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Enhancing wildlife sciences' linkage to public policy: lessons from the predator-control pendulum

Terry A. Messmer, Douglas Reiter, and Ben C. West

Abstract Policy decisions in wildlife management and conservation are made for many reasons. The degree to which information generated by scientific research is incorporated into these decisions depends on several factors. We believe wildlife science can help create the social and political climates that foster new policy directions. Regarding United States (U.S.) predator-control policy, science provided the neutral ground on which the debate could focus, thus tempering the value questions, while allowing for the gradual accrual of new technical information. Because of the nature of scientific research, there is often considerable lag time between the generation of new information, its acceptance by stakeholders, and its subsequent incorporation into policy. We believe wildlife managers can compensate for this lag time by actively engaging in "policy-oriented learning" at the local level. This approach will address public concerns arising from perceptions that wildlife management policies and actions are derived within an information vacuum. Such efforts will ultimately result in better decisions on wildlife and its management and serve to temper wide swings in the public policy.

Key words communication, community-based conservation, predator control, policy-oriented learning, public policy, research, wildlife management, wildlife science

As public stakeholders become increasingly concerned about the natural environment and species conservation, they want to know more about how and why wildlife are managed (Decker and Brown 1987, Steel et al. 1994, Duda et al. 1998, Messmer et al. 1999). Most obtain this information from convenient or readily accessible sources (e.g., television, radio, newspapers, and more recently the Internet) (Bultena et al. 1984, Duda et al. 1998, Messmer et al. 1998). Thus, for many stakeholders, much of their information about wildlife management is reported in short articles and sound bytes that frequently highlight controversial issues (Duda et al. 1998, Shanahan and McComas 1999). However, regardless of the source, when this information is reconciled with an individual's values, it shapes

personal attitudes on how wildlife should or shouldn't be managed (Hickey 1974, Gentile 1987, Minnis and Peyton 1995, Messmer et al. 1999).

In the wildlife manager's ideal world, the sources disseminating information about species conservation and management would consult professionals to obtain science-based knowledge to construct their messages. This process and the information provided would serve to increase public and policymaker awareness and appreciation for wildlife science and result in more conservation-friendly decisions.

Wildlife science and public policy

The role factual information plays in setting public policy has been long debated (Ingram 1973, Sabatier 1978, Ashford 1984). In reality, however,

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few policy decisions are based strictly on scientific data. The theories developed regarding the manner and extent to which science is used to form public policy suggest that most of these decisions are based largely on a process called “policy-oriented learning” (Sabatier 1978, 1985). Thus, characteristics of the information (i.e., prestige and credibility of the source, consensus and certainty of the information, timing, availability, and effectiveness of communication), the nature of the issue (i.e., high vs. low conflict, congruence with current policies, and constituency support), and the nature of the decision maker (i.e., willingness to understand, learning capacity, values, background and experience, job status, and interest in a status quo) influence how science is used to set policy (Ingram 1973, Sabatier 1985, Wagner 1988).

In essence, just having access to good science will not result in major wildlife management policy changes. To be effective, the “right information” also has to be delivered by the “right people” who are in the “right place” at the “right time” (Sikorowski et al. 1998). Unfortunately, few wildlife professionals and agencies are adequately prepared for this challenge (Gigliotti 1998). In essence, wildlife professionals tend to be data rich, information poor, and relatively illiterate regarding communicating with policy-makers.

The public policy pendulum

In the United States, public policy for the most part represents the wishes of the democratic majority (Sabatier 1978). Concomitantly, major shifts in public opinion about issues are reflected in policy. The best analogy we can think of to describe this relationship is that of a pendulum (Figure 1).

In the case of wildlife conservation, the pendulum itself represents popular public opinion—or, more specifically, perceptions and attitudes about the agencies, organizations, or individuals responsible for imple-

menting management. On one side of the pendulum’s arc are pro-management forces, on the other anti-management. How far in either direction the pendulum swings depends on stakeholder perceptions as influenced by the information available to them and when and how it is delivered.

Historically, the pendulum regarding how wildlife is managed has been subject to wide swings. Major swings have occurred in response to some type of perceived ecological catastrophe that also was popularized by the media. One of the best examples may be Rachael Carson’s book *Silent Spring* (1962). This work had a profound influence in the 1960s on both the media and public and is often credited with initiating a new environmental era (Wagner 1988).

We contend that wildlife managers are able to do their best work when the pendulum is at its lowest arc. When the pendulum is at its highest arc, wildlife managers are forced to be more reactive than proactive. The question that remains to be answered is, “Can wildlife managers develop the ability to better manage the pendulum of public opinion?”

