

## **Looking to the Past for the Future: Using Wolves to Restore Ecosystems (Response To Belant, Mech, and Trimble)**

Authors: Peterson, Rolf O., Millspaugh, Joshua J., Licht, Daniel S., and Kunkel, Kyran E.

Source: BioScience, 60(7) : 486-487

Published By: American Institute of Biological Sciences

URL: <https://doi.org/10.1525/bio.2010.60.7.21>

---

BioOne Complete ([complete.BioOne.org](https://complete.BioOne.org)) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](https://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

but our research demonstrates that trespass is common (Mech 1994).

The prospects for public tolerance of such costly and intensive management seems dim anytime soon.

L. DAVID MECH  
WARREN BALLARD  
ED BANGS  
BOB REAM

*L. David Mech is senior research scientist in the Biological Resources Division of the US Geological Survey, Warren Ballard is Horn Professor and Bricker Chair in Wildlife Management at Texas Tech University, Ed Bangs is wolf recovery coordinator at the US Fish and Wildlife Service, and Bob Ream is chair of the Montana Commission on Fish, Wildlife, and Parks.*

#### References cited

- Mech LD. 1994. Buffer zones of territories of gray wolves as regions of intraspecific strife. *Journal of Mammalogy* 75: 199–202.
- Shivik JA, Asher V, Bradley L, Kunkel K, Phillips M, Breck SW, Bangs EE. 2002. Electronic aversive conditioning for managing wolf depredation. *Proceedings of the Vertebrate Pest Conference* 20: 227–231.

doi:10.1525/bio.2010.60.7.19

#### Fences are More than an Issue of Aesthetics

Licht and colleagues (*BioScience* 60: 147–153) identify South Africa's pioneering efforts to reintroduce top predators to small, fenced protected areas as a conservation model America might be wise to follow. However, South African success at large predator reintroduction is largely the result of ubiquitous fencing that generally prevents predator conflict with people and livestock (see Gusset et al. 2008).

The consequences of applying a similar paradigm in America are not only aesthetic, as implied by Licht, but could also compromise the long-term success of biodiversity conservation. A recent review of fencing for conservation concluded that fencing is an acknowledgment that we are failing to coexist with and successfully conserve biodiversity, and that

the costs—economic and ecological—generally far exceed the benefits (Hayward and Kerley 2009). Ecological costs include fence-line mortalities, influences on natural behavior, impingement on natural mechanisms of population control, restriction of animal movements in response to environmental changes (e.g., fires, climate change, drought), limitation of migration and genetic flow, and impediment to recolonization and source–sink population dynamics.

Licht and colleagues stated that there are relatively few concerns in South Africa about the fence around Kruger National Park. This is incorrect—there are serious ecological concerns including extinction debt and species persistence of many iconic herbivores, even though the park covers nearly 20,000 square kilometers (Nicholls et al. 1996, Ogutu and Owen-Smith 2003). Fences around smaller protected areas can be even more problematic.

MORGAN J. TRIMBLE  
RUDI J. VAN AARDE

*Morgan J. Trimble (mjtrimble@zoology.up.ac.za) is a research fellow with the Conservation Ecology Research Unit, and Rudi J. van Aarde (rjvaarde@zoology.up.ac.za) is a professor of zoology, chair of conservation ecology, and director of the Conservation Ecology Research Unit, both with the Department of Zoology and Entomology at the University of Pretoria, South Africa.*

#### References cited

- Gusset M, et al. 2008. Efforts going to the dogs? Evaluating attempts to re-introduce endangered wild dogs in South Africa. *Journal of Applied Ecology* 45: 100–108.
- Hayward MW, Kerley GIH. 2009. Fencing for conservation: Restriction of evolutionary potential or a riposte to threatening processes? *Biological Conservation* 142: 1–13.
- Nicholls AO, Viljoen PC, Knight MH, van Jaarsveld AS. 1996. Evaluating population persistence of censused and unmanaged herbivore populations from the Kruger National Park, South Africa. *Biological Conservation* 76: 57–67.
- Ogutu JO, Owen-Smith N. 2003. ENSO, rainfall and temperature influences on extreme population declines among African savanna ungulates. *Ecology Letters* 6: 412–419.

