



Commentary

Additional Considerations for Gray Wolf Management After Their Removal From Endangered Species Act Protections

JONATHAN G. WAY,¹ *Eastern Coyote Research, 89 Ebenezer Road, Osterville, MA 02655, USA*

JEREMY T. BRUSKOTTER, *School of Environment and Natural Resources, The Ohio State University, Columbus, OH 43210, USA*

ABSTRACT Mech (2010) provided a review of options involving regulated, public hunting of gray wolves (*Canis lupus*) when states regain control of wolf management. We agree with his general conclusion that the use of lethal management should focus more in areas of conflict and less in wilderness areas, especially near protected places like national parks. Here, we expand on Mech's work and provide additional considerations that could be incorporated into state management plans to make them more acceptable to an increasingly diverse group of interested stakeholders, including: 1) the use of human dimensions research to understand the conditions under which stakeholders find lethal management acceptable, and to evaluate the acceptability of agency efforts to increase tolerance for wolves; 2) employing preventative measures to protect livestock and pets, especially in cases where wolf packs are highly visible to the public; and 3) selective use of sport hunting in areas where wolf impacts are deemed unacceptable. © 2011 The Wildlife Society.

KEY WORDS *Canis lupus*, ethics, harvest, human–wolf conflict, hunting, non-lethal management, wildlife watching, wolf.

Mech (2010) provided recommendations for state wildlife management agencies preparing for a public harvest of gray wolves (*Canis lupus*) after their removal from federal protections under the Endangered Species Act (ESA). These recommendations, aimed at improving the acceptability of wolf harvest, include delaying the start of hunting seasons until after pups are nearly full-size and closing seasons before gravid females whelp. We generally agree with Mech's recommendations for making wolf harvest more acceptable to the public, but stress that maximizing public acceptability of wolf harvest and, more generally, wolf management will require other efforts to both increase tolerance for wolves and decrease the controversy associated with their management. Herein, we offer additional suggestions aimed at helping managers to maximize the acceptability of wolf management without alienating non-traditional (i.e., non-consumptive) stakeholders.

MINIMIZING THE CONTROVERSY ASSOCIATED WITH WOLF MANAGEMENT

We agree with Mech (2010) that hunting wolves is divisive and much of the public will judge the success of wolf harvest and management by its perceived ability to decrease conflicts with livestock producers. However, despite Mech's (2010) focus on "minimizing public animosity," the paper makes no

mention of the considerable literature on public tolerance for wolves and the acceptability of various wolf management practices. This literature provides insights that are relevant to managers making decisions about how to structure wolf management to maximize tolerance for wolves, while minimizing the controversy associated with wolf management (hereafter we use the phrase "lethal management" generally to include any lethal form of wolf management and reserve the term "harvest" for regulated public hunting or trapping of wolves).

Although research indicates that the acceptability of lethal management of carnivores increases with the severity of carnivore impacts (Arthur 1981, Zinn et al. 2000, Decker et al. 2006, Whittaker et al. 2006, Don Carlos et al. 2009), generally, people find non-lethal methods (especially changes in animal husbandry practices) to be more acceptable (Arthur 1981, Bruskotter et al. 2009) and humane (Arthur 1981, Reiter et al. 1999) than lethal forms of management. In fact, lethal management, at least without adequate justification, can actually promote social conflict with substantial consequences for wildlife managers, including litigation, legislation, tourist boycotts, and ballot initiatives (see Nie 2004a, b). Such controversies may be avoided, at least in part, by understanding how relevant stakeholder groups view various management actions (Bruskotter et al. 2009), and the conditions under which these actions are deemed to be acceptable (Zinn et al. 2000, Decker et al. 2006, Whittaker et al. 2006).

Bruskotter et al. (2009) found that non-lethal measures (i.e., harassment, livestock guarding dogs, relocation) of dealing with livestock depredation were acceptable to a broad

Received: 1 March 2011; Accepted: 25 July 2011;
Published: 7 November 2011

¹E-mail: jw9802@yahoo.com

array of stakeholders in Utah, whereas lethal measures (including hunting) were socially divisive; that is, they were generally acceptable to people who indicated that agricultural or sportsmen's groups represented their interests, but unacceptable to people who indicated environmental or wildlife preservation groups represented their interests. Bruskotter et al. (2009) emphasized the importance of encouraging the use of non-lethal measures proactively to avoid more controversial forms of management. This research shows how information about stakeholders' preferences can be used to understand what management actions are likely to be controversial and select management actions likely to reduce the controversy associated with management (see also Riley and Decker 2000).

