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Beyond Recovery: Wisconsin's Wolf Policy 1980–2008

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Wildlife protectionists, livestock producers, and black bear hunters influenced wolf policy in Wisconsin, USA, over the past 29 years. Wolf policy aligned closely with protectionist values until 2003, when litigations over lethal control and wolf reclassification created a rift. Since 2003, livestock producers and bear hunters have had more influence over wolf policy. Throughout, state managers steered steadily toward regaining management authority from the federal government and finding common ground between the wildlife values held by different stakeholders. Human dimensions research helped find this common ground and shape wolf policy, particularly when it integrated ecology, social science, and management applications. From spatial, predictive models of wolf attacks on domestic animals and attitudinal surveys on compensation and hunting, managers combined results into novel proposals to balance divergent interests. Wolf policy exemplifies the challenges facing wildlife managers as new wildlife values confront older ones and stakeholders demand a say in policy.

Keywords stakeholders, carnivores, conservation, hunters, livestock producers

Introduction

Gray wolves (*Canis lupus*) were virtually wiped out by European settlers seeking bounties, game, pelts, and predator-free farming (Riley, Nesslage, & Maurer, 2004; Thiel, 1993; Young, & Goldman, 1944). In 1974, the federal Endangered Species Act compelled state wildlife agencies to protect and help restore wolf populations (Bangs et al., 1998; Mech, 1995; Wydeven, Schultz, & Thiel, 1995). Wolf policy changed with increases in wolf numbers and with the variable influence of several state and national interest groups. The policy arena was crowded with traditional hunting, trapping, and farming interests joining less traditional groups, notably those concerned with animal welfare and ecologists concerned with the function of top predators in ecosystems (Nie, 2002). The resulting diverse mix of values toward wolves and varied economic, recreational, aesthetic, and ecological arguments complicated decision-making on wolf policy (Jacobson & Decker, 2008), but also generated new resources for wolf management and opportunities for interdisciplinary research in the human dimensions of wildlife.

Wolf recovery in Wisconsin illuminates the twin challenges of managing a highly symbolic animal that damages property and of conserving a far-ranging species without sizeable, strictly protected, wildlife preserves. Public approval is necessary if wolves are

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to persist. These features make wolf recovery a political balancing act more than a biological puzzle.

Wisconsin Wolf Policy and Interest Groups in the Early Years of Protection (1980–2002)

In the western Great Lakes region (Michigan, Minnesota, Wisconsin), gray wolves recovered from near zero to ~3000 over a 35-year period, without direct human intervention (USFWS, 2007). With more than 90% of the tri-state wolf population, Minnesota successfully petitioned for their wolves to be classified as threatened rather than endangered, and the state received a federal permit for lethal control following verified wolf attacks on livestock (Fritts, Paul, Mech, & Scott, 1992). By contrast, federal and state laws mandated strict protection of each wolf in the smaller Wisconsin and Michigan populations throughout the 1980s and 1990s. In managing wolf attacks on domestic animals (depredations), Wisconsin faced several challenges distinct form its neighbors. Minnesota had the legal option of killing suspected depredators and removed hundreds of wolves in the 1980s (Fritts et al., 1992). Michigan had relatively few livestock operations in wolf range (Michigan DNR, unpublished data presented at Wolf Stewards Meetings every year 2000–2008). By contrast, Wisconsin was obliged to protect wolves in a landscape with many livestock and with free-running hunting dogs allowed to trail game on public lands from June through September (Dhuey & Kitchell, 2006; Wydeven, Treves, Brost, & Wiedenhoeft, 2004). Three interest groups with concerns about three sets of animals came to dominate Wisconsin wolf policy. Black bear (*Ursus americanus*) hunters advocated for their hounds that ran afoul of wolves. Farmers advocated for their livestock threatened by wolves. Wildlife protectionists advocated for the wolves.

