

Wolf issue brings pity on wildlife ecologists

Vol 42 (19):

Pity poor wildlife ecologists. Rather than being free to pursue truth where they find it, most are merely minions of one partisan organization or another.

Like attorneys, these nest watchers and scat catchers are the hired guns in conservation fights. Those serving environmental groups are under strict orders to reveal only the bad news, while those employed by industry are told to report only the good. Even worse, a



ON THE ENVIRONMENT
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plurality works for federal agencies dedicated to transforming often spurious claims of declining biodiversity into expanded budgets.

Outspoken wildlife scientists, in short, are endangered

species, more rare than manatees or Komodo dragons. So when a truly independent scholar challenges the conventional wisdom, outraged authorities usually treat the perpetrator as a freak to be isolated before its mutant genes have an opportunity to replicate.

Such is the experience of biologist Charles Kay. A self-employed researcher and an expert on Yellowstone who earned a doctorate from Utah State University, he would seem above politics. But when he disputed the official version of wolf recovery in the northern Rockies, officials went after him with fangs bared.

The U.S. Fish and Wildlife Service seeks to restore grey wolves to Yellowstone, northern Montana and central Idaho. In 1987, it completed a Recovery Plan for these creatures, which are listed as endangered; and last summer, it published a draft Environmental Impact Statement, recommending "experimental" wolf populations be reintroduced to the three areas.

The statement is provoking activists and stockmen to gnash their teeth and slobber at the mouth. The former don't like the plan's provisions to permit shooting troublesome wolves, and the latter don't like wolves, period. But unheard above this cacophony are scientists who harbor serious doubts about the proposal.

Kay gives voice to these concerns. In the August issue of "Peterson's Hunting Journal," he raised the question: If wolves are brought back, how many are enough? The Recovery Plan announced that when 10 breeding pair of wolves remain three successive years in each area, wolves would be declared recovered and be removed from the Endangered Species list.

This startled Kay. Since packs contain, on average, 10 wolves of which only two — the alpha male and female — breed, this would imply that the animal would be deemed recovered after 100 wolves are established in each area. But to prevent harmful inbreeding and to protect against

random environmental changes, most scientists believe that a minimum viable population is 1,500 individuals. So why, Kay wondered, did the Service cite such a low number?

To find out, he sought the government's research on the subject, but was told there was none. The recovery goals, he surmised, were political numbers without scientific basis fabricated to minimize opposition to wolf reintroduction. Yet when populations reach recovery goals and the government moves to de-list, Kay observed, activists, rightly claiming 100 is not enough, will sue to keep them protected, and win. Wolf numbers will grow and grow and grow.

Kay's charges infuriated Ed Bangs, Service Project Leader for the Impact Statement, who launched a counter-attack at Kay. He wrote the president of Utah State University, where he mistakenly supposed Kay was employed, charging "misrepresentation—that was 'highly unprofessional.'" And he wrote members of the Recovery Team, urging them to contact the university's president as well.

This response outraged Kay's colleagues. Robert J. Taylor, Kay's former professor, condemned Bang's action as "a thinly veiled attempt to assassinate (Kay's) scientific reputation." Randy Simmons, head of the Political Science Department at Utah State, also sprang to Kay's defense, claiming Bang acted beyond his authority in an attempt to suppress legitimate scientific opinion.

Indeed, Kay is on target. While Appendix 9 of the Draft Statement offers a brief justification for the 100 number, this addendum, appearing after Kay's article was already in press and six years after the government's recovery figures were first proposed, seems a hastily conceived afterthought. Although dubbed a literature survey, it was published without a bibliography.

Moreover, "talk about 100 wolves is nonsense," Taylor told me. "You cannot maintain genetic diversity with those numbers. And many biologists, including Taylor, do not believe Yellowstone is large enough to contain 10 packs. As University of Wyoming wolf researcher Mark Boyce said, wolves will disperse over a very wide area. "It is almost guaranteed they will get into trouble."

