Wolf Stories: Reflections on Science, Ethics, and Epistemology

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Wolf stories, including the systematic and government-sponsored killing of Yukon wolves, provide a context for the examination of assumptions about Western epistemology, and particularly science, in light of the "ethics-based epistemology" presented by Jim Cheney and Anthony Weston, with implications for research, responsibility, and animal welfare. Working from a premise of universal consideration, and minding the ethical basis of knowledge claims, enables richer conceptions of environmental ethics and creates new possibilities for animal welfare and managing *for* wildlife.

INTRODUCTION

Recently a group of canoeists sat on a hillside above the Snake River in the Yukon. Cheered by a sunny day and a leisurely pace, they paused to watch a pair of grizzly bears forage below them—a big blond sow and a yearling. Seldom can we experience the company of grizzly bears in their natural habitat. Sadly, ever fewer places exist where this is possible. However, for those six people traveling through wild places in Northern Canada, grizzly bears became more than an abstract idea about mythical creatures. These bears entered the minds and hearts of those travelers, became part of their life's experience, part of their being. Patiently watched from a safe distance, the bears were themselves in all of their rooting and foraging "bearness." The travelers learned a little about bears. Some of the understanding gained that day is not expressed easily. Some forms of knowledge are shared only among those who share common, or at least similar, experiences. Without a particular agenda, or a research imperative, they were free to know bears in new ways—ways that cultivated wonder, awe, respect, and empathy for such powerful creatures so vulnerable to the whims of humans. Knowledge comes in many forms.

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The following year another group of canoeists pulled into an eddy, then stepped out of their boats onto the rocky edge of a dry alluvial fan. Aqua-tinted water of the Yukon's Wind River drifted by. Inquiries about stopping—again, so soon—shifted to the white figures on an opposite bank. With attention, these figures gradually took the shapes of Dall sheep at a mineral lick.

Seeing sheep at a mineral lick isn't rare—not an everyday experience, but common enough if you know where to look. Journeying by canoe allows travelers to slip, for a time, into a corner of their ecosystem. But this day there was a black figure too. Head down, it popped out of foliage at the river's edge, ambling, searching, and occasionally breaking into a trot. Responding to some stimulus, it stopped. Alert, its ears grew strained, and focused; trotting turned to cantering. Then it was back to trotting, nose down and weaving through the willows. As it stopped again, a little closer, clues of gesture, carriage, and shape whispered "wolf." The black wolf's nose dropped toward the ground, then popped up again. Up and down several times, it seemed to be sizing up the visitors.

"Do you suppose she thinks we're prey?" Interesting question.

Does this attention make the travelers, or the next sheep, objects for the wolf—nourishment for the pack?

No. This time the visitors were subjects of curiosity, and purveyors of curiosity, watching yet, not staring, as they shared a few moments with the residents.

Here we are reminded that in the knowledge of the ways of a place, we do not simply come to know, but we are also *known*; we are the wolf's relations as much as she is ours. When we come to know something of a place, we will know it in a particular way and this knowledge will be shaped by how we carry ourselves.[1]

The opportunity to know bears and wolves—complete bears and wolves, bears and wolves in their natural habitat—is diminishing. Maps showing grizzly bear range in North America paint a disturbing picture. The historic distribution stretched from the arctic coast to Mexico and from the west coast to Winnipeg at the eastern edge of the Canadian prairies. By 1922, only isolated remnant populations remained in the traditional range south of the Canadian border. Most of them are gone now. Grizzly-bear range is shrinking fast. Wolves are making a small comeback in specific regions, but overall their range is shrinking too. So are the ranges of wolverines, mountain lions, and other large mammalian carnivores.[2]

On another continent is a picturesque city in the Czech Republic called Český Krumlov. The city is so magnificent that it has been declared a World Heritage

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[1] David Jardine, "Birding Lessons and the Teachings of Cicadas," *Canadian Journal of Environmental Education* 1 (1998): 92–99; pp. 95–96.

[2] Paul Paquet, and Arlin Hackman, *Large Carnivore Conservation in the Rocky Mountains: A Long-term Strategy for Maintaining Free-Ranging and Self-Sustaining Populations of Carnivores* (Toronto: World Wildlife Fund, 1995).

Site. Built on a bend in the river, this medieval village experienced a dramatic Renaissance make-over. With renewed prosperity since democratization in Eastern Europe, prominent features such as the old castle perched above town have been restored to reveal earlier splendors. The city is one of the most beautiful in Europe, a place from storybooks—it is enchanting.

For those who care about wildlife, the spell is quickly broken at the castle moat. Below the bridge, encased in stone and concrete, are caged brown bears—shadows of their wild relatives. Signs plead with visitors to donate money to purchase food for the bears. A pile of old white bread is scattered in one corner—this is disenchanting.[3]

Back in Canada and the United States, images of dead wolves, shot by government wildlife managers are also disenchanting—as are assertions by these same managers that surgical sterilization of wolves is somehow publicly acceptable, more so than killing them.[4] Just what public are they talking about? Somehow we have wiggled away from talking about the appropriateness of wolf control, to simply finding "socially acceptable methods"[5]—from a political and ethical discussion to a stripped down instrumental rationality.

Disenchantment about treatment of wildlife is a common public sentiment. Concern for endangered species is widespread and disdain for traditional wildlife management is growing. Shrinking distributions of mammals such as wolves and bears suggest that past management practices have failed. Views about management of wildlife are becoming increasingly divergent and contentious. Yet, the underlying concerns are often difficult to identify; wolf management is a function of a broad array of social features. Prey species habitat is degraded, population growth can cause increased hunting pressures (of wolves and prey species), and residential sprawl impinges on wolf territory. Yet, often symptomatic of these social issues are wolf management practices that cast the wolf as the competitor that needs to be controlled. Few issues reveal this divergence of public opinion more clearly than debates that surround "culling"—killing really—of wildlife, particularly large mammals. Sterilization is, for Paul Paquet, just "a slow way of killing wolves."[6]

To understand ethical possibilities we must tease out, reveal, and explore issues that increasingly divide public views on topics like wolf control. If welfare of mammals, other life forms, species, and ecosystems are to be taken seriously, we must look deeply into our differences. Environmental philosopher Neil Evernden developed an important theme in his book *The Natural*

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[3] Based on personal observations made in 1997.