Research in the human dimensions field also emphasizes the importance of context (e.g., the location of management action, the severity of the impact) for understanding whether management actions are acceptable (e.g., Decker et al. 2006, Don Carlos et al. 2009). For example, Decker et al. (2006) showed that support for lethally controlling wolves among Alaskans ranged from 30% to 64% based upon the extent of the severity of impact of wolves on caribou and moose populations. Similar studies that assess the acceptability of lethal management across a variety of species show the same pattern; the acceptability of lethal management increases with the severity of the impact (e.g., Loker et al. 1999, Zinn et al. 2000, Whittaker et al. 2006, Don Carlos et al. 2009).

The type of impact can also be an important factor affecting support for lethal management. For example, Bruskotter and Schmidt (The Ohio State University, unpublished data) found that although 75% of Utah residents supported lethal management of wolves that prey upon livestock, only 41% supported the use of lethal management when wolves negatively affected big game populations.

Taken together, these studies suggest that in general, most people will support lethal management of wolves so long as it is undertaken to address what they perceive to be legitimate impacts (Treves and Bruskotter 2011), and management actions are scaled relative to those impacts. This type of adaptive management is what Decker et al. (2006) refer to as "situation-specific [and] impact dependent" (see also Riley et al. 2003). Implementing such management will require state agencies to reach beyond familiar ecological concepts and collect social data on humans to determine where and under what conditions wolves are most and least likely to be tolerated (Bruskotter et al. 2010, Treves and Bruskotter 2011, Treves and Martin 2011). If a goal of wolf harvest is to increase public tolerance of wolves, then it is critical that agencies not only quantify the effectiveness of harvest for reducing the major sources of conflict (i.e., predation on wild ungulates, domestic livestock, and pets), but also evaluate its effectiveness for increasing tolerance for wolves among various types of stakeholders (Treves 2009, Treves and Martin 2011). Likewise, if a goal of wolf management is to reduce the level of controversy associated with the species, then managers will need human dimensions data to determine which actions hold the most promise in this regard.

WOLF ECOLOGY AND BEHAVIOR: CAN WOLF HARVEST REDUCE CONFLICTS WITH LIVESTOCK AND APPEASE NON-CONSUMPTIVE USERS?

The ecology and behavior of wolves also point to some potential problems with using public hunting as a solution to livestock depredation problems (Mech 2010). Because wolves are territorial (Mech and Boitani 2003), areas subject to random removal of wolves (i.e., through opportunistic sport hunting, as opposed to targeted removal of known predators) could open up territories for new individuals or packs and potentially exacerbate conflicts by fragmenting packs that could kill more prey per wolf (Bangs and Shivik 2001, Treves and Naughton-Treves 2005, Treves 2009, MacNulty et al. 2010).

Random removal could replace individuals or packs not depredating livestock with those that will—evidence for this is found in the recurrence of depredations after wolf removal (Bradley 2004, Harper et al. 2005, Musiani et al. 2005, Treves and Naughton-Treves 2005, Treves et al. 2011). Indeed, Musiani et al. (2005) found that even targeted removal of depredating wolves did not decrease depredations at the regional scale; rather, they found strong seasonality in wolf attacks which tended to reoccur even after wolves were removed. Still, they acknowledged that targeted removals could be useful for arresting the losses of individual livestock producers and, perhaps, increasing tolerance for wolves among these individuals. They concluded that improved animal husbandry provided "the greatest promise for reducing wolf depredation" (Musiani et al. 2005:885).