Kay therefore introduces a disturbing variable into the equation of wolf recovery. These animals belong in parks like Yellowstone, but they should not take over the West. Yet many scholars believe that wolf populations will eventually explode. Not biologically endangered — 50,000 reside in North America alone — they are already re-establishing themselves across the Northwest.

And once back, wolves may be hard to control. Kay, therefore, one of the rare biologists who hasn't sold his soul to government, is saying what few want to hear.

See how much political discomfort a free mind can cause?

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PROTECT HUNTING'S HERITAGE

BY DR. CHARLES E. KAY

WOLVES IN THE WEST

*What the government does not want you to know
about wolf recovery.*

The federal government and environmental groups who would like to see wolves returned to the West claim the public supports wolf recovery, and that science is on their side. The director of the National Park

Service, for instance, has been quoted as saying "there is little scientific basis for most objections being raised to wolf reintroduction." Others contend that "half-truths and misrepresentation of facts continue to thwart" wolf recovery,

while the Defenders of Wildlife has said people who oppose wolf reintroduction are "aggressively anti-science." Are wolf proponents right? Or are there aspects of this issue they have purposefully overlooked?



PHOTOGRAPH BY JESS R. LEE

By way of introduction, let me say that I am committed neither to having wolves in the West nor in keeping them out. I am committed, though, to science being used responsibly in policy debates, something I have not yet seen with wolf recovery. My analysis indicates that the federal government and other wolf advocates have taken liberties with the truth and with science.

NUMBER OF WOLVES

Far and away the most important aspect of the wolf debate is how many wolves are we talking about. One hundred? Three hundred? Or 3000? The number of wolves is central to any discussion of whether predation would limit ungulate numbers, if big-game hunting might have to be curtailed or eliminated, and how much livestock depredation might occur.

In 1987, the U.S. Fish and Wildlife Service finalized a recovery plan for wolves in the northern Rockies. It addresses wolf recovery in northwestern Montana, Yellowstone, and central Idaho (see Figure 1). According to that document, if a minimum of 10 wolf packs breed in any one recovery area for three successive years, the wolves in that area would be downlisted from endangered to threatened status. When at least 10 breeding pairs have been maintained for at least three successive years in all three recovery areas, wolves would be completely removed from the Endangered Species List. While the wolf is listed as either threatened or endangered, hunting and trapping would not be permitted except for agents of the federal government, who may remove individual wolves that prey on domestic livestock.

Wolf advocates have assumed that breeding packs would contain, on average, 10 wolves. This implies that each recovery area would be downlisted from endangered to threatened at approximately 100 wolves. At 100 wolves in each of the three recovery areas, or 300 total wolves, the species would be removed from the endangered list. But how did the government arrive at these figures, and are they realistic?

To find out, I filed an official Freedom of Information request with the U.S. Fish and Wildlife Service. In reply, the agency admitted that it had "not contracted or undertaken any studies which deal with minimum viable populations of the Northern Rocky Mountain wolf," and added that "there are no records in the files of our Denver Regional Office or the Cheyenne Fish and Wildlife

Enhancement office referencing any specific materials [which were] used in determining recovery numbers for the Northern Rocky Mountain wolf." When I brought this to the attention of noted conservation biologist Dr. Michael Soule, he said, "My guess is that the 10 pack number is more a political than a biological threshold."

Because the U.S. Fish and Wildlife Service developed its 10 wolf packs, 100 wolf recovery goals with little, or no, supporting scientific evidence, all the government's recent wolf recovery reports, wolf population models, and studies regarding possible impact on big-game hunting are arbitrary and capricious. They represent not science but a masterful job of deception.

To meet the legal mandate of the Endangered Species Act and biological requirements for minimum viable population size, 1500 to 2000 wolves as one

generation. To maintain genetic variation sufficient to cope with environmental uncertainty, and to guard against natural catastrophes, it is necessary to maintain populations of at least 1500 to 2000 individuals. A Canadian study recommended a minimum of 1450 wolves.

