

WellBeing International
WBI Studies Repository

2006

The Ethics of Wildlife Control in Humanized Landscapes

John Hadidian
The Humane Society of the United States

Camilla H. Fox
Animal Protection Institute

William S. Lynn
Tufts University

Follow this and additional works at: https://www.wellbeingintludiesrepository.org/acwp_ehlm



Part of the [Animal Studies Commons](#), [Nature and Society Relations Commons](#), and the [Population Biology Commons](#)

Recommended Citation

Hadidian, John; Fox, Camilla H.; and Lynn, William S., "The Ethics of Wildlife Control in Humanized Landscapes" (2006). *Ecology Collection*. 13.

https://www.wellbeingintludiesrepository.org/acwp_ehlm/13

This material is brought to you for free and open access by WellBeing International. It has been accepted for inclusion by an authorized administrator of the WBI Studies Repository. For more information, please contact wbsr-info@wellbeingintl.org.



The Ethics of Wildlife Control in Humanized Landscapes

John Hadidian

The Humane Society of the United States, Washington, D.C.

Camilla H. Fox

Animal Protection Institute, Sacramento, California

William S. Lynn

Center for Animal and Public Policy, Tufts University, North Grafton, Massachusetts

ABSTRACT: The 21st century is witness to an unprecedented and rapid growth of human settlements, from urban centers to wilderness vacation resorts. Concurrent with this has been the growing tolerance and acceptance of many wild animals and humans for one another. This has created an expanding 'zone' of human-animal contacts, some number of which invariably result in conflicts. While the vast majority of our interactions with wild animals are undoubtedly benign, it is the conflict between wildlife and people that draws particularly close attention from the public. Animals viewed as vertebrate "pests" range from the small to the large, the timid to the fierce, and the benign to the dangerous. With respect to all is the issue that bridges both environmental and social concerns— what is the 'right' thing to do about resolving conflicts? Wildlife agencies in North America continue to stress traditional approaches to managing wildlife problems by focusing on regulated hunting, trapping, and poisoning. Yet contemporary human-wildlife conflicts have scientific, political, and moral dimensions that are not well addressed by those traditions. Controversy and polarization arise from differing ethics of how we ought to live with non-human animals. Wildlife protection interests argue that many common and current wildlife control practices, such as the drowning of "nuisance" animals, are ethically ungrounded. A practical ethic guiding our response to human-animal conflicts is, they argue, therefore needed. This ethics should inform "pest" control policy and management, as well as articulate a vision of our place in a mixed community of people and animals. This paper explores this need.

KEY WORDS: animals, animal welfare, ethics, practical ethics, wildlife control, wildlife management

Proc. 22nd Vertebr. Pest Conf. (R. M. Timm and J. M. O'Brien, Eds.)
Published at Univ. of Calif., Davis. 2006. Pp. 500-504.

INTRODUCTION

Although damage caused by wildlife to human interests has engaged our attention from time immemorial, it is only recently that a formal discipline of wildlife damage management has emerged (Conover 2002). In the United States, attention turned to both the scientific and practical aspects of wildlife control not long after the Civil War. This came first in the form of academic pursuits aimed at determining the feeding habits of different wildlife species and how they helped or harmed agricultural interests. Soon an emerging federal bureaucracy, the U.S. Bureau of Biological Survey, took to the field with large-scale predator and rodent control programs that were anything but academic (Robinson 2005). For a long time, both federal and private sector efforts focused on the simple expedient of killing as many predators and other animals thought injurious to crops and livestock as possible. Wide-scale trapping and poisoning programs took both target and non-target species in numbers sufficient to allow the assumption that the "control" was making a difference to the interests of producers. The indiscriminate killing, however, resulted in challenge and criticism from both professional as well as lay sources (Shaw and Schmidly 1994, Olsen 1971). With the environmental revolution of the 1960s and 70s and the rise of awareness on animal welfare and protection issues (e.g. Singer 1975, Midgley 1984), the ethical underpinnings of these programs, and by association all wildlife damage practices, were brought sharply into public debate. Schmidt (1989a,b) and

Schmidt and Salmon (1991) raised the question of animal welfare, damage control, and ethics and called for a dialogue on the issues. That dialogue has been engaged in Europe and Australasia (Harris 1985, Feare 1994, Kirkwood *et al.* 1994, Fisher and Marks 1996, Eggleston *et al.* 2003); in North America it essentially has not.