doi:10.1525/bio.2010.60.7.20

#### Looking to the Past for the Future: Using Wolves to Restore Ecosystems (Response To Belant, Mech, and Trimble)

Several authors have highlighted their issues with our suggestion that small groups of wolves could facilitate ecosystem restoration in select areas (Licht et al. 2010). They expressed concerns, based on their experiences, about the complexities and uncertainties surrounding the proposal—concerns that we acknowledge. However, their focus on issues that have been addressed with large carnivore reintroduction elsewhere, in addition to their failure to consider the potential value of non-traditional restoration opportunities, unintentionally reinforces our broader contention that new thinking about the role of wolves in ecosystem conservation is needed.

Trimble and van Aarde and Belant and Adams note that fencing for conservation creates a host of problems. We concur that there are logistical, ecological, and aesthetic challenges, and that such an approach should be considered only after other options have been dismissed. However, the model is successfully and routinely used in other countries to restore large predators, species richness, and ecosystem processes. Decades of experience in places such as South Africa have exposed some issues, but they have also demonstrated substantial economic and ecologic benefits. Furthermore, many of the potential negative aspects of fencing that Trimble and van Aarde listed would also apply to island situations; although wolves at Isle Royale do not become entangled in boundary fences, they do regularly drown or fall through thin ice in Lake Superior. Yet after 60 years, wolf establishment at Isle Royale stands unchallenged as a conservation success story.

Based on previous experience with wolf conservation, Mech and colleagues raise many similar concerns about the feasibility of ideas presented in our research, citing excessive cost, high likelihood of escape, and increased conflict in surrounding areas. These constraints are largely

rooted in human attitudes and values. We argue that, in undertaking future conservation actions, it should be recognized that different perspectives are possible. Failure of imagination might cause us to forfeit opportunities for ecosystem restoration, limited though they may be.

Envisioning the future of conservation using current thinking is fraught with difficulty. We offer two historical examples of seasoned biologists attempting to predict future wolf conservation possibilities.

1. In speculating about what would happen if bounty payments for dead wolves were discontinued, state game biologist A. M. Stebler wrote in 1940 to his supervisor, Michigan Game Division Director H. D. Ruhl: "Zoning the state into areas which are agricultural or otherwise has been suggested, with control practiced in the agricultural areas. But who is going to do the zoning, and according to what standards? Even if such a plan

were practicable, the control problems would still remain along the zone borders, even if nowhere else. Then, too, how much control would be justifiable, who would make the decisions, and who would pay the shot?" (Game Division files, letter dated 25 October 1940).

2. A decade or more before wolf recovery really took off in Michigan in the early 1990s, state wildlife regional director Ralph Bailey (who also chaired the first recovery team appointed for wolves in any part of the United States) made frequent public reference (recalled by Rolf Peterson) to his prediction that there was sufficient "room" for about three packs of wolves in the Upper Peninsula of Michigan. In 2009 there were more than 100 packs of wolves distributed across 25,000 square kilometers of Michigan.

What seems impractical today may be quite possible in the future. Rather than discounting the potential role of small populations of wolves in

ecosystem restoration, we should look to the future while learning from the past. Overcoming the logistical constraints identified by others is increasingly possible. However, dismissing the appropriateness or feasibility of any conservation action based on assumed limitations of human attitudes is to create a tragic self-fulfilling prophesy.

ROLF O. PETERSON  
JOSHUA J. MILLSPAUGH  
DANIEL S. LICHT  
KYRAN E. KUNKEL

*Rolf O. Peterson is with the School of Forest Resources and Environmental Science at Michigan Technological University in Houghton. Joshua J. Millsbaugh is with the School of Natural Resources, Department of Fisheries and Wildlife Sciences, at the University of Missouri in Columbia. Daniel S. Licht (dan\_licht@nps.gov) is with the National Park Service in Rapid City, South Dakota. Kyran E. Kunkel is with the World Wildlife Fund in Gallatin Gateway, Montana.*

doi:10.1525/bio.2010.60.7.21