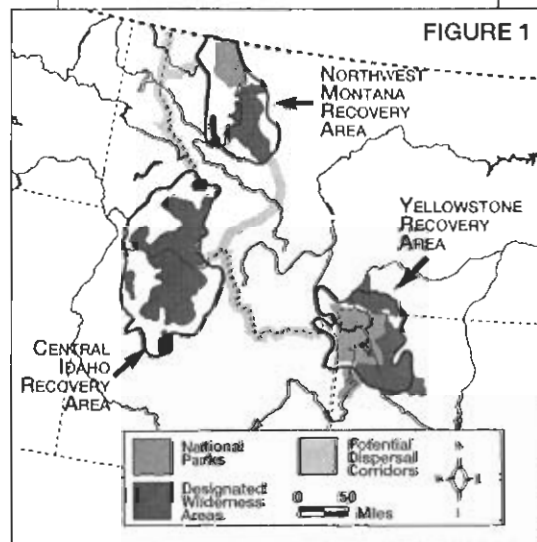
Based on their arguments for large minimum viable populations in a host of other species, the northern spotted owl being the best known example, it is difficult to believe that environmental groups have not voiced similar concerns over wolf recovery goals in the West. This leads me to suspect that the 100-wolf recovery figures are little more than an elaborate game orchestrated by the federal government and others.

The government proposed 100 wolves knowing that would not be enough to meet requirements of minimum viable population size, and environmental groups did not object knowing that 100 wolves would raise less political opposition than 1500 wolves. Wolves arrive and increase to 100. The government moves to delist. Environmentalists sue and win. The wolf population is allowed to reach 1500 or more. Environmentalists are happy, the federal agencies are happy, and the public, only too late, realizes what has happened.

Needless to say, 1500 to 2000 wolves will have a much greater impact on ungulate numbers, hunting opportunities, and livestock operations than that projected in government reports. Since wolf populations can increase at 100 percent or more each year, and since wolves are known to disperse up to 200 miles or more, wolves will quickly repopulate the entire West. It must also be remembered that the wolf is listed as an endangered species in all the western states and plans are now underway for wolf recovery in Utah and Colorado. Washington State may already have more wolves than Montana. Given the present law, the only real question regarding wolf recovery is when will wolves reach Mexico.

DO PREDATORS LIMIT UNGULATE NUMBERS?

Research in Alaska, British Columbia, Yukon, Alberta, and other Canadian provinces indicates that wolves and other predators, more often than not, limit ungulates. These scientific studies can be summarized as follows. 1) In many situations, wolves and other predators limit ungulate populations *below* the level set by food resources; that is, ungulates are not resource limited and any compensatory response of the ungulate popula-



This map shows that potential wolf dispersal corridors follow the Continental Divide or other mountaintops. But wolves disperse down valleys, not on top of snow-covered peaks.

interbreeding population will be required (see Figure 2). Although the science of determining minimum population size is still developing, numbers alone are not the only criterion. Genetic variation must also be considered. Maintaining genetic variability is important because inbreeding has serious consequences for the long-term health of any population. Restrictive mating systems, where a few individuals do the majority of breeding, greatly reduce a population's effective size.

Assume, for instance, that you have 10 breeding packs totaling 100 wolves. Since the alpha male and female are usually the only breeding individuals in each pack, a hypothetical population of 100 wolves in 10 packs has an effective breeding size of only 20 individuals per

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tion to predators is not enough to offset predation losses. 2) Human predation and carnivore predation on ungulate populations are additive, not compensatory. 3) If grizzly or black bears are present, they often prey heavily on newborn and, to a lesser degree, adult ungulates. Wolf and bear predation are additive, not compensatory, and together can have a major impact on ungulate numbers. 4) If ungulate populations have been reduced by severe weather, human overexploitation, or other causes, wolves and other predators can drive ungulate numbers even lower and maintain them at that level. This condition is called a predator pit, and there is no field evidence that ungulates can escape from a predator pit even if hunting is banned, unless wolves and other predators are reduced by direct management actions, i.e. predator control.