[4] Robert D. Hayes, Richard Farnell, Richard M. P. Ward, Jean Carey, Michael Dehn, Gerald W. Kuzyk, Alan M. Baer, Craig L. Gardner, and Mark O'Donoghue, "Experimental Reduction of Wolves in the Yukon: Ungulate Responses and Management Implications," *Wildlife Monographs* 152 (July 2003): 1–35; pp. 29–30.

[5] Ibid., p. 32.

[6] See, for example, Paquet's comments in Larry Pynn, "Open Season on B.C.'s Grey Wolves: Province to Allow Year-round Wolf Kill to Increase Big Game Herds," *Vancouver Sun*, 7 March 2003.

Alien.[7] Here Evernden suggests that the real authorities in a culture are unquestioned assumptions. According to this view, the philosophies that guide "accepted" practices are often taken for granted, transparent, and uncontested. We agree.

Herein, we argue that barriers to ethically informed discussions about society-nature relationships are located in unquestioned assumptions. Accordingly, we explore assumptions about the nature and practice of science as it relates to wolf control and animal welfare. To probe more deeply still, we examine assumptions about Western epistemology or the way that we construct knowledge. To illustrate our argument, and to link it closely to contemporary issues, we discuss a Yukon wolf-kill program and recent experiments with sterilization to suppress wolf populations. Although we clearly have concerns for the welfare of bears, wolves, and other carnivores, the questions we raise transcend issues concerning just one species in one part of the world.

A YUKON EXAMPLE

Systematic culling of Yukon wolves is not new. Rather, killing of wolves to benefit humans is part of our contemporary Canadian history. The first biologist hired for the Yukon in the 1950s was assigned the task of overseeing a widespread wolf-poisoning program.[8] At the time, public norms had relegated wolves to the status of vermin and obstacles to public desires. By contemporary standards, the scale and methods of this program would be unthinkable. Nevertheless, modern wildlife management rests on assumptions that are fundamentally the same as those of Yukon's pioneer biologists. When conflicts arise over the coexistence of species, a central problem for many biologists,[9] human use is preeminent. Animals are reduced to resources, and their populations can be manipulated to "allow people a fair share of wildlife."[10]

"Wolf management" remains controversial in the Yukon. In 1997, the government completed a five-year control program that entailed the killing of eighty

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[7] Neil Evernden, *The Natural Alien: Humankind and the Environment* (Toronto: University of Toronto Press, 1985).

[8] Scott Gilbert, "Science, Ethics, and Ecosystems," in Juri Peepre and Bob Jickling, eds., *Northern Protected Areas and Wilderness* (Whitehorse: Canadian Parks and Wilderness Society and Yukon College, 1994), pp. 195–201.

[9] See for example A. T. Bergerud and J. P. Elliot, "Wolf Predation in a Multiple-Ungulate System in Northern British Columbia," *Canadian Journal of Zoology* 76, no. 8 (1998): 1551–69; p. 1567.

[10] Hayes et al., "Experimental Reduction of Wolves," p. 30. The complete quotation taken from this scientific monograph reads, "In other areas, some reduction of wolf predation using socially acceptable methods could be considered to allow people a fair share of wildlife without compromising the long-term viability of predator populations." Implied here is the bizarre notion that wolves have somehow been "unfair" to humans, and that human recompense is justified—a stunningly anthropocentric idea.

percent of the wolves in a 20,000 square kilometer region of southwest Yukon. The killing was accomplished by shooting wolves from helicopters or, in later years, strangling them in snares. The justification for culling was concern for declining numbers of caribou in particularly vulnerable herds. In this case, the objective was to prevent the Aishihik Caribou Herd from falling below a level where a natural recovery would not occur quickly enough. Because caribou are important to First Nations for subsistence hunting, and because other hunters in the area wanted their so-called "fair share," the government of the day judged that a long-term natural recovery, estimated to be between twenty and thirty years, would not be acceptable to local people.[11]

Not everyone supports wolf kills and many spoke out in opposition. They did so for a variety of reasons; environmental issues are rarely simple. Whereas some Yukon voices said that it was important to rebuild the Aishihik caribou herd, others were concerned that too little was known about why this herd was declining. Yet others claimed the wolf was being made the scapegoat for past excesses and that overhunting was responsible for the problem. For many, the critical question was whether the wolf kill was a reaction to a biological problem or a treatment for the symptoms of a much deeper human problem.

In the later stages of the Aishihik wolf-control program, biologists began experimenting with wolf sterilization techniques as an alternative to shooting. The method involves:

(a) tranquilizing what are thought to be alpha wolves from a helicopter,
(b) moving the wolves to a nearby community and placing them in a holding crate,
(c) on arrival of a veterinarian, anesthetizing the wolves, then sterilizing them with either a tubal ligation or a vasectomy,
(d) placing wolves in release boxes for the night, and
(e) then returning them to the capture site the next day.

In an effective public relations initiative, local managers invited a newspaper reporter to observe their fieldwork. In a three-page spread, the journalist reported that "wildlife managers" propose sterilization of the dominant males and females in wolf packs.[12] The theory is that non-breeding pairs will defend their territory but in the absence of a growing pack will consume less moose and caribou, particularly caribou calves.

The journalist reported that Yukon's wolf sterilization represented a "worldwide lead into a new area of wildlife management." Moreover, these techniques will

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[11] Renewable Resources, Government of the Yukon, "The Finlayson Program," in Chris Olsen, ed., *Yukon Wolves: Ecology and Management Issues* (Whitehorse: Yukon Conservation Society, 1995), pp. 10–12.

[12] Chuck Tobin, "Lessening the Bite . . . into Nature's Meat Supply," *Whitehorse Star,* 14 February 1997, pp. 23–25.

"replace the more 'intrusive' aerial hunting" and respond to "the public's growing disdain" for this technique. Finally, the article reports a biologist's prediction that "sterilization will reduce the frequency in which aerial hunting must be carried out. That will soften public resistance, she feels, and be less of a drain on financial resources."[13]

A fundamental problem reflected in the above comments is that many biologists do not seem to recognize, or choose to ignore, that all knowledge has an ethical component. Immersed in "wildlife management" of a particular kind, the biologists have implied their bias. Creating an illusion of thoughtfulness, choice, and objectivity, their predilections nevertheless are revealed.