Furthermore, research on dingoes (*Canis lupus dingo*; Wallach et al. 2009) and eastern coyotes/coywolves (*Canis latrans x lycaon*; Way et al. 2009) has shown that the effect of lethal management on abundance was neither consistent nor predictable—meaning that killing canids did not necessarily reduce abundance in a given area. Research indicates that wolf populations are capable of sustaining heavy annual human-caused mortality (>30%) with little impact to populations (Mech and Boitani 2003; although see Creel and Rotella 2010). These data suggest that for wolf harvest to be an effective tool for reducing livestock depredations or impacts on wild ungulate populations, harvest will need to be heavy. Yet, heavy harvest (i.e., purposely reducing populations; see Creel and Rotella 2010) or other forms of population reduction are likely to be viewed with extreme skepticism by the non-hunting public (Nie 2002, Treves and Naughton-Treves 2005, Treves 2009). Moreover, the management of wildlife entails a broad range of practices and policies, and many of the most socially-divisive (e.g., aerial shooting, foot-hold traps, hunting over bait) tend to be used with canids (see Reiter et al. 1999, Bruskotter et al. 2009, Mech 2010). Thus, although Treves and Naughton-Treves (2005:105) noted that regulated wolf harvest had the potential to increase tolerance for carnivores among some stakeholders, managers risked "alienate[ing] urban constituents who place higher value on non-consumptive use of wildlife." Similarly, Nie (2002:68) cautioned that the hunting and

trapping of wolves is “perhaps the most divisive and potentially explosive issue in the entire wolf debate.” Skepticism among non-hunters is likely to be further exacerbated by the perception that agency decisions are driven by hunters, who typically dominate state wildlife boards and commissions, and are often viewed as paying clients by wildlife management agencies (see Decker et al. 1996; Gill 1996; Jacobson et al. 2010; Nie 2004*a, b*).

Research indicates that canids are highly intelligent, social, and family-oriented animals that cooperatively raise young together, yet can be remarkably individualistic in nature (e.g., Haber 1996; Way 2007; Way and Timm 2008; Smith et al. 2010; R. McIntyre, Yellowstone Wolf Project, personal communication). Highly visible individuals or packs (such as those in and adjacent to national parks) in some cases have attained celebrity status among local populations and national park visitors (e.g., wolf 302 in Smith et al. 2010). Removal of such wolves via either harvest or lethal control actions could generate substantial controversy and create animosity towards wolf hunters and state management agencies.

State agencies could reduce the controversy generated by the lethal management of these individuals or packs and potentially increase trust among non-hunting stakeholders by providing additional protections (e.g., restricted or limited harvest) for highly visible packs and by designating suitable areas for wolf watching, especially given the increasing importance of wildlife watching in general (Organ and Fritzell 2000, U.S. Department of the Interior et al. 2008) and wolf watching (Duffield et al. 2008). In part, this could be accomplished by cooperating with federal land management agencies (e.g., U.S. Forest Service, Bureau of Land Management) during their planning processes to designate separate areas for wolf viewing. The U.S. Forest Service, in particular, has long used a form of zoning in its planning to separate incompatible recreational uses such as cross-country skiing and snowmobiling (Clark and Stankey 1979).

The controversial nature of wolf management detailed in this section may be mitigated by the proactive use of non-lethal measures, especially improvements in animal husbandry practices (see Bangs and Shivik 2001, Shivik et al. 2003, Treves and Naughton-Treves 2005). Non-lethal measures tend to be acceptable to all stakeholders, at least when species impacts are not severe (Reiter et al. 1999, Bruskotter et al. 2009). Because such measures can decrease the number of conflicts (see Shivik et al. 2003; Gehring et al. 2006, 2010; Shivik 2006), they may help create tolerance for wolves among livestock producers, while simultaneously removing the need for more controversial forms of lethal management. However, we recognize that selecting the most effective non-lethal technique requires managers to examine a host of variables (Bangs and Shivik 2001, Treves and Naughton-Treves 2005), and agencies may be deterred by the cost, time, and complexity associated with these methods—especially in tough economic times. Similarly, targeted lethal control, although effective for removing specific individual depredators and potentially pacifying affected livestock producers, can also be costly (Mech 2010); thus, hunting and trapping wolves will always be a tempting alternative.

DISCUSSION

Although Mech’s (2010) article focused on using sport-hunting as the main management tool to control wolf populations, we find reason to doubt that recreational hunting would effectively reduce livestock depredation unless control actions (and sport hunting opportunities) are focused in problem areas. Furthermore, we note that heavy harvest of wolf populations is not only likely to be controversial, but could potentially exacerbate conflicts with livestock. In our view, an effective and publicly acceptable management scenario for wolves would first proactively employ non-lethal methods of wolf management and encourage improved animal husbandry in an attempt to avoid conflicts with pets and livestock in the first place. In these areas, managers would encourage non-depredating packs to live in multi-generational, socially-stable groups (Haber 1996, Wallach et al. 2009, MacNulty et al. 2010) that teach their offspring to avoid humans and livestock. In areas where conflicts occur despite attempts at non-lethal coexistence, or where wolves are found to be negatively affecting other wildlife populations, sport-hunting could be used selectively (rather than as the *de facto* management tool) to reduce wolf populations, consistent with Mech’s (2010) recommendations. This could be accomplished by matching potential wolf hunters with affected producers.