Arguably, one of the most controversial wildlife issues to attract the public’s attention in the last century is predator control. We will use it to illustrate how science, working through popular opinion, influenced public policy regarding predator control and contributed to moving the pendulum

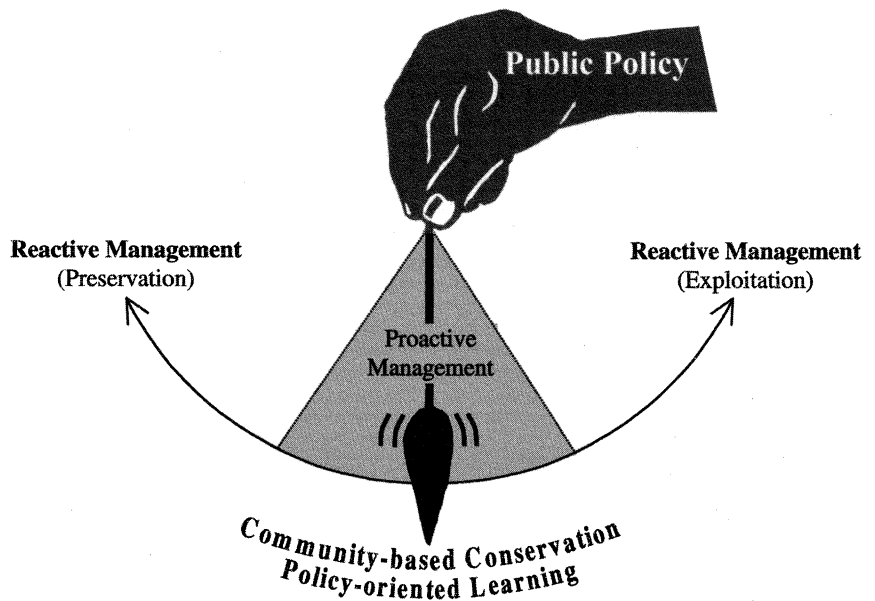


Figure 1. Wildlife management’s public policy pendulum. Wildlife managers are most effective when the policy pendulum is at its lowest arc. Community-based conservation programs that incorporate policy-oriented learning can enhance the role of wildlife science in natural resources decision making.

into an anti-management arc. This example also demonstrates the need for wildlife managers to institutionalize new approaches to better address the information lag time between scientific discovery and policy formation.

Early predator control in America

Wildlife was plentiful in America when the first European settlers arrived (Trefethan 1975, Tober 1981). As human populations increased, growing resource demands often competed with wildlife needs. In time, wildlife species began to disappear as their habitats were impacted and they themselves were overharvested (Tefethen 1975, Tober 1981). What emerged was a new economy, created largely by a nation of immigrants who converted raw landscapes into agricultural fields, factories, and cities. In addition to bringing with them to this country their hopes and dreams for economic prosperity, they also brought Old World perceptions about predators. Colonists viewed predators largely as competitors, threats to human health and safety (Hornaday 1913, Trefethan 1975), and an economic liability, so their elimination was part of the process of establishing "civilization" in this emerging nation (Dunlap 1983).

Predator control also was recognized as one of the earliest forms of wildlife management (Leopold 1933). Even as wildlife consumption made the transition from subsistence to sport hunting, predators still retained their status as competitors (Hornady 1913, Tober 1981). In addition to predator control, early wildlife management focused on the introduction and artificial propagation of exotic game birds and fish (Leopold 1933, Tefethen 1975). It also was perceived that many of these exotics could not thrive without some sort of predation control.

Early wildlife managers, who often had a direct hand in propagating exotics, were understandably less tolerant of sharing the results of their efforts with predators. Several states implemented bounty systems to control predators (Leopold 1933). Even where bounty laws were not in force, sportsmen were urged by state and federal publications and by leading sportsmen's journals to kill predators at every opportunity (Hornady 1913). These activities served to reinforce the wildlife managers' and the public's belief that predator control was wildlife management.

In 1915 the federal government institutionalized predator control when it gave the Bureau of Bio-

logical Survey \$125,000 to be used in Texas to kill wolves and coyotes (Di Silvestro 1985). It wasn't until the Survey increased use of poison baits to control predators that the American Society of Mammalogists began to question the program (Dunlap 1983, Feldman 1996). The scientists objected to the program largely because they believed the rapid extermination of predators would impact their research (Dunlap 1983). Their concerns were largely ignored because they had little scientific evidence to support their beliefs.