For example, in support of wolf control programs, biologists in the Yukon refer to the Yukon Wolf Conservation and Management Plan[14] as having

> . . . recommended that instead of using broad-scale wolf control to recover already depressed ungulate populations, wildlife managers should avoid such situations. The challenge will be to find publicly acceptable methods that are adequate to increase ungulate populations but will not imperil predator populations.[15]

Interestingly, the management plan actually recommends that

> Future management of caribou, moose and sheep and their habitat in the Yukon must have the *objective* that populations are not allowed to reach levels where wolf reduction might be considered necessary. This management responsibility is considered part of the "public trust" which the *Environment Act* (Yukon) requires the Government of the Yukon to protect.[16]

Clearly, this selective reading and reporting of the management plan indicates bias—bias sufficiently strong to council overriding public policy and possibly legislation. At the end of the day, wolves are still seen as obstacles to public desires—utilities to be manipulated in pursuit of human desires.

Presenting the public with a choice of more or less intrusive techniques, or publicly acceptable methods, does nothing to challenge, or even consider, industrial societies' drive for the ever-more-effective domination of nature and use of its "resources." Indeed, 1950s management assumptions are reinforced through recent assertions:

> Surgical sterilization of wolves proved to be more publicly acceptable than killing wolves. . . . We recommended that fertility control be considered whenever there

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[13] Ibid.

[14] Wolf Management Planning Team, *The Yukon Wolf Conservation and Management Plan* (Whitehorse, Yukon: Yukon Department of Renewable Resources, 1992).

[15] Hayes et al., "Experimental Reduction of Wolves," p. 29.

[16] Wolf Management Planning Team, *The Yukon Wolf Conservation and Management Plan*, p. 8.

> is a management plan to hold wolf densities below natural levels for sustained periods.[17]

First, claiming that sterilization of wolves is more acceptable than killing wolves is a selective reading of history. For example, in 1996, the Minister of Renewable Resources accepted the fifth and final year of the previous government's wolf kill program but also promised in a ministerial statement to "develop more precautionary approaches to managing *for* wildlife." He added that "the sterilization portion of the program will not continue beyond this winter." [18] For this minister, sterilization was not acceptable. Rather, he did clearly see a need for fundamental changes in management for wildlife.

After a change in government, the following minister was not so persuaded that there was a need for such fundamental changes in wildlife management. At the beginning of 1994, the Minister of the Environment was a veterinarian who had previously performed wolf sterilizations. He, too, was agreeable to these intrusive management assumptions.

These varying positions suggest that the issue remains, at the least, contentious. In other areas such as Northern British Columbia, the Muskwa-Kechika Advisory Board has found this issue very controversial and has not been able to agree to support a wolf sterilization pilot study. The provincial government has decided to go ahead with this study and now finds that it is indeed controversial.[19]

Many opponents of wolf sterilization do not want less intrusive techniques and they certainly do not want management plans that will hold wolf densities below natural levels for sustained periods.[20] What they want are new assumptions, or new stories, to guide public decisions—they want new ethics. An agency organized for human harvest—for meat production so that people can have their "fair share"—is much different than an agency organized for conservation, or for the protection of wildlife, ecosystems, and biodiversity.

But this issue goes beyond the biases held by wildlife managers. More worrisome is that we *become* someone, and we *become* a society, through what we know.[21] This observation, to be discussed in the next section, takes us deep into the ethics of science.

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[17] Hayes et al., "Experimental Reduction of Wolves," pp. 29–30.

[18] Eric Fairclough, "Aishihik/Kluane Caribou Recovery Program," Ministerial Statement, 16 December 1996 (emphasis in the original).

[19] Pynn, "Open Season on B.C.'s Grey Wolves."

[20] Yet, in a recent development, the Yukon government has approved the *Aishihik Integrated Wildlife Management Plan* which calls for ongoing wolf suppression through use of sterilization techniques. Implicit in this plan is the prospect of long-term wolf control.

[21] Jardine, "Birding Lessons," p. 94.

ON SCIENCE AND OBJECTIVITY

The hard reality revealed in the Yukon example is that science is not objective. To be fair, it is not completely subjective either. We sometimes create untenable discussions when we allow distinctions to become dichotomies. Perhaps another way of seeing this distinction is as a continuum where one's work can be more or less objective. Principles of fairness, falsification, and blind peer-review do help science in providing snapshots of reality. However, the main point here is that it only provides small snapshots; much remains unknown and uncertain. Often our ethical choices are framed and driven by what we know. In the Yukon example, biologists and managers are choosing to frame the discussion in terms of what they know—wolf control practices that are either "more" or "less" intrusive.

Even traditional animal welfare arguments are based on knowledge claims, frequently about sentience. For example, animals experience pain—something that we can claim to know—and our obligations are to minimize pain and suffering; therefore, we must act to eliminate activities that cause animals pain. In essence, we most frequently operate within frameworks of epistemologically based ethics.[22]

If science is not ultimately objective, then it is important to understand how, intentionally or implicitly, science can limit available ethical choices, and how science rests on the working values and assumptions of practitioners. Consider again the Yukon wolf control program.

Biologists responsible for "wildlife management" have been central to the public discourse on killing wolves. While their task is to enact public policy, they too hold assumptions that shape the way policy decisions are presented to the public and subsequently implemented. They also shape their image through strategic public relations campaigns as we have seen in previous examples. In this sense, as Will Wright argues, "scientific knowledge legitimates a scientific society." [23]

One biologist made an insightful comment during the planning for the Aishihik wolf kill: "There are two options: intensively manage or let it follow a natural decline. Both are defendable."[24] From a scientific perspective, two defensible alternatives were possible: intervene in the ecosystem by removing wolves and monitor the effects, or allow the system to decline and/or recover without human intervention and again monitor the effects. The same biologist went on to say that the "Public in Yukon prefers intensive management on this

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[22] Jim Cheney and Anthony Weston, "Environmental Ethics as Environmental Etiquette: Toward an Ethics-Based Epistemology," *Environmental Ethics* 21, no. 2 (1999): 115–34.