Wildlife management agencies should also consider increasing protections for highly visible individuals or packs (e.g., those adjacent to national parks). This could potentially be accomplished by collaborating with federal land management agencies to separate incompatible uses via existing forms of recreational zoning, and could help establish trust with non-traditional stakeholders. Finally, management agencies should use human dimensions research both to better understand when lethal management is justified and to evaluate their efforts to increase tolerance for wolves and decrease the controversies associated with wolf management.

Controversies surrounding wolf management are likely to arise for different reasons, reflecting varied and often competing interests of stakeholders (Wilson 1997, Bruskotter et al. 2009). Accordingly, wolf management will be undertaken to meet a variety of management goals that reflect these competing interests (e.g., reduce livestock depredation, reduce impact to wild ungulate populations, conserve a viable population, etc.). It is important to recognize that, under some conditions, the goals of various stakeholders may be mutually exclusive. The key to selecting which management methods will be most appropriate in a given situation is understanding both the ecological and social conditions that foster conflicts, and scaling management efforts relative to the problem (Decker et al. 2006, Bruskotter et al. 2010).

MANAGEMENT IMPLICATIONS

Although some have suggested that wolves can and will be managed “like any other species” under the North American model of wildlife conservation (i.e., hunter-based management; Hammill 2010), we agree with Mech (2010) that fair-chase sport hunting will not provide a complete solution to

wolf management. Rather, we believe that broader approaches that include non-lethal controls (Reiter et al. 1999, Bangs and Shivik 2001, Shivik et al. 2003, Shivik 2006, Gehring et al. 2010) and the admission of ecological (Beschta 2005, Ripple and Beschta 2007, Stolzenburg 2008, Wuerthner 2009) and societal benefits (Duffield et al. 2008, Smith et al. 2010) associated with wolves have the best merit for successful wolf management.

ACKNOWLEDGMENTS

We thank R. Maughan for encouraging discussion of wolf management (as well as many other topics) via his blog, *The Wildlife News* (wolves.wordpress.com). Additionally, A. Treves, K. McKelvey, and 2 anonymous reviewers provided helpful comments on earlier drafts of this manuscript.