In the 1930s, the field of wildlife management experienced major changes due largely to Aldo Leopold's influence and his book *Game Management* (McCabe 1987). Leopold recognized and articulated the need for sound science as the basis for wildlife management decisions. In 1937 The Wildlife Society, the first organization of wildlife professionals, began to publish *The Journal of Wildlife Management* (Hickey 1974). Concurrently, wildlife management courses taught at major universities began to reflect the increasing awareness that predators constituted an important part of the natural community (Di Silvestro 1985). Yet despite these events, few questioned the necessity or value of predator-control programs (Trefethen 1975, Feldman 1996).

We contend that this was largely because the body of published scientific literature regarding the role of predators in the natural environment was still evolving (Dunlap 1983). Most early wildlife research work focused on the production of game animals, not the role of predators and predation in the natural environment (Leopold 1933, Tober 1981). The information that was available had not caught the attention of mainstream America, which was focused on the Great Depression and a pending war in Europe (Feldman 1996). However, by about the 1950s, the accumulating evidence about predation was beginning to challenge the public perceptions and scientific ideas about predator control (Dunlap 1983, Wagner 1988).

Predators and predation management: a postwar pendulum shift

At the end of World War II, wildlife biologists, armed with new scientific evidence, began to question the need for and efficacy of predator control (Dunlap 1983, Feldman 1996). Thus the wildlife agencies employing them also began abandoning wildlife propagation and predator control in favor of habitat management (Tober 1981, Decker et al.

1992). Also, before the war, public attitudes toward predators had been shaped by folklore stories such as "Little Red Riding Hood." After the war, the media's portrayal of predators progressively transformed them from ugly and ominous to playful, beautiful, and essential players in the natural wildlife community (Trefethen 1975).

This shift in public attitude was reinforced by the growing ecological movement and a significant expansion of environmental laws and regulations (Tober 1981, Feldman 1996). The ecological movement was largely spearheaded by Rachel Carson's drive to eliminate the use of persistent pesticides (Dunlap 1983). This book was followed by the Leopold (Leopold et al. 1964) and Cain reports (Cain et al. 1972), both of which called for increased public scrutiny of the federal government's predator-management policies.

The Cain Report went further, calling for direct congressional intervention to eliminate use of toxic chemicals in operational predator control (Cain et al. 1972). The Cain Report was prompted by lawsuits filed by Defenders of Wildlife, the Sierra Club, and the Humane Society seeking to force the Department of Interior to comply with the National Environmental Policy Act in implementing predator control on federal lands (Feldman 1996). Predator control as a wildlife management tool and livestock protection strategy was now being subjected to large-scale public scrutiny.

Wagner (1988) argued that science influenced this process at several levels. Scientific data were used to support initiation of federal and state predator-control programs, identify and implement options, and ultimately justify restriction or elimination of predator-control options (i.e., toxicants). In addition, science played a role in directing political action to legislate environmental regulatory changes (Feldman 1966) and in shaping public opinion regarding predator control by making society aware of the ecological value of predators (Dunlap 1983). Thus science helped to create the social and political climates which fostered new environmental regulations and policy directions. Lastly, science provided the neutral ground on which the debate could focus, thus tempering the value questions and allowing for the gradual accrual of new technical information (Wagner 1988).

Some contemporary wildlife managers, however, contend that the policy pendulum regarding predator management has swung too far and contributed to increasing the American public's anti-

management sentiment. As contemporary landscapes and habitats are increasingly altered, predator management may increasingly become an important species-conservation option (Messmer and Rohwer 1996, Nelson 2001). However, science may have done such a good job in educating or "confusing" an increasingly urban public about the role of predators in maintaining the "balance of nature" that they may be less willing to accept direct management approaches such as hunting and predator control (Gentile 1987, Minnis and Peyton 1995, Messmer et al. 1999, Reiter et al. 1999). In this regard, wildlife science also contributed to creating a more questioning public (albeit a more concerned public), which contemporary wildlife managers also may find increasingly burdensome (Hewitt and Messmer 1997).

Seeking to better manage the public policy pendulum

Early wildlife managers were largely in the business of propagating and protecting "useful" wildlife species (Tober 1981). During this era, predator control and game-law enforcement were viewed as essential to maintaining harvestable game populations (Leopold 1933, Trefethen 1975). Most of these early managers had little formal education or scientific basis for conducting their work and little interest or experience in working with policymakers (Decker et al. 1992). Over time, as human values, interests, hunting practices, and tolerances changed (Hickey 1974, Gentile 1987, Minnis 1997), so did the role and preparation of the wildlife manager (Peterle 1987, Decker et al. 1992, Messmer and Conover 2000). Contemporary wildlife managers now seek to emphasize the dynamic balance of wildlife populations, habitats, and competitors for that habitat, including people (Poole and McCabe 1987, Minnis and Peyton 1995, Clay and Schmidt 1998, Mattfeld et al. 1998).