This paper seeks to achieve two aims. The first is to challenge the quietude that exists around the idea of discussing ethics in wildlife management, particularly in North America. The second is to help set a broader dialogue on the ethics that ought to guide the research, policy, and implementation of wildlife control. The context for this discussion is the urbanizing and globalizing world, where human domination of environments threatens everything from individual animals to the ecosystems that sustain entire communities of living things. Our objective is not to claim any moral high ground or to aver that one or another of the many forms of ethics should be practiced and followed in pursuit of any truth. It is simply to open discussion and play the next hand in the game, intending if nothing else to rekindle a flame that seems almost extinguished.

HUMANIZED LANDSCAPES

Although there is a strong argument to be made that none of the earth's ecosystems remain unaffected by humans some, such as the agricultural and urban, are clearly dominated by our actions (Vitousek *et al.* 1997). Societies have turned virtually all the world's arable land (and more) over to human use and now absorb a hugely

disproportionate share of the world's biological productivity (Goudie 1994). In addition, our world is increasingly urbanizing (and globalizing), so much so that agricultural pursuits serve principally the demands made by cities and can be best viewed as part of their ecological "footprint" (Rees and Wackernagel 1996). Hence, we speak of 'humanized' landscapes.

The term "urban wildlife" has been called an oxymoron (Platt 1994), but there is no longer much doubt that wild animals have adapted to and become a significant presence in urban environments (Hadidian and Smith 2001). In terms of preserving elements of biodiversity, this should be a good thing, except where human values and wildlife activities clash. Then, damage control is expected and often practiced by means that are "traditional," frequently lethal, and often at the center of debates about the right and wrong treatment of animals.

Within 'humanized' environments, wildlife comes to have policy, science, and management implications that present novel challenges. Beaver build dams in the floodplains from which they were long ago trapped out and are then blamed for causing floods. Deer eat the farmer's crops, as they have always, but are now so abundant that the damage they cause cannot be controlled by simply killing the offenders. They also settle into the fragmented landscapes of suburbia that creates the edge habitat so favorable to their kind, and from there range into back yards to damage ornamental plantings, raising new and unexpected concerns that are debated in terms of knotty ethical issues (Lynn 2005). Questions concerning ethics are raised whether invited (and recognized) or not.

ETHICS

Still, the controversies surrounding wildlife in humanized landscapes are complex enough that it might be reasonable to ask: why make it worse by throwing ethics into the mix? It may be helpful, then, to start out with a simple definition of what it means to think and act ethically.

By ethics we are simply exploring 'how we ought to live' (Socrates in Plato's *Republic*, Book 1:352d). In its most straightforward sense, ethics is a conversation about the moral values that inform (or should inform) our thoughts and actions. It is important to note from the outset that ethics should not be confused with religion, spirituality, custom, or personal commitments. Enriched as it may be by these sources, it is not reducible to them. Rather, ethics is a cross-cultural and cross-disciplinary dialogue that uses reason and evidence to promote the health and well-being not only of people, but of animals and the rest of nature. As importantly, ethics is not only a critique of who we are as individuals and a society today, it is a vision of what our future may be if we act with ethical sensibilities in mind. Finally, ethics is not about rules or absolute truths. Both the human and natural worlds are too complex for such simplistic thinking. Instead, ethics is meant to help us refine our knowledge and action, to distinguish better from worse arguments, methods, data and facts (Lynn 2006). Overall, it is best to avoid arguments about what moral theory is 'right', and instead look to what various moral theories are right about (Weston 2006).

When it comes to ethics and wildlife, there are several issues we ignore at our peril. The first is the issue of values gridlock. The stickiest problems in human-animal relations have little or nothing to do with scientific data and models, much less management techniques. Instead, they are deeply rooted ethical conflicts over coexisting with non-human others. Thus how and why we choose to manage ourselves and other animals is the real essence of wildlife control. To resolve this issue, we must face our conflicting values directly. When we fail to do so, resolutions are delayed, differing interests become entrenched, and we reach a point of political, policy and management impasse. This is values gridlock.