LITERATURE CITED

- Arthur, L. M. 1981. Coyote control: the public response. *Journal of Range Management* 34:14–15.
- Bangs, E. E., and J. Shivik. 2001. Managing wolf conflict with livestock in the Northwestern United States. *Carnivore Damage Prevention News* 3:2–5.
- Beschta, R. L. 2005. Reduced cottonwood recruitment following extirpation of wolves in Yellowstone's northern range. *Ecology* 86:391–403.
- Bradley, E. H. 2004. An evaluation of wolf-livestock conflicts and management in the northwestern United States. Thesis, University of Montana, Missoula, USA.
- Bruskotter, J. T., J. J. Vaske, and R. H. Schmidt. 2009. Social and cognitive correlates of Utah residents' acceptance of the lethal control of wolves. *Human Dimensions of Wildlife* 14:119–132.
- Bruskotter, J. T., E. Toman, S. A. Enzler, and R. H. Schmidt. 2010. Are gray wolves endangered in the northern Rocky Mountains? A role for social science in Endangered Species Listing determinations. *BioScience* 60:941–948.
- Clark, R. N., and G. H. Stankey. 1979. The recreation opportunity spectrum: a framework for planning, management and research. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station Gen. Tech. Rep. PNW-GTR-098, Portland, Oregon, USA.
- Creel, S., and J. J. Rotella. 2010. Meta-analysis of relationships between human off-take, total mortality and population dynamics of gray wolves (*Canis lupus*). *PLoS ONE* 5(9):1–7 (e12918).
- Decker, D. J., C. C. Krueger, R. A. Baer, and B. A. Knuth. 1996. From clients to stakeholders: a philosophical shift for fish and wildlife management. *Human Dimensions of Wildlife* 1:70–82.
- Decker, D. J., C. A. Jacobson, and T. L. Brown. 2006. Situation-specific "impact dependency" as a determinant of management acceptability: insights from wolf and grizzly bear management in Alaska. *Wildlife Society Bulletin* 34:426–432.
- Don Carlos, A., A. D. Bright, T. L. Teel, and J. J. Vaske. 2009. Human-black bear conflict in urban areas: an integrated approach to management response. *Human Dimensions of Wildlife* 14:174–184.
- Duffield, J. W., C. J. Neher, and D. A. Patterson. 2008. Wolf recovery in Yellowstone: park visitor attitudes, expenditures, and economic impacts. *Yellowstone Science* 16(1):20–25.
- Gehring, T. M., J. E. Hawley, S. J. Davidson, S. T. Rossler, A. C. Cellar, R. N. Schultz, A. P. Wydeven, and K. C. VerCauteren. 2006. Are viable non-lethal Management tools available for reducing wolf-human conflict? Preliminary results from field experiments. Pages 2–6 in R. M. Timm and J. M. O'Brien, editors. Proceedings of the 22nd vertebrate pest conference. University of California, Davis, USA.
- Gehring, T. M., K. C. VerCauteren, and J.-M. Landry. 2010. Livestock protection dogs in the 21st century: is an ancient tool relevant to modern conservation challenges? *BioScience* 60(4):299–308.
- Gill, R. B. 1996. The wildlife professional subculture: the case of the crazy aunt. *Human Dimensions of Wildlife* 1:60–69.
- Haber, G. C. 1996. Biological, conservation, and ethical implications of exploiting and controlling wolves. *Conservation Biology* 10(4):1068–1081.
- Harper, E. K., W. J. Paul, and L. D. Mech. 2005. Causes of wolf depredation increase Minnesota from 1979 to 1998. *Wildlife Society Bulletin* 33:888–896.
- Hammill, J. 2010. Another viewpoint: why hunting-trapping is best plan to manage gray wolf populations. *International Wolf* 20(4):11–13.
- Jacobson, C. A., J. F. Organ, D. J. Decker, G. R. Batcheller, and L. Carpenter. 2010. A conservation institution for the 21st century: implications for state wildlife agencies. *Journal of Wildlife Management* 74(2):203–209.
- Loker, C. A., D. J. Decker, and S. J. Schwager. 1999. Social acceptability of wildlife management actions in suburban areas: 3 cases from New York. *Wildlife Society Bulletin* 27:152–159.
- MacNulty, D. R., D. W. Smith, J. A. Vucetich, L. D. Mech, D. R. Stahler, and C. Packer. 2010. Predatory senescence in ageing wolves. *Ecology Letters* 12:1347–1356.
- Mech, L. D., and L. Boitani, editors. 2003. Wolves: behavior, ecology, and conservation. University of Chicago Press, Chicago, Illinois, USA.
- Mech, L. D. 2010. Considerations for developing wolf harvest regulations in the contiguous United States. *Journal of Wildlife Management* 74:1421–1424.
- Musiani, M., T. Muhly, C. C. Gates, C. Callaghan, M. E. Smith, and E. Tosoni. 2005. Seasonality and reoccurrence of depredation and wolf control in western North America. *Wildlife Society Bulletin* 33:876–887.
- Nie, M. A. 2002. Wolf recovery and management as value-based political conflict. *Ethics, Place & Environment* 5:65–71.
- Nie, M. A. 2004a. State wildlife governance and carnivore conservation. Pages 197–218 in N. Fascione, A. Delach, and M. E. Smith, editors. *People and predators: from conflict to coexistence*. Island Press, Washington, D.C., USA.
- Nie, M. 2004b. State wildlife policy and management: the scope and bias of political conflict. *Public Administration Review* 64:221–233.
- Organ, J. F., and E. K. Fritzell. 2000. Trends in consumptive recreation and the wildlife profession. *Wildlife Society Bulletin* 28:780–787.
- Reiter, D., M. Brunson, and R. H. Schmidt. 1999. Public attitudes toward wildlife damage management and policy. *Wildlife Society Bulletin* 27:746–758.
- Riley, S. J., and D. J. Decker. 2000. Risk perception as a factor in wildlife stakeholder acceptance capacity for cougars in Montana. *Human Dimensions of Wildlife* 5:50–62.
- Riley, S. J., W. F. Siemer, D. J. Decker, L. H. Carpenter, J. F. Organ, and L. T. Berchielli. 2003. Adaptive Impact Management: an Integrative Approach to Wildlife Management. *Human Dimensions of Wildlife* 8:81–95.
- Ripple, W. J., and R. L. Beschta. 2007. Restoring Yellowstone's aspen with wolves. *Biological Conservation* 138:514–519.
- Shivik, J., A. Treves, and P. Callahan. 2003. Nonlethal techniques for managing predation: primary and secondary repellents. *Conservation Biology* 17:1531–1537.
- Shivik, J. 2006. Tools for the edge: what's new for conserving carnivores. *BioScience* 56:253–259.
- Smith, D. W., D. R. Stahler, E. Albers, R. McIntyre, M. Metz, K. Cassidy, J. Irving, R. Raymond, H. Zaranek, C. Anton, and N. Bowersock. 2010. Yellowstone Wolf Project: Annual Report, 2009. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, USA.
- Stolzenburg, W. 2008. Where the wild things were: life, death, and ecological wreckage in a land of vanishing predators. Bloomsbury USA, New York, New York, USA.
- Treves, A. 2009. Hunting for large carnivore conservation. *Journal of Applied Ecology* 46:1350–1356.
- Treves, A., and J. T. Bruskotter. 2011. Gray wolf conservation at a crossroads. *BioScience* 61:584–585.
- Treves, A., and K. Martin. 2011. Hunters as stewards of wolves in Wisconsin and the Northern Rocky Mountains, USA. *Society and Natural Resources* 24:984–994.
- Treves, A., K. A. Martin, A. P. Wydeven, and J. E. Wiedenhoft. 2011. Forecasting environmental hazards and the application of risk maps to predator attacks on livestock. *BioScience* 61:451–458.