As Alaska biologists have noted, "prey [ungulate] populations can reach extremely low densities under natural conditions, contrary to the 'balance of nature' concept." Throughout much of Alaska and Canada, ungulate populations are now being kept at low levels by the combined actions of carnivorous predators. At the Second North American Symposium on Wolves held in Edmonton last August, scientist after scientist reported that wolves and other predators limit ungulate numbers.

It must be remembered that wolves limit ungulate numbers by reducing recruitment and increasing adult mortality, not by killing off all the game, instances of surplus killing notwithstanding. Take a hypothetical population of 100 adult female ungulates; for this analysis we need not worry about the male segment of the herd. In any given year, a number of adult females die from natural causes, disease, or predation. When expressed as a percentage, this is termed the "adult female mortality rate." In that same year, a number of calves or fawns are born, but those young also face disease, accidents, and predation, and only a few survive their first year of life to join the adult population. This is called the "recruitment rate." For a stable population, recruitment must balance adult mortality. If recruitment is less, the population declines, and if it is greater, numbers increase.

Research has shown that wolves and other predators prey most heavily on young-of-the-year, which lowers the recruitment rate of the prey populations. Predators also kill a few prime-age adults. By increasing adult female mortality and at the same time lowering recruitment, predators can cause ungulate populations to decline. Stabilizing recruitment for caribou is about 15 female yearlings per 100 cows. Caribou herds with few predators have recruitment rates of 20 to 40 per 100 cows, which allows those populations to increase, while caribou herds subject to heavy predation have recruitment rates of 10 or less. So predation causes ungulate populations to gradually decline over time—wolves do not normally wipe out game herds in a single year or two.

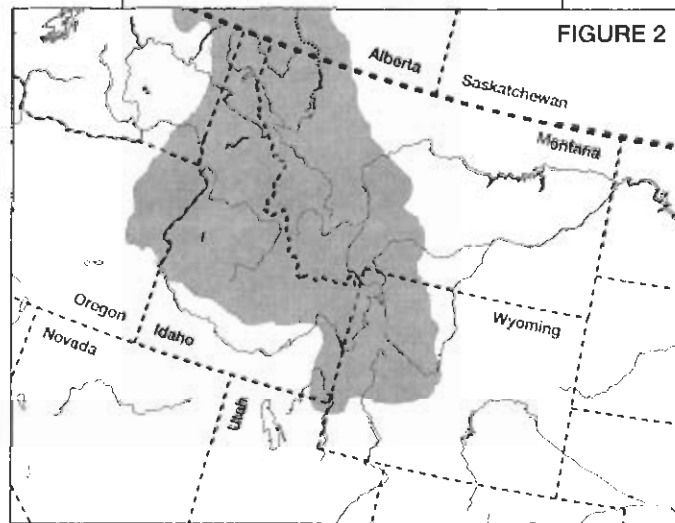
er, groups who advocate wolf recovery, such as the National Parks and Conservation Association, contend that "fears over wolf impact on big-game hunting...are unfounded." And according to government reports "sport hunting for any big-game species need not be eliminated or reduced just because wolves are restored." This simply is not true, especially given the thousands of wolves that may ultimately come to inhabit the West.

The combined effect of sport hunting and wolf predation on a common ungulate prey can be seen in a computer simulation model developed for Alaska. Without hunting, wolves, moose, and Dall sheep numbers are low, but relatively stable. The addition of a small amount of human moose harvest, though, destabilizes the entire system (see Figure 3).

Even after hunting is halted, wolves continue to drive the moose population downward. The wolves then switch to Dall sheep and drive those numbers down as well. In this simulation, wolves go extinct before they can kill the few remaining ungulates, allowing prey populations to recover. This model was developed by wolf proponent Gordon Haber and he uses it to advocate a reduction of or a ban on sport hunting. According to Dr. Haber, ungulate populations subjected to wolf/bear predation can, at best, maintain a human harvest rate of only six to seven percent, not the 20 to 30 percent common throughout North America where wolves are absent.