[23] Will Wright, *Wild Knowledge* (Minneapolis: University of Minnesota Press, 1992), p. xii.

[24] Comments made by Rick Farnell in *Designing an Experiment for Large Mammal Recovery in the Aishihik Area, Yukon Territory*, Minutes of Technical Meeting (Whitehorse, Yukon: Yukon Department of Renewable Resources, 4 October 1992), p. 8.

herd." A colleague added, "In Aishihik, we need to address public policy . . . and design something scientific, with a set of hypotheses and alternate hypotheses."[25] At this point science and ethics are inseparable, and we begin to *become*—to be defined by what we are prepared to find out, and hence by what we know. These are key points that are developed as we move through this paper.

Although the extent to which people in the Yukon preferred intensive management is debatable, a level of public support for a wolf kill existed. The government of the day, and some biologists, were responding to a vocal segment of the population. However, to say those managers simply respond to public will is to underestimate the complexity of the relationship. Trained as wildlife biologists, it has been easy to see their enthusiasm for traditional science, or what Thomas Kuhn calls "normal science." [26] Steeped in traditions rooted in Bacon's seventeenth-century creed—"the secrets of nature reveal themselves more readily under the vexations of art than when they go their own way"[27]—there was ready approval and acceptance of experimental intervention. Biologists often feel the need to "treat" experimental populations[28] and managers often feel the need to manage. The two are self-validating.[29]

Nevertheless, as noted above, it is far from clear that the new science of wildlife management rests on assumptions that are fundamentally different from those of the Yukon's pioneer biologists. Wolf control is now dressed with the "respectability" of science and the "objectivity" of experimental design. Unfortunately, this presumed respectability masks important philosophical underpinnings. It is notable, for example, that by 2003 there was no further consideration of the "hands-off" option of monitoring the natural decline and/or recovery of Aishihik caribou and wolf populations.[30] Somehow, we seldom conduct this experiment.[31] We might also ask what "ethical" choices are available

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[25] Ibid., p. 8. Comments made by Bob Hayes.

[26] Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago, 1962).

[27] Francis Bacon, *The New Organon*, bk. 1, aphorism 98, in F. H. Anderson ed., *The New Organon and Related Writings* (Indianapolis: Bobbs Merril Co., 1960), pp. 94–95. First published in 1620.

[28] See for example Hayes et al., "Experimental Reduction of Wolves," p. 2.

[29] We do not wish to suggest that all science can be represented as a monolithic enterprise. Certainly scientists such as Fritjof Capra, Ilya Prigogine, E. O. Wilson, and philosophers of science such as Thomas Kuhn, to name just a few, have made large contributions toward problematizing scientific perspectives and grounding them within social contexts. However, in a specific community of practices, in this case among wildlife managers, it is more common to observe relatively traditional outlooks as practitioners engage in the daily activities of "normal science."

[30] Hayes et al., "Experimental Reduction of Wolves," p. 2.

[31] Presently there is an example of such an alternative "experiment" in the Yukon. Grounded in a local initiative, members of the Carcross and Tagish communities have worked with Rick Farnell and other biologists to implement the Southern Lakes Caribou Recovery Project. This

for the public and its decision makers when our ecosystem snapshot is based on observing a "vexed" nature, a nature subjected to intrusive "treatment" conditions. Alternatively, what choices would we have if our inquiries had begun in the manner of those grizzly bear and wolf observers described at the beginning of this discussion? These observers watched unobtrusively. The bears and wolves were subjects of their respect, interest, and curiosity, not objects of science, management control, or human domination.

Of course, casually watching bears, or any other species, from a hillside is not enough for making choices or resolving difficult disputes, but it does illustrate a basis for a different philosophical framework—and this is the key point. Choices to observe animals unobtrusively, or to monitor population cycles with minimal human intervention, rest on particular assumptions and values. These values are different from assumptions that presume the moral and political authority to manage and manipulate wildlife populations and impose vexatious treatment conditions. Clearly, the knowledge we have to work with depends on the kind of questions we ask. As Cheney and Weston point out,[32] the world is not completely knowable, we can only know portions based on the kinds of inquiries we pursue. Ultimately, these questions are rooted in our values—our ethics—making all knowledge value-loaded and ethics-based. When we operate from different value systems, we learn different things, and we tell different stories.[33]

TOWARD AN ETHICS-BASED EPISTEMOLOGY

We have shown that our epistemologies, our systems of knowledge, rest on ethical choices, whether these are made consciously or not. Epistemology is value-driven, not the contrary. This being the case, an *a priori* concern for all scientists is to consider how they ought to approach the world in their pursuit of knowledge; what is an ethically preferable approach to science? This is a radical shift for ethics too. Instead of looking for knowledge claims to frame ethical discourse, we argue that ethics are primary: they open the way to knowledge.[34]

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program assumes that humans, not wild carnivores, must be managed. Indications suggest significant increases in caribou populations without predator controls. See for example M. O'Donoghue, *Southern Lakes Caribou Recovery Program*, Progress Report 1992–1996 (Whitehorse: Council of Yukon First Nations, 1996), and R. Farnell, R. Florkiewicz, G. Kuzyk, and K Egli, "The Status of *Rangifer Tarandus Caribou* in Yukon, Canada," *Rangifer* 10 (1998): 131–37.

[32] Cheney and Weston, "Environmental Ethics as Environmental Etiquette," pp. 115–34.

[33] This idea has been inspired by the late Annie Ned, and Yukon First Nations Elder. See Carol Geddes in a panel discussion: "What is a Good Way to Teach Children and Young Adults to Respect the Land?" in Bob Jickling, ed., *A Colloquium on Environment, Ethics, and Education* (Whitehorse: Yukon College, 1996), pp. 32–48.

[34] Following Cheney and Weston, "Environmental Ethics as Environmental Etiquette."

In posing concern for ethics, we are trying to discover what things in the world demand practical respect. Building on the work of Tom Birch[35] and Cheney and Weston,[36] we suggest that this is an open-ended question that demands open-ended, nonexclusive, consideration of everything, insofar as we can. Birch calls this "universal consideration," whereby "Others are now taken as valuable, even though we may not yet know how or why, until they are proved otherwise."[37] Such a view carries obligations. As Cheney and Weston argue, "universal consideration requires us not merely to extend this kind of benefit of the doubt but actively to take up the case, so to speak, for beings so far excluded or devalued."[38] Fundamental to this requirement will be seeking to understand how we ought to approach those things that we respect.