- Treves, A., and L. Naughton-Treves. 2005. Evaluating lethal control in the management of human-wildlife conflict. Pages 86–106 in R. Woodroffe, S. Thirgood, and A. Rabinowitz, editors. *People and wildlife: conflict or coexistence?* Cambridge University Press, London, United Kingdom.
- U.S. Department of the Interior, Fish and Wildlife Service. U.S. Department of Commerce. U.S. Census Bureau. U.S. 2008. 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. <<http://www.census.gov/prod/www/abs/fishing.html>>. Accessed 8 Dec 2010.
- Wallach, A. D., E. G. Ritchie, J. Read, and A. J. O'Neill. 2009. More than mere numbers: the impact of lethal control on the social stability of a top-order predator. *PLoS ONE* 4(9): e6861:1–8.
- Way, J. G. 2007. Social and play behavior in a wild eastern coyote (*Canis latrans* var.) pack. *Canadian Field-Naturalist* 121(4):397–401.
- Way, J. G., and B. C. Timm. 2008. Nomadic behavior of an old and formerly territorial eastern coyote, *Canis latrans*. *Canadian Field-Naturalist* 122(4): 316–322.
- Way, J. G., B. C. Timm, and E. G. Strauss. 2009. Coywolf (*Canis latrans* x *Lycan*) pack density doubles following the death of a resident territorial male. *Canadian Field Naturalist* 123(3):199–205.
- Wilson, M. A. 1997. The Wolf in Yellowstone: science, symbol, or politics? Deconstructing the conflict between environmentalism and wise use. *Society & Natural Resources* 10:453–468.
- Whittaker, D., J. J. Vaske, and M. J. Manfredo. 2006. Specificity and the cognitive hierarchy: value orientations and the acceptability of urban wildlife management actions. *Society & Natural Resources* 19:515–530.
- Wuerthner, G. 2009. Are hunters stupid? The unintended consequences of wolf hunting. <http://www.newwest.net/topic/article/are_hunters_stupid_the_unintended_consequences_of_wolf_hunting/C41/L41/>. Accessed 11 Dec 2010.
- Zinn, H. C., M. J. Manfredo, and J. J. Vaske. 2000. Social psychological bases for stakeholder acceptance capacity. *Human Dimensions of Wildlife* 5:20–33.

Associate Editor: Kevin McKelvey.