The relationship of predators, ungulates, and hunting on a larger scale can be seen in a comparison of British Columbia with Sweden and Finland. Both areas are roughly the same size and contain approximately equal amounts of moose habitat. Yet during the 1980's, the overwinter moose population in Sweden-Finland numbered around 400,000 animals and was increasing while the overwinter moose population in British Columbia numbered around 240,000 and was declining, even though habitat was not limiting. Hunters in Sweden and Finland killed nearly 230,000 moose a year while sportsmen in British Columbia harvested only 12,000 to 14,000 animals per year.

While habitat conditions do vary, the overriding difference in the two systems is a virtual absence of predators in the Scan-



Projected area occupied by the 1500 to 2000 wolves needed to satisfy minimum viable population size requirements and legal mandates in northern Rockies. Wolf recovery is also being considered for Utah and Colorado.

This is what happened in Alaska and Canada. During the 1950's and 1960's, when wolf control was widespread and effective, game herds grew and the north country became known as a hunter's paradise. Organized wolf control ended by 1970, and predator populations began to expand, but it took 10 years or so before significant declines were seen in game herds.

DO PREDATORS LIMIT HUNTING OPPORTUNITIES?

Sport hunting is a multibillion dollar industry in the West. Not only is hunting important to the areas' economies, it is also a deeply held social tradition. So it is not surprising that many people have expressed concern about the impact wolf predation will have on western big-game herds and hunting opportunities. Howev-

dinavian countries. Wolves and bears are rare throughout Sweden and Finland while wolves, grizzlies, black bears, and mountain lions are common over most of British Columbia. The effect of predation on hunting can be seen when hunter harvest is compared to the size of the over-winter moose populations. In Sweden-Finland, hunter harvest was 57 percent of the pre-calving moose population while it was only five percent in British Columbia—an 11-fold difference. This suggests that unchecked predation by a combination of carnivores can reduce hunting opportunities by at least a factor of 10. If you have any children or grandchildren, their hunting opportunities will be severely limited if large numbers of wolves populate the West.

WOLF CONTROL

In its *Northern Rocky Mountain Wolf Recovery Plan*, the U.S. Fish and Wildlife Service claimed that "if predation on big-game herds is determined to be in significant conflict with management objectives of a state wildlife agency, wolf control that would not jeopardize wolf recovery would be considered." Other federal agencies have suggested that wolves may have to be killed "to control excessive predation on ungulates." As one government report put it, "because some populations of

ulations would increase has been, to say the least, extremely political, protracted, and divisive. In Alberta, ensuing controversy has prevented most wolf control. A spokesman for the 150,000-member Canadian Wildlife Federation declared "wolf control should never be considered unless a prey [ungulate] population is truly endangered, and the problem should always include a [total] ban on hunting."

Even in Alaska, where there are approximately 7000 wolves, intense opposition, including several legal challenges, has effectively stopped the state's wolf control program. A recent proposal by the Big Game Board to kill 300 wolves to increase moose availability for subsistence and sport hunters was met with vocal objections orchestrated, primarily, by outside animal-rights organizations. Under a threatened boycott of the state's tourist industry, Alaska's governor tabled plans for wolf control.