That we should approach other entities with respect, and that knowledge is ethics-based, is not new. Many traditional ways of knowing have stood in contrast to the epistemological dominance of Western science, including those of Yukon First Nations.[39] We cannot fully interpret First Nations cultural traditions; they will have to do that for themselves. We can, however, comment on our own experiences while listening to, and working with, aboriginal colleagues. The legends, stories, and reflections of Yukon First Nations people have placed before us a mirror to reflect upon our own cultural traditions. Of particular interest is the challenge to our culture's framework for organizing knowledge—our tendency to separate ethical, emotional, and spiritual knowledge from "hard" science.

The Western approach to knowledge—separated into component parts and assigned to different disciplines—is contrasted with traditional modes of knowing in which the ethical dimension is given its due emphasis. This contrast is revealed in Louise Profeit-LeBlanc's response to a question about "truth" in her peoples' stories. Here she used the Northern Tutchone term *tle an oh* (klee-ah-no). A difficult term to translate, it is said to mean something like, "correctly true," "responsibly true," "true to what you believe in," "what is good for you and the community," and "rings true for everybody's well-

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[35] Thomas H. Birch, "Moral Considerability and Universal Consideration," *Environmental Ethics* 15, no. 4 (1993): 313–32.

[36] Cheney and Weston, "Environmental Ethics as Environmental Etiquette," pp. 115–34.

[37] Birch, "Moral Considerability," p. 328.

[38] Cheney and Weston, "Environmental Ethics as Environmental Etiquette," p.120

[39] It is easy for cynics to point to questionable environmental practices—perhaps indiscretions—of First Nation individuals and communities to undermine their credibility. However, we are in danger of confusing moral inconsistencies with the moral possibilities contained in rich cultural traditions. We are all inconsistent. As Arne Naess recently said, "It's a high ideal to be consistent. And, you will achieve it when you die—not before," in Arne Naess and Bob Jickling, "Deep Ecology and Education: A Conversation with Arne Naess," *Canadian Journal of Environmental Education* 5 (2000): 48–62; p. 58. However, we might look past these perceived inconsistencies and reach across this cultural divide; and, with our Native American colleagues, create new possibilities for conservation. Perhaps a little generosity of the heart and the head is needed.

being."[40] Here we have evidence of an epistemological framework that has an inherently ethical dimension. Put another way by Carol Geddes, "We would never have a subject called environmental ethics; it is simply part of the story."[41] In a later conversation she also affirmed the corollary, that science too would not be a special entity, but also just a part of the story. It seems that our argument for an ethics-based epistemology may be an attempt to recover an understanding that may never have been lost in many traditional cultures.[42]

If all knowledge is ethics-based, and if, in the absence of evidence to the contrary, all entities deserve consideration, then how ought we to approach inquiries about these entities that we respect? First, the idea of universal ethical consideration begins to create new ways of seeing the world. How we create or recreate the world counts. We can no longer be aloof or disinterested observers—here too we *become* someone through what we know. But, a different someone. Also, our culture of science—and indeed our society—will be realized differently if we begin with a different ethic.

Ethics-based epistemologies are concerned with right relationships—and right relationships are grounded in mindfulness. When we are mindful and respectful, we act with courtesy and etiquette, including trans-human etiquette. Louise Profeit-Leblanc, Native Heritage Advisor, underscores this point when asked to comment on ethics. For her, ethics are "that which we do to ennoble us."[43] Ethics then are more than collections of ideas; they are also performative. What we do, how we act, and the research procedures we choose all count. Aldo Leopold, often thought of as the father of wildlife management, knew this too. In his famous essay "Thinking Like a Mountain," Leopold recounts a life-changing experience that occurred on the day he saw a wolf die:

> We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in

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[40] Louise Profeit-LeBlanc reported in Jim Cheney, "The Journey Home," in Anthony Weston, ed., *An Invitation to Environmental Philosophy* (New York: Oxford University Press, 1999), pp. 141–167, p. 151.

[41] Geddes, "What is a Good Way to Teach Children and Young Adults to Respect the Land?" p. 32.

[42] Some readers might feel that significant progress has been made in developing ties between traditional ecological knowledge and management practices. The comments by Carol Geddes challenge this assumption. The very insertion of "ecological" between traditional and knowledge in management models suggests that researchers and managers draw on oral tradition selectively and thus distort traditional knowledge. Two excellent texts that explore the resulting tensions are: Julie Cruikshank, *The Social Life of Stories: Narrative and Knowledge in the Yukon Territory* (Vancouver, B.C.: UBC Press, 1998); and, Paul Nadasdy, *Hunters and bureaucrats: Power, Knowledge, and Aboriginal-State Relations in the Southwest Yukon* (Vancouver, B.C.: UBC Press, 2003).

[43] Louise Profeit-Leblanc, "Transferring Wisdom through Storytelling," in Bob Jickling ed., *A Colloquium on Environment, Ethics, and Education* (Whitehorse: Yukon College, 1996), pp. 14–19; p. 14.

> those eyes—something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.[44]

For Leopold, shooting that wolf was not ennobling and he felt that deeply.

Returning to the Yukon for a moment, we find it difficult to imagine how a helicopter-assisted killing of eighty percent of the wolves in a 20,000 square kilometer region can be considered respectful, or how the sterilization of dominant pairs in a wolf pack considerate. People, particularly scientists, are not eager to talk about this issue. However, Tlingit Elder Harry Morris, commenting at a meeting before the wolf kill, provides those willing to listen with much to think about. He reminds us that his people have, at times, killed wolves, that it was part of their culture, "but the wolf must not be made a fool of."[45] For Mr. Morris, right relationships and right conduct matter.

RESEARCH IMPLICATIONS

A crucial point is that good science rests on good ethics! What scientists do matters; it counts ethically. The public is no longer allowing scientists to retreat behind a "disinterested" and "objective" façade. Not understanding the underlying questions, a scientist's answer on an issue can be a category mistake: a philosophical question is answered with scientific information. If we could prove that wolf control would enhance ungulate populations it would not necessarily follow that we should. What we ought to do is not a matter of science. But if we go a little deeper, we find, whether we like it or not, that our science rests on ethical decisions. Ethics—how we approach the world—comes first and shapes what we come to know. It shapes the stories that scientists tell.