The second issue is transparency. Transparency should name a real concern for openness and access to the relevant information and decision-making processes necessary to the efficient and ethical operations of government, corporations, and civil society. At one level, this is simply about professionals being honest about their practices, disclosing conflicts of interest, and respecting the voice of non-professionals in democratic deliberations. At another level, it means examining the assumptions and points of view that are taken for granted by most professions, such as their approach to urban wildlife policy and management. Transparency is facilitated when individuals and groups are not simply critical of others, but are self-reflective about their own ideas and practices. Thus, transparency in wildlife management and control should not be a post hoc exercise in applying ethics to wildlife issues. Rather, the ideas we have about how we value and relate to wildlife are themselves informed by our individual and collective moral norms. In this sense, ethical issues are not only down-stream, out-of-the-pipe issues. They are also up-stream, into-the-drain issues.

Finally, there is the issue of intrinsic value. The idea here is that all animals have an intrinsic value in themselves, irrespective of their use to other animals (human or otherwise). The opposite term is extrinsic value (sometimes instrumental value), where someone or thing is held to be of value only for their instrumental purposes, that is, what he, she or it can be used for. For example, a person sitting at a bar has intrinsic value (inherent worth), while the ale in front of her has extrinsic value (instrumental worth). The purpose of the distinction between intrinsic and extrinsic value is to call our ethical attention to the fact that human and non-human animals should have moral standing and significance. We cannot make decisions about wildlife control without acknowledging the moral value of so-called "pests." Indeed, even the word "pest" bespeaks a moral flippancy towards wildlife that should be questioned.

With the above ethical issues in mind, consider the following case studies. Each was chosen to exemplify the moral issues described above— gridlock, transparency, and intrinsic value— but each represents as well not only these but other issues of conflicting moral values that come into play in our relationships with non-human animals.

THE COYOTE IN THE COUNTRYSIDE

In 1996, in the bucolic northern California county of

Marin, value gridlock over the use of the poison Compound 1080 to kill coyotes led to a rancorous debate about management of native carnivores in a community known for its environmental consciousness and strong support of agriculture (Fox 2001). On one side were animal advocates and conservation groups who questioned the ethics of using taxpayer dollars to employ a federal (USDA Wildlife Services) trapper to kill native wildlife with predator poisons, denning, and body-gripping traps. On the other side were sheep ranchers who argued that federal assistance with predator management was necessary and that loss of such assistance would put them over the edge in a market that was already being undermined with cheap imports from overseas.

After a series of roundtable discussions organized by the Marin County Agricultural Commissioner that included ranchers, animal advocates, conservationists, and local public officials, the Marin County Board of Supervisors attempted to reach a compromise with the WS. The Supervisors said they would renew the contract with the federal agency but stipulated that neck snares and other lethal methods could only be used a last resort after non-lethal methods had been tried and proven unsuccessful (Fox 2001). When WS stated they were unwilling to set such a precedent, the Marin County Board of Supervisors decided it was in the county's best interest to cease contracting with the agency. The decision, however, did not prevent ranchers from killing predators on their own land to protect their livestock.

In place of the traditional WS program, the Supervisors approved of a program put forth by a coalition of animal and conservation organizations and later more fully developed by the Marin County Agricultural Commissioner's office with input from the ranching community. The plan, called the "Strategic Plan for Protection of Livestock and Wildlife," redirected the county's \$30,000 annual cost for WS to assist qualified ranchers in implementing non-lethal techniques including livestock guard dogs, llamas, improved fencing, and lambing sheds, and shepherding. At the request of local ranchers, a county cost-share indemnification program was added to the plan to compensate qualified ranchers for verified livestock losses resulting from predation.

To date, more than 80% of all Marin sheep ranchers participate in the program and initial data indicates livestock losses have declined since implementation of the program (Brenner 2005, Carlsen 2005, Agocs 2007). Importantly, the program provides a model that has successfully addressed and embraced ethical concerns as well as differing values expressed by both the animal protection and ranching communities (Fox 2001, Fox and Papouchis 2005).

THE GOOSE IN THE PARK

Twenty years ago the sight of a Canada goose (*Branta canadensis* spp.) in a municipal park in much of North America would have been a notable curiosity. Today, these geese are so common in many urban areas as to be labeled "sky carp" (Ankney 1996). The most recent proposal for management of the continental Canada goose population from the U.S. Fish and Wildlife Service

calls for the population of these birds that resides in the lower 48 states after March— the so-called "resident" geese— to be reduced by somewhere between 400,000 and 800,000 birds per year for the next 10 years. This will, it is calculated, drop the number from a little more than 3 million to around 2 million. To animal protection interests, what is lacking in these plans, as well as in the actions already undertaken by some state and federal agencies, is transparency.

