. A conceptual model of wildlife conservation behavior.

This last point deserves some further elaboration. We believe it is critical for researchers to recognize that there are a variety of behaviors in which one can engage that potentially affect wildlife populations and thus, are indicative of stewardship or intolerance. For example, a researcher may have a specific interest in the illegal killing of wolves; if s/he found individuals

who engaged in illegal killing, this finding certainly would entitle the researcher to claim that these individuals were intolerant of wolves. However, illegal killing is but one expression of intolerance. The vast majority of people will not have the opportunity, access, or ability to kill a wolf directly; however, anyone can write their Congressperson or sign a petition in support of, or opposition to wolf recovery. Thus, if the only behavior assessed is illegal killing it would be inappropriate for the researcher to conclude that those individuals who did *not* report killing wolves illegally were tolerant—put another way, failure to illegally kill a species is a necessary but insufficient condition of tolerance.

Despite our insistence that stewardship and intolerance are best conceptualized as a continuum of behaviors, it is not our intent to argue that either of these concepts needs to be studied as behavior *per se*. One could also operationalize these concepts using individual's attitudes toward, or intention to engage in these behaviors as “attitudinal” measures of stewardship or intolerance. In fact, others have argued that WSACs or the acceptability of wildlife policies can be studied using normative frameworks (e.g., Zinn and Manfredi 2000; Zinn et al. 1998) and numerous studies have conceptualized support for or opposition to policies as attitudes (e.g., Reiter et al. 1999). Using other theoretical frameworks may be advantageous for any number of reasons, not the least of which is that behaviors, especially those that are illegal, are notoriously hard to assess. Thus, our framework is not intended to replace existing concepts (or their measures), but rather, is provided in an attempt to clarify the relationships between these concepts.

This conceptual framework offers a number of advantages. First, it clearly delineates stewardship and intolerance while simultaneously uniting these divergent lines of research. Second, conceptualizing stewardship and intolerance as a class of behaviors allows for the ready

application of a number of theories and models from social, cognitive and behavioral psychology that have been employed in the prediction of behavior (e.g., Value-Attitude-Behavior theory, Value-Belief-Norm theory, or the theory of Planned Behavior, etc.). Third, this conceptualization clarifies the measurement of these concepts—in addition to the measurement of actual (i.e., observed) behaviors, researchers could also employ measures of previous behavior or one's intention to engage in future behaviors, both of which have been exhaustively discussed in the existing literature linking attitudes to behaviors (see Fishbein and Ajzen 2010; Ajzen 1991; Eagly and Chaiken 1993). Finally, this conceptual model is intuitive and easily explained to managers and other interested stakeholders, and therefore has practical appeal.

Conceptual clarity, management recommendations, and future research

Treves and Martin conclude by asserting that their data do "...not support the assumption of hunter stewardship of wolves" and "...the majority of hunters [were] unsupportive of wolf conservation." Their conclusion highlights how the lack of conceptual clarity regarding tolerance/acceptance can lead to confusion regarding the management implications of such research. Specifically, if the conservation of wolves requires hunters' *active* stewardship, then Treves and Martin's data support the notion that the majority of hunters will be poor partners in the conservation of wolves in Wisconsin and the northern Rocky Mountains. However, wolves' fecundity is legendary, allowing some populations to sustain annual overwinter mortality rates of 35% and annual human kill near 28% (Fuller 1989). In fact, wolf populations in the northern Rockies have continued to grow despite an average annual mortality of 25% (Smith et al. 2010). Wolves' high reproductive capacity suggests that management agencies do not necessarily need hunters to act as stewards of wolves (i.e., take actions that promote wolf conservation); but rather, agencies need hunters to tolerate wolves (i.e., not take actions in direct conflict with wolf

conservation). That is, hunters' support of policies or engagement in behaviors that are generally viewed as "good" stewardship may not be necessary to conserve wolf populations—the conservation of wolves may simply require hunters' passive tolerance or acceptance of wolves.

A final point about hunters is relevant to both researchers and management. To the extent that hunters' tolerance of wolves in the northern Rockies and Wisconsin is based upon their interest in maintaining harvestable surpluses of big game and their belief that wolves are negatively impacting these species, hunters' tolerance of wolves may be increased by actually *reducing* the wolf population. Or put another way, "overprotecting" wolves—i.e., allowing wolf populations to increase to levels where hunters believe wolves are negatively impacting big game species, could actually increase *intolerance* (e.g., illegal killing of wolves). On the other hand, some research (Bright and Manfredi 1996; Wilson 1997) suggests that attitudes toward wolves and wolf restoration are symbolic in nature and originate in more deeply-held values that are unlikely to be responsive to new information (Meadow et al. 2005; Wilson and Bruskotter 2009) or changes in big game populations. For such individuals, opposition to wolves may reflect more fundamental issues such as access to social power, private property rights and a "utilitarian image of the landscape" (Wilson 1997, p. 464). If attitudes toward wolves (and subsequent behaviors) are primarily a function of such symbolic opposition, then reducing wolf populations to protect hunters' interests is unlikely to have much of an effect on their behavior. Currently, no studies have sought to determine whether opposition to wolves is interest-based or symbolic among the populations in question (i.e., hunters in the northern Rockies and western Great Lakes). However, given that hunters may be the only group that has adequate access, opportunity, and numbers to actually negatively impact wolf populations in these states,

understanding whether they are likely to take such actions given rising wolf populations is an important next step in this line of research.

The U.S. Fish and Wildlife Service delisted wolves under the assumption that state management would build tolerance for the species (Bruskotter et al. 2010). This is one of but many untested assumptions regarding how to go about mitigating the threat posed by human beings—the only legitimate threat to wolves in the lower 48 (Bruskotter et al. 2010; Smith et al. 2010). Although the model of conserving and controlling large carnivore populations through regulated hunting has been largely successful with black bears (*Ursus americanus*) and mountain lions (*Puma concolor*) it remains to be seen if politicians and special interest groups will give wildlife managers the decision space required to both hunt wolves *and* conserve wolf populations in the lower 48 states.

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