Experience also suggests that opposition to wolf control is seldom ultimately based on scientific evidence, but rather on ethical and moral concerns. Speaking on behalf of the World Wildlife Fund Canada, Monte Hummel asked, "Let's assume for the sake of argument that...in a politically neutral environment it can be scientifically shown that wolves *are* indeed the primary limiting factor on a given prey population, which

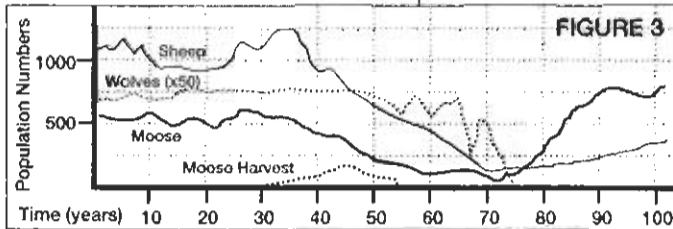


FIGURE 3
In this model of Alaskan wolf-ungulate interactions, hunters removed less than 8% of the moose populations annually, yet the moose population still declined, illustrating the additive nature of wolf and human predation.

prey [ungulates] that may be used by wolves are already harvested [by hunters] at near maximum sustained yield...it may indeed become biologically prudent to reduce wolf populations in some areas." Is wolf control, though, a viable option? After reviewing the available evidence, I am forced to conclude that the federal government and other wolf advocates have mentioned wolf control only to placate hunters and to gain acceptance for wolf recovery, not as a statement of fact within the realm of even remote possibility.

Experience in Canada suggests that certain environmental groups will never allow wolves to be killed so hunters can harvest more ungulates. Debate over British Columbia plans to experimentally reduce wolves to see if ungulate pop-

ulations would increase has been, to say the least, extremely political, protracted, and divisive. In Alberta, ensuing controversy has prevented most wolf control. A spokesman for the 150,000-member Canadian Wildlife Federation declared "wolf control should never be considered unless a prey [ungulate] population is truly endangered, and the problem should always include a [total] ban on hunting."

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Given these precedents, there can be little doubt that a wolf control program anywhere in the West would be subjected to intense scrutiny by the national media and the federal courts. The ensuing battle would pit sportsmen, ranchers, and others against antihunters and animal-rights groups from across the nation. Given the depth of emotions elicited in the past, the battle would be a political blood bath. All parties in the western wolf debate should fully understand that wolf control, and especially

wolf control to increase ungulate numbers for hunters, is unlikely to be allowed by the court of national public opinion, even if it were permitted by judicial courts.

It should also be realized that the wolf's impact on ungulate herds is *really* not a scientific issue with most wolf proponents. Their desire to have large numbers of wolves is based on value judgments. As one person noted, "The wolf is almost a religious symbol to these people." I see nothing wrong with value judgments. I object only when those arguments are shrouded in scientific cloth.

WHAT CAN YOU DO?

The federal government recently released its draft environmental impact statement (EIS) on wolf recovery in the northern Rockies. Your opinion does count. Send your comments to U.S. Fish and Wildlife Service, Gray Wolf EIS, P.O. Box 8017, Helena, MT 59601, with copies to your congressman and U.S. senators. Ultimately, Congress may be called upon to decide how many wolves we have in the West.

At a minimum, you should demand that the government stop spreading misinformation and begin telling the public the true impacts of wolf recovery. It is also time for sportsmen, livestock operators, and other concerned citizens to form a coalition and launch a national educational campaign, or scientific game management will be only a memory. We also need to ask whether the wolf should even be on the Endangered Species List; after all, it is *not* a biologically endangered species—there are now some 50,000 wolves in North America. Moreover, what about the millions of tax dollars being allocated to wolf recovery? Might not those monies be better spent on species that face imminent extinction, especially given limited funding and our huge federal deficit? Personally, I believe the Endangered Species Act needs to be rewritten to force emphasis on biologically endangered species that can be saved, instead of furthering personal agendas that have nothing to do with conservation.



Editor's Note: Dr. Kay, Ph.D. Wildlife Ecology, has spent the last 30 years studying wildlife in the West. He recently finished a book on natural resource policy issues in the Yellowstone Ecosystem entitled Yellowstone: Ecological Malpractice, which will be released next year. This article was adapted from his chapter on wolf recovery. Dr. Kay is now at work on a book about Aboriginal Overkill: The Role of Native Americans in Structuring Western Ecosystems. Dr. Kay is associated with the Institute of Political Economy at Utah State University.