Contemporary wildlife management in North America has become a national mission entrusted to a growing cadre of highly trained, skilled, and motivated professionals and dedicated support staff. Wildlife management as a profession is currently practiced by tens of thousands of individuals trained in applied ecology and management. However, the primary objective of the profession remains largely unchanged: to provide decision-makers and public stakeholders with the science-based knowledge to ensure that factual information is used to formulate wildlife policy (Poole and

McCabe 1987). By working to achieve this objective, wildlife managers will not only increase their credibility but also further the role science plays in setting public policy (Coates 1992, Decker et al. 1992).

Although the North American public is generally supportive of state and federal wildlife management efforts (Duda et al. 1998), there is increasing concern about the application of specific traditional population regulation techniques such as the hunting and trapping of prey species and general population management activities (Decker and Brown 1987, Gentile 1987, Minnis 1997, Messmer et al. 1999). Public attitudes about how and why wildlife are best managed appear to have changed the most with respect to predators and predator-control techniques (Buys 1975, Arthur 1981, Kellert 1985, Clay and Schmidt 1998, Reiter et al. 1999).

Some contemporary wildlife managers may continue to argue that they have little control over the public's perceptions about traditional harvest management approaches, including predation management. They contend this situation largely reflects changing demographics and the large-scale shift from an agrarian to an urban society and is not based in science (Kellert 1985, Duda et al. 1998). We, however, agree with Wagner (1988) that knowledge generated through science and popularized in contemporary media can create a forum where new ideas and the scientific data to support them can be discussed, digested, interpreted, and reconciled with individuals' value systems (Shanahan and McComas 1999).

We argue that, given the dynamic nature of the competing forces shaping the natural environment, the biggest impediment faced by wildlife managers seeking to incorporate science into public policy may be our own inability to "market" science-based management information (Duda et al. 1998). This task is made more daunting by the often considerable lag time between scientific discovery, the assimilation of new information by contemporary stakeholders, and its integration into policy. Our profession's failure to "enfranchise" the American public in this process has contributed to creating an atmosphere in which wildlife managers focus largely on resolving immediate problems rather than addressing the underlying issues.

We believe wildlife managers must seek to actively enfranchise their "communities" in species management and conservation by engaging them in "policy-oriented learning" at the local level

(Sabatier 1985). Managers must expand their definition of community beyond "traditional" audiences of sportsmen and women, landowners, wildlife watchers, and other public and private wildlife managers (Organ and Fritzell 2000) to include businesses, educators, the media, and politicians. To enfranchise these communities, we must involve them not only in identification of the issues but also in defining and prioritizing the problems. In addition, they must actively participate in processes that identify, fund, implement, and evaluate management actions designed to address the problem. In effect, both wildlife managers and community learn to better communicate by actually cooperating to solve mutual problems (Sabatier 1985). This approach helps to address public concerns arising from perceptions that wildlife management policies and actions are derived from within an information vacuum (Brunson 1992, Hewitt and Messmer 1997). We believe these efforts will ultimately result in better decisions regarding wildlife and their management and serve to temper swings in the public policy pendulum.

Few would disagree that management policies must be flexible enough to incorporate a variety of approaches if biological diversity and healthy wildlife populations are to be maintained. We believe this increased flexibility will come only if and when wildlife managers truly engage their local communities and shed the remnants of professional inertia (Brunson 1992). When defining management policies, decision makers, administrators, and managers must clearly articulate wildlife population goals and objectives and the contribution that each management strategy will make in achieving the "community's desired outcomes." We believe that when wildlife managers truly begin to embrace community-based conservation approaches, the issues we now see as our greatest challenges will become our greatest wildlife conservation opportunities (Amend and Gasson 1996, Mattfeld et al. 1998, Messmer and Conover 2000).

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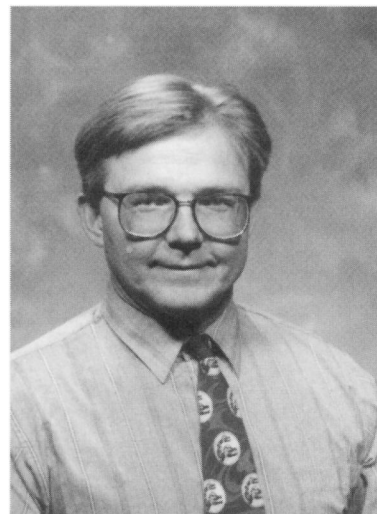
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