A frustrated wildlife professional recognizing this problem once remarked, "Try this: ask your local wildlife biologist what he's doing for you with your tax dollars. What emerges is a tirade of study design, sampling matrices, G.I.S. coordinate entry compatibilities, and so on."[46] He goes on to add, "The average person ends up by numbly wondering what FUELS this?"[47] Therein lies the rub. What indeed does fuel science in the service of conservation? The public cares about this question, and the public is concerned with "right" relationships

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[44] Aldo Leopold, *A Sand County Almanac* (New York: Ballantine Books, 1970), p. 138–39. First published in 1949.

[45] Harry Morris, oral comments presented to the Yukon Wolf Management Planning Team, 11 April 1992, Whitehorse, Yukon.

[46] Dave Mossop, "Science, Ethics and Wildlife Biologists—A Personal View," in Juri Peepre and Bob Jickling, eds., *Northern Protected Areas and Wilderness* (Whitehorse: Canadian Parks and Wilderness Society and Yukon College, 1994), pp. 207–11; p. 208.

[47] Ibid., p. 208.

and "good" conduct. Responding to ethics-based science and public concerns will require several considerations.

First, scientists need to take ethics seriously. Ethics are not a frill or an extra; they are a fundamental imperative. There is much that individual scientists can do, but environmental ethics are a dynamic and broad new field of inquiry. We encourage scientists to build alliances with ethicists. Such collaboration recognizes the interdisciplinary nature of environmental issues and both fields will be enriched through this work. We can then begin to reunite our work into a coherent story.

Second, there is confusion about what ethics are. Like subjectivity and objectivity, they are difficult to pin down. Sometimes *ethics* is used to refer to a code or prescribed rules for conduct. At other times, *ethics* refers to a process of inquiry with less prescriptive outcomes. Again, we can think of these views as polarized. We take the view that environmental ethics is a young discipline that is developing and evolving rapidly.[48] For this reason, we are not here to prescribe or promulgate our own ethics. We position ourselves closer to the process end of a code-process continuum and encourage scientists, more than anything, to get involved in that process.

Third, we will still have difficult decisions but will come at them differently if we acknowledge, at the outset, that all knowledge is ethics-based, then seriously consider the ethical dimension. A completely new range of knowledge claims and ethical actions will become available if we, for instance, begin with the principle of universal consideration. We may be more inclined to begin by unobtrusively watching bears and wolves rather than by vexing them with our experimental designs. We may be more inclined to work on behalf of wildlife rather than optimizing harvest—that is, hunting. We may also redouble our efforts to understand how to better live alongside wildlife, in what Mary Midgley calls mixed communities, by attending to wildlife corridors, buffers, and human actions and responsibilities that reduce conflicts.[49] This latter position stands in sharp contrast to those who believe that modern human communities cannot coexist with wolves without controlling wolf populations and, as in the case of wolf recovery in Minnesota, "the sooner control is begun, the easier and less costly it will be."[50] In the end, some unpleasant actions might be deemed justified in a particular context. If so, these actions will surely be applied in a more gentle and respectful manner.

Fourth, ethical approaches are not simply objective, there is always a more subjective and emotional component. For those of you that recoil at this thought, we suggest that the very act of recoiling is an emotional response. To attend to

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[48] See Anthony Weston's discussion about the present originary stage of environmental ethics in "Before Environmental Ehics," *Environmental Ethics* 14, no. 2 (1992): 321–38.

[49] Mary Midgley. *Animals and Why They Matter* (Athens: University of Georgia Press, 1983).

[50] L. David Mech, "Estimated Costs of Maintaining a Recovered Wolf Population in Agricultural Regions of Minnesota," *Wildlife Society Bulletin* 26, no. 4 (1998): 817–22; p. 821.

these emotional dimensions of our lives is to be human. Think for a moment about what leads people to careers in science. Is it a joy found in theoretical modeling of population dynamics? Or is it a natural empathy toward the natural world, a love of natural history, or passion and care for a place? As the venerable Norwegian philosopher Arne Naess said,

> The rationality that characterizes the knowledge society is of an extremely limited kind—a petty rationality—that does not ask what are our most fundamental priorities and values as human beings. This rationality has lost sight of our aims and is merely concerned with means. Is the conflict between emotion and rationality real? And is it not often imagination and emotion that drives scientists and scholars?[51]

It is this petty rationality that we are left with when we allow public discourse to shift from questions about fundamental priorities to methodological questions—about more or less intrusive methods. Put another way, Leopold said,

> It is inconceivable to me that an ethical relation to the land can exist without love, respect, and admiration for land and a high regard for its value. By value, I of course mean something far broader than mere economic value; I mean value in the philosophical sense.[52]

For Naess, Leopold, ourselves, and many of the authors cited here, ethics is largely about care, what entities warrant our care and consideration, and how we should behave toward those entities that demand this care. At the end of the day, we care about the things we love, and lovers can see and know things that others cannot. "Love is in fact a way of knowing, but its dynamics are the reverse of the usual models. Love comes first, and opens up possibilities."[53] Declaring what you care about is not "soft"; it is honest.

Having promoted the epistemological importance of feelings, care, and love, we are confronted with one of the quandaries of modern ecological science. That is, how should we interpret the apparently similar signs of consciousness, care, and empathy observed in animals without falling into "heresies" of either anthropomorphism or anthropocentrism? In its eagerness to avoid the former, contemporary biology has often been drawn into the dogmatism of the latter. But, what exactly is the problem with anthropomorphism? Is this a label wielded excessively, by those who wish to see the world "objectively," as a way of dismissing those who are attempting to live more intimately in it? We are constantly imagining the world through the eyes of others—our friends, our family, our lover. This is one way that we come to understand them. It then

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[51] Arne Naess, *Life's Philosophy: Reason and Feeling in a Deeper World* (Athens: University of Georgia Press, 2002), p. 51.

[52] Leopold, *A Sand County Almanac*, p. 261.