The Canada goose "problem" is in large part almost certainly due to the widespread propagation and dissemination of geese begun in the late 1960s and 1970s by wildlife managers after the "rediscovery" of the nearly extinct subspecies or race that represents the "giant" (*B. c. maxima*) form (Cooper 1987). In this respect, the controversy and sometimes polemic over geese comes about largely as a self-inflicted wound. It does not help that the majority of identified problems with geese seem solely to have to do with aesthetics. Nor, that the most expedient and economical way to deal with the birds has been to hold goose "roundups" during the annual molt, when flightless geese are easily captured and either shipped to commercial poultry houses for slaughter or killed in the field and disposed of at landfills. From an icon of seasonal change, as they moved along migratory pathways, to a villainous despoiler of the manicured lawns of golf course, parks, and playing fields, Canada geese are targeted for such widespread destruction that it almost seems as if they deliberately planned to take humanity on in a challenge for supremacy on urban lands.

THE FOX IN THE YARD

Almost a week to the day after moving in to a fairly upscale suburban neighborhood outside of a major eastern city, a woman looks out her window late one morning to see a small reddish dog-like animal trotting across the lawn. The animal moves swiftly and with apparent determination to get somewhere quickly, but it stops when it comes to the edge of the wooded area that forms a mutual boundary with other houses in the subdivision. She looks back over her shoulder for a moment and trots on into the woods. The woman realizes after a moment that she has been watching a fox— an animal she has never seen before. She does not stop to think even briefly that this fox might 'belong' there, or that it has in any sense intrinsic value.

The woman, instead, is concerned— she remembers reading somewhere that foxes can get rabies and that when they are active by day this can be a sign of illness. She finds the number for the local nature center and calls them. They tell her that the fox is probably not ill, but that she should call her local animal control agency if she remains concerned. She does, and is told that daytime activity is one of the things they take special note of, but that they will not send someone out to her house unless the fox is in her yard and under close observation by her. She calls the state wildlife agency and is told they do not respond to urban wildlife calls, but that they can make referrals to businesses and individuals who do provide wildlife control services for a fee. She calls the first on the list she is given and is told that the animal she saw was probably not rabid, but that if she were truly

concerned about the safety of her children or pets, she could have the animal trapped.

She is quoted a price and, deciding to err on the side of caution, agrees to have the fox trapped. A man arrives later that day and looks around the yard, choosing sites on which to set traps, which he does, cautioning her to keep the cat and dog indoors for a couple of days until he has been able to catch the offending animal. Two days later she sees him cross the yard early in the morning carrying a black plastic bag in which something with weight is obviously held. He presents his bill a few minutes later with the terse announcement that her fox “problem” has been taken care of.

A STEP BACK

What then can we learn from the foregoing cases? Let us focus on the matters they raise with a series of didactic questions, aimed at raising awareness of the complex and multi-layered moral questions involved in each. Are the values of one set of stakeholders more important than another when gridlock freezes movement on an issue? Are economic interests important in setting value? Are the values held by experienced professionals more important than those held by a public at large?

What responsibility does a federal agency have to share information with the public? Knowing that activists might seek to disrupt round up and slaughter operations, should the date and time of such planned activities be released? Should information be released about where, when, and how many geese have been killed immediately after a roundup, a year after the fact, or two years, or never?

Does a fox that walks through a yard have a ‘right’ to do so, or does a human have a greater right to see it be killed for simply committing this offense? Do wildlife professionals have a responsibility to educate their clients and provide information on both lethal and non-lethal solutions? Do they have a responsibility to police their own ranks, and censure their peers when their practice is ethically unjustified? These are just a few of the many questions we might start asking ourselves about the ethics of wildlife control.

NEXT STEPS: THE NEED FOR PRACTICAL ETHICS

If we want to think about wildlife control from an ethical viewpoint, how then should we proceed? More to the point, how can we proceed while avoiding the dogmatism and an absolute set of moral rules? The answer is surprisingly easy. It is practical ethics.

Practical ethics is not a particular theory or method per se. It is instead part of a very old family of ethics, and developed in the religious, legal, and medical arenas. Practical ethics focuses on the full range of moral values that inform our lives, such as what is right, good, just, and caring. Practical ethics looks to these and other moral concepts, as well as the empirical reality of individual cases, for guidance in making ethical decisions. By honoring the insights of many moral ideas, practical ethics has a deep reservoir of concepts available to triangulate on the best understanding of a moral problem. Because it is rooted in concrete cases, the choice of

concepts can better fit a site or a situation, while simultaneously providing guidance for our thought and action. Altogether, this is why practical ethics is not simply a theory or method, but a situated moral understanding (Lynn 2006).

We suggest that the development of a practical ethics will help guide the wildlife profession and inform wildlife policy and management. While the details of this are obviously too large a topic for this paper alone, we can make a start by proposing the use of principles, maxims, and rules in ethical decision making about wildlife control. As we do so, we cannot expect practical ethics to provide a simple, absolute, or fool-proof set of answers to human-animal conflicts in the field. What we can expect, however, is for practical ethics to help us distinguish better from worse ways of thinking and acting, and in so doing, help the profession reflect upon and improve its politics, policies, and practices.

A principle is a moral concept used to clarify our thinking. Principles name the broadest category of ethical thinking in wildlife control, and provide guidance about how we ought to live. Questions about the intrinsic value of animals, or our vision of how humans and wildlife should coexist, are examples of thinking at the principle level. A maxim is a moral concept used to clarify our actions. Maxims provide more focused guidance about what actions we should take in every day life. Whether we should use lethal or non-lethal control measures on this or that family of foxes is an example of where a maxim would come in handy. A rule is a still more focused moral concept. It requires or prohibits certain actions, and is justified by one or more principles and maxims. Banning the use of Conibear traps because they indiscriminately kill non-target domestic and wild animals is an example of such a rule.

Finally, to be effective, a practical ethics for wildlife control will need to function as a template for inclusion into state and federal wildlife management planning. To undertake this analysis, federal, state, and local agencies may need to incorporate a position and/or department that specifically addresses ethical issues surrounding wildlife management. Academia will also need to adapt, with the ethics of wildlife management included as a core requirement in natural resource and environmental studies curricula.

CONCLUSIONS

There is a growing recognition of the need for a dialogue on ethics in wildlife management (Eggleston *et al.* 2003). As is the case for biodiversity managers (Minter and Collins 2005), however, no subfield specializing in this pursuit as yet exists. It should. Ethics should be incorporated into all curricula, major meetings and conferences on wildlife, and state and federal wildlife agencies should establish ethics components in agency operations and procedures. To ignore ethics and shifting public values toward wildlife risks not only alienating a large segment of the populace, but also more importantly of eroding the credibility and efficacy of wildlife management agencies. The recent use of the public ballot initiative process that restrict certain wildlife management practices, such as trapping and the use of poisons, is but

one example of the potential backlash when the public and certain segments of society feel their concerns and ethical values are not being heard or considered. We offer this paper as a renewed step in this dialogue and look forward to the ensuing discussions regarding the role and place of practical ethics within the fields of wildlife management and control.