[53] Cheney and Weston, "Environmental Ethics as Environmental Etiquette," p. 118.

seems a short empathetic step to imagine the world through the eyes of more-than-humans.

Cultural texts about "talking middle class bears, and ducks" can clearly be criticized. We are not, after all, trying to simply project human feelings and behaviors onto animals. However, how should we interpret Leopold's account of the green fire leaving the eyes of a dying wolf? How should we evaluate succorant behavior of animals as described by Frans de Waal?[54] More recently Barbara Gowdy's book *The White Bone,*[55] a fictionalized account written from the perspective of an elephant, evokes much understanding and plausible empathy. Surely it is time to move beyond the reflexive rejection of anthropomorphism.

Fifth, preface all scientific reports with a discussion about the ethics of the project. What considerations, for example, guided the choice of research questions? How were research practices mindful of entities in the natural world? Let us explore, each time out, our deeper positions—our foundations. This is not a fanciful dream; it is being done now.[56] Revealing considerations make them part of the ongoing conservation conversation. Such revealing reminds us that research assumptions must be considered, supported, and occasionally revised, but never taken for granted. Such discussions also help to prepare advocates to participate in the processes that occur whenever conservation proposals begin to live in a context. This proposal is also about leadership. Can we, by persistently declaring and discussing our considerations and assumptions, encourage more "resource managers" to do the same—to make their assumptions explicit and to link their knowledge claims to ethical premises?

Finally, ethics are dynamic, evolving, and pluralistic. If we have not exhausted possibilities for knowledge claims and ethical relationships, then ethical discovery is possible.[57] With this in mind, our discussion of ethics, considerations, and assumptions should begin anew each time out. Such discussion should not be relegated to a piece of "boilerplate" that is trotted out unchanged each time.[58] Ethics are too important. We challenge scientists and managers to place everything they do into the context of ethics and then spend

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[54] Frans de Waal, "Good Natured: The Origins of Right and Wrong in Humans and Other Animals," in Donald VanDeVeer and Christine Pierce, eds., *The Environmental Ethics and Policy Book*, 2d ed. (Belmont, Calif.: Wadsworth, 1998), pp. 82–94. Readers interested in reconsidering a critical role for anthropomorphism will find this essay, and the book of the same title, *Good Natured: The Origins of Right and Wrong in Humans and Other Animals* (Cambridge: Harvard University Press, 1996), a useful entry into the literature on this topic.

[55] Barbara Gowdy, *The White Bone* (Toronto: Harper Collins, 1998)

[56] The field of conservation biology is premised on an openness about ethical assumptions. But, for a specific example, see Paquet and Hackman, *Large Carnivore Conservation in the Rocky Mountains.*

[57] Cheney and Weston, "Environmental Ethics as Environmental Etiquette," pp. 115–34.

[58] Jim Cheney reminds me that this point cannot be stressed enough. He points out that research ethics concerning lab animals was very quickly confined to a narrow utilitarianism, easily

twenty-five percent of their time thinking and writing about the ethical dimensions of their work—on every project.

A FEW WORDS ABOUT RESPONSIBILITY

Science is not benign; we all live with the consequences of scientific activity. Development of the atomic bomb had ethical dimensions aside from the "good science" employed to accomplish the task. Unresolved moral questions continue to frame the debate over use of the bomb on Hiroshima and Nagasaki. For many, to develop the bomb was to develop a pernicious technology—the knowledge gained was not "responsibly true," nor does it "ring true for everybody's well being."

Returning to the Yukon, if we seldom do the alternative experiments where we allow for the decline and recovery of wolves and ungulates—controlling human externalities rather than animal populations—we will be slow to understand these dynamics. Decisions will continue to be predicated on extraordinarily narrow knowledge claims about more or less intrusive options. We argue that scientists have a responsibility to facilitate an ever-broadening range of possibilities—possibilities grounded in ethical consideration.

New techniques, methods, and technologies take on a life of their own. As with nuclear weapons, they live on. However, should we be developing pernicious technologies? Should we, in the Yukon, be conducting wolf sterilization experiments? Can sterilizations, together with accompanying management assumptions, be grounded in ethical consideration? In the Yukon, as in other places, we suggest not.

Communities involved in controversial issues such as wolf control can be extraordinarily parochial. They can be intolerant of "outsiders," even to the extent that comments from other communities two hundred kilometers down the road are unwelcome. However, citizens do have responsibilities to "outsiders," who are not often fairly represented. The precedent set or technique developed in one place is readily exported to another and we are all affected—as are the animals. We believe scientists have a responsibility to resist this trend toward parochialism.

Finally, journal editors have a special responsibility. As Scott Gilbert points out,[59] editors occupy strategic positions overseeing access to journal pages. Editors could accelerate the development of ecological field research by establishing a policy that requires authors to engage in ethical reviews of their

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satisfied, in many instances, with the use of anesthetics and providing a "comfortable" environment for animals. Simplistic ethical research protocols get institutionalized quickly, making it seemingly unnecessary or impossible to deepen the ethical inquiry.

[59] Scott Gilbert, "Science, Ethics, and Ecosystems," in Juri Peepre and Bob Jickling, eds., *Northern Protected Areas and Wilderness* (Whitehorse: Canadian Parks and Wilderness Society and Yukon College, 1994), pp. 195–201.

research.[60] In this approach we are not suggesting censorship or a predetermined ethical prescription. Rather, we are suggesting that journals engage researchers in the *process* of ethics.

ANIMAL WELFARE

So how does all of this affect animal welfare? Without question, the traditional work in environmental ethics, based on "sentience," "rights," and "teleological centers of life,"[61] has contributed enormously to animal and environmental ethics. In these instances standard ethical theories, developed in the human realm, have been extended to accommodate new ethical insights. These insights have been particularly helpful in exposing injustices in issues such as factory farming and animal testing. Although productive, these theories do not exhaust the possibilities. Worse, they begin to run out of steam when dealing with more complex issues. Ideas about sentience suggest limits. Does, for example, an oyster warrant moral consideration because of its ability to experience pain? Rights talk becomes more fractious as the concept is extended to include species, ecosystems, and landscapes. Does it make sense to speak of ecosystems as rights holders? (Perhaps ironically, it seems fairly easy in our society to extend the concept of rights to nonentities such as corporations.[62]) Or, perhaps more absurdly, does the concept of rights have any currency in the context of carnivores and prey species in natural ecosystems?