LITERATURE CITED

- AGOCS, C. 2007. Conservation in action: making peace with coyote. Bay Nature, Berkeley, CA. Available from http://www.baynature.com/v07n01/v07n01_cia_coyote.html.
- ANKNEY, C. D. 1996. An embarrassment of riches: too many geese. *J. Wildl. Manage.* 60(2):217-223.
- BRENNER, K. 2005. Coyotes get a reprieve: west Marin ranchers cut damage from predators the humane way. P. A1 *in: Marin Independent Journal*, Nov. 13 issue, Novato, CA.
- CARLSEN, S. 2005. Marin County Livestock Protection Program. Presentation to the Board of Supervisors by Marin County Agricultural Commissioner's Office. PowerPoint Presentation, slides 8 & 16. Audio of meeting available online at: <http://www.co.marin.ca.us.gov>.
- CONOVER, M. 2002. Resolving Human-Wildlife Conflicts: The Science of Wildlife Damage Management. Lewis Publishers, New York, NY. 418 pp.
- COOPER, J. A. 1987. The effectiveness of translocation control of Minneapolis-St. Paul Canada goose populations. Pp. 169-172 *in: L.W. Adams and D. L. Leedy (Eds.), Integrating man and nature. Proceedings, National Symposium on Urban Wildlife, National Institute for Urban Wildlife, Columbia, MD.*
- EGGLESTON, J. E., S. S. RIXECKER, AND G. J. HICKLING. 2003. The role of ethics in the management of New Zealand's wild mammals. *NZ J. Zool.* 30:361-376.
- FISHER, P., AND C. A. MARKS (EDITORS). 1996. Humaneness and vertebrate pest control. Proceedings of a seminar, 26 March. Agriculture Victoria Report, Series No. 2, Frankston, Victoria, Australia.
- FEARE, C. J. 1994. Ethics in bird pest management. *J. für Ornithologie* 135:518.
- FOX, C. H. 2001. Taxpayers say no to killing predators. *Animal Issues* 32:1-2.
- FOX, C. H., AND C. M. PAPOUCHIS. 2005. Coyotes in Our Midst: Coexisting with an Adaptable and Resilient Carnivore. Animal Protection Institute, Sacramento, CA. 64 pp.
- GOUDIE, A. 1994. The Human Impact on the Natural Environment, 4th Ed. Blackwell, Oxford, UK. 432 pp.
- HADIDIAN, J., AND S. SMITH. 2001. Urban wildlife. Pp. 165-182 *in: D. J. Salem, and A. N. Rowan (Eds.), The State of the Animals 2001. Humane Society Press, Washington, DC.*
- HARRIS, S. 1985. Pest control in urban areas: humane control of foxes. Pp. 63-74 *in: D. Britt (Ed.), Proceedings, Symposium on Humane Control of Land Mammals and Birds, Universities Federation for Animal Welfare, Potters Bar, Hertfordshire, U.K.*
- KIRKWOOD, J. K., A. W. SAINSBURY, AND P. M. BENNETT. 1994. The welfare of free-living wild animals: methods of assessment. *Anim. Welf.* 3:257-273.
- LYNN, W. S. 2005. Finding common ground in a landscape of deer and people. *Chicago Wilderness Magazine* 8 (Winter iss.):12-15.
- LYNN, W. S. 2006. Between science and ethics: what science and the scientific method can and cannot contribute to conservation and sustainability. *In: D. M. Lavigne (Ed.), Gaining Ground: In Pursuit of Ecological Sustainability. International Fund for Animal Welfare, Guelph, Canada, and University of Limerick, Limerick, Ireland.*
- MIDGLEY, M. 1984. *Animals and Why They Matter.* University of Georgia Press, Athens, GA. 160 pp.
- MINTER, B. A., AND J. P. COLLINS. 2005. Ecological ethics: building a new tool kits for ecologists and biodiversity managers. *Conserv. Biol.* 19(6):1803-1812.
- OLSEN, J. 1971. *Slaughter The Animals, Poison the Earth.* Simon and Schuster, New York, NY. 287 pp.
- PLATT, R. H., R. A. ROWNTREE, AND P. C. MUICK. 1994. *The Ecological City.* University of Massachusetts Press, Amherst, MA. 291 pp.
- REES, W., AND M. WACKERNAGEL. 1996. *Our Ecological Footprint: Reducing Human Impact on the Earth.* New Society Publishers, Gabriola Island, BC, Canada and Stony Creek, CT. 160 pp.
- ROBINSON, M. J. 2005. *Predatory Bureaucracy: The Extermination of Wolves and Transformation of the West.* University Press of Colorado, Denver, CO. 494 pp.
- SCHMIDT, R. H. 1989a. Effects of animal welfare philosophy on wildlife damage control. Ninth Gt. Plains Wildl. Damage Control Workshop Proc., USDA Forest Service Gen. Tech. Rept. RM-171, pp. 24-26.
- SCHMIDT, R. H. 1989b. Animal welfare and animal management. *Trans. N. Am. Wildl. Nat. Res. Conf.* 54: 468-475.
- SCHMIDT, R. H., AND T. P. SALMON. 1991. Social, political, legal, and ethical aspects of wildlife damage management. Tenth Gt. Plains Wildl. Damage Control Workshop Proc., Gt. Plains Agric. Council Publ. 137, pp. 169-170.
- SHAW, J. H., AND D. J. SCHMIDLY. 1994. Conservation and management. Pp. 421-433 (Ch. 21) *in: E. C. Birney and J. R. Choate (Eds.), 75 Years of Mammalogy. Special Publ. No. 11, American Society of Mammalogists, Washington, DC.*
- SINGER, P. 1975. *Animal Liberation. A New York Review Book, New York, NY.* 320 pp.
- VITOUSEK, P. M., H. A. MOONEY, J. LUBCHENCO, AND J. M. MELILO. 1997. Human domination of earth's ecosystems. *Science* 277(5325):494-499.
- WESTON, A. 2006. *A Practical Companion to Ethics.* Oxford University Press, New York, NY. 112 pp.