As Val Plumwood points out,[63] the problem with these approaches is that they are "rationalist" in nature. Through adherence to moral rules of abstraction and disinterest, they create discontinuity between humans and the nonhuman world (more-than-human world). They perpetuate a reason-emotion dichotomy that discards feelings and emotions. The trouble, as Plumwood reminds us, is that concepts such as respect, care, concern, and compassion "are moral 'feelings' but they involve reason, behavior and emotion in ways that do not seem separable."[64] It is ironic that moral virtue has traditionally been defined by rules that increase abstraction and detachment from the very relationships that inspire our passion and concern. As Leopold said so many years ago, "We can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in."[65]

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[60] Ibid.

[61] See, for example, the body of work developed by Peter Singer, Tom Regan, Paul Taylor, and their associates.

[62] See, for example, John Ralston Saul's critique of this peculiarity in his chapter on "ethics" in *On Equilibrium* (Toronto: Penguin, 2001).

[63] Val Plumwood, "Nature, Self, and Gender: Feminism, Environmental Philosophy, and the Critique of Rationalism." *Hypatia* 6, no. 1 (1991): 3–21. See also Naess, *Life's Philosophy: Reason and Feeling in a Deeper World*.

[64] Ibid. p. 9.

[65] Leopold, *A Sand County Almanac*, p. 251.

It is clear that there are possibilities beyond these more traditional boundaries for environmental ethics. This is not to say we should abandon earlier ethics. As particular stories, they can be more or less useful in helping us to make our way through many difficult issues. In the Yukon, rights and sentience-based ethics can provide useful forums for discussing the sterilizing of wild wolves and releasing them the following day. However, Birch's idea of universal consideration and Cheney and Weston's evocation of ethics-based epistemology remind us that ethical discovery is always possible. They invite us to pay attention to moral feelings, etiquette, and consideration—at the outset. They also ask us to consider whether the knowledge we obtain is "good knowledge." This approach to ethics takes the Yukon example to another level. Now we must consider whether it is good enough to limit our knowledge to claims about more or less intrusive techniques. We must ask whether information derived from sterilization experiments ought to be generated in the first place. Working from a premise of universal consideration, and minding the ethical basis of all knowledge claims, we will enable richer conceptions of environmental ethics and create new possibilities for animal welfare.

In the end, if we are content to train[66] a society that is expert in its ability to dig up, chop down, and shoot dead (or sterilize) the world around it, then that is how public discussion will be framed. That is what our professionals will do, and that will define how our society will be realized.[67] Surely it is time to enact a different story.

EPILOGUE

Political leadership can make a difference. The Yukon Party government that initiated the Yukon wolf kill was replaced by the New Democratic Party. While accepting the fifth and final year of the previous government's program, Yukon's then Minister of Renewable Resources, Eric Fairclough, also promised in a 1996 ministerial statement to "develop more precautionary approaches to managing *for* wildlife."[68] He added, "the sterilization portion of the program will not continue beyond this winter." Also, during this government's term, the job posting for the position of Assistant Deputy Minister, stated that "it would be desirable if the successful candidate had a knowledge of environmental ethics." Here we see the beginnings of change in management outlook.

In 2000, the government changed again. In accepting the *Aishihik Integrated Wildlife Management Plan,*[69] the Liberal government returned to more intrusive

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[66] There are, of course, important implications for education throughout this treatment of ethics. They do, however, go beyond the scope of this paper.

[67] For an engaging and contemporary literary representation of a possible future according to this script, see Margaret Atwood's *Oryx and Crake* (Toronto: McLelland and Stewart. 2003).

[68] Fairclough, "Aishihik/Kluane Caribou Recovery Program."

[69] *Aishihik Integrated Wildlife Management Plan* (AIWMP) (Whitehorse: Yukon Renewable Resources, Champagne and Aishihik First Nations, Alsek Renewable Resource Council, 2000).

management assumptions reminiscent of earlier governments. Through support of this plan, they have approved the continuation of sterilization experiments previously suspended. The plan they approved sets maximum target numbers for wolves and "[s]terilization is the main method for maintaining a lower but sustainable level of about 100 wolves in the area."[70] Fixed population targets have also been set for moose at 4,000 and caribou at 2000; thus, an "ongoing management program is required to maintain the predator and prey populations at or near the targets established by the plan."[71] Finally, the plan acknowledges "[h]ow wolf sterilization (and smaller pack sizes) affects the survival rate of calves is currently not known. Reduction of wolf numbers in key post-calving areas needs to be tested with field observations if this approach is going to be adopted and maintained in the plan."[72] Implicit in this plan is an assumed necessity for long-term wolf control.

Following the Liberal government, the Yukon Party was returned to power and the Minister of Environment, a veterinarian, performed wolf sterilizations in the Yukon. No radical policy change is expected.

In 2003, a group of scientists and wildlife managers published a monograph that reports on, and discusses, the Yukon wolf-kill program.[73] They remain convinced that "in accessible areas, predation and subsistence demands of local people for wild food can combine to exceed the sustainable supply of ungulates." While they suggest that some areas be put aside as protected areas and managed for natural change, while "in other areas, reduction of wolf predation using socially acceptable methods could be considered to allow people a fair share of wildlife without compromising the long-term viability of predator populations."[74] The demands of local people are not scrutinized, and conceptions about fairness are not discussed—though they certainly aren't speaking from the wolf's perspective, or the perspective of the mountain. And there seems to be little regard for future developments. For example, if more areas become accessible through construction of new roads, will public demand for wildlife and their "fair share" of it increase? Will this accessibility lead to evermore wolf control programs? When will these stop? Or, can we expect to see ever-diminishing distributions of wolves?

We suggest that new possibilities can be opened up by shifting the ethical basis for knowledge claims. Attention to ethics-based epistemology and etiquette in relationships can open space for other conceptions of "management," including management *for* wildlife.

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[70] Ibid., p. 8.
[71] Ibid., p. 19.
[72] Ibid., p. 8.
[73] Hayes et al., "Experimental Reduction of Wolves," p. 30.
[74] Ibid., p. 30.