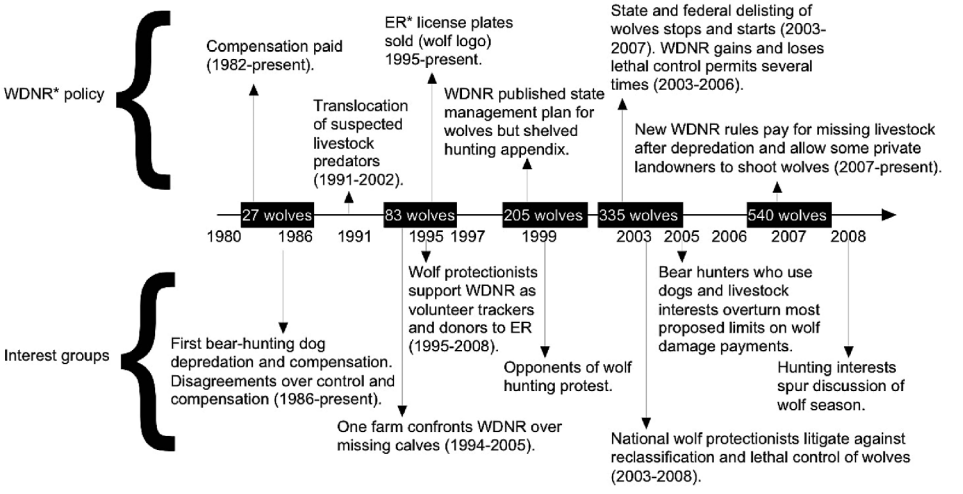
Wolf recovery in Wisconsin occurred amidst many human uses. The wolves recolonized their former range, now a mosaic of private and public lands (Wisconsin Department of Natural Resources, [WDNR] 2007b; Wydeven et al., 1995), including industrial forests, farms, residential properties, and public lands. Private lands held 5,378 farms and 188,000 cattle (Census, 2000; National Agricultural Statistics Service, 2002). Among public lands, 75% allowed hunting of some kind (WDNR, 2008a). Every year, Wisconsin typically hosts 700,000 hunters of deer (*Odocoileus virginianus*), bears, game birds, and other small game (WDNR, 2005). Thus all Wisconsin's wolves could have encountered people and their property (Wydeven et al., 2004). Not surprisingly, humans caused most wolf mortality from illegal shootings, vehicle collisions, trapping, poisoning and legal agency operations, throughout the 1980s and 1990s (WDNR, 1999, 2007b; Wydeven et al., 2001).

Because wolves recovered amidst human uses, the WDNR prioritized interventions to promote coexistence early on. For example, in 1987, the WDNR collaborated with volunteers and Northland College to create the Timber Wolf Alliance for outreach and public education about wolves. The WDNR serves on its advisory council, assists with educational activities, and advises on the production of its wolf related literature. In the early 1990s, the WDNR convened stakeholder meetings and began a public outreach campaign to articulate wolf policy goals. The WDNR campaign was relatively more energetic than that of its neighboring states. For example, an internet search of "wolf" AND "Wisconsin DNR" between 1991–1999 identified 24,000 Web pages (retrieved August 2007 from Google®). Replacing "Wisconsin" with "Minnesota" or "Michigan" yielded 25% fewer Web pages per state.

In 1982, the state government instructed the WDNR to initiate a program of paying for verified wolf damages to domestic animals (Treves et al., 2002). The program aimed to improve public tolerance for wolves and reduce illicit wolf killing. It pays for all depredations on domestic animals, farm deer, and free-running hounds injured or killed on public land (Wydeven et al., 2004). The WDNR compensation program also pays for veterinary bills, autumn market value of livestock (regardless of when killed), trophy value of deer on farms (wooded properties that need not have predator-proof fencing), and, more recently, missing calves (given a prior verified depredation). Compensation has become more costly per wolf and absolutely over time, despite repeated efforts by the WDNR to reduce payments for several categories of losses (Treves, Jurewicz, Naughton-Treves, & Wilcove, in review). Wolf damage payments have increased to more than $100,000 annually since 2005.

In 1985, Wisconsin's wolves first attacked a dog pursuing bears. Concern about illicit wolf killing rose as a result (C. Pils, retired WDNR Director of the Bureau of Endangered Resources, personal communication February 17, 2008). The hound-training period and bear-hunting season (June–September) coincides with wolf denning and rendezvous periods and often occurs in the same public lands (Wydeven et al., 2004). Two disagreements arose between bear hunters who used dogs and the WDNR. First, there were disagreements over the number of wolves in the state (A. Wydeven, WDNR Head of the Wolf Recovery Team, personal communication, April 2002). Bear hunters' perceived more wolves from June to September than publicized by the WDNR from its late winter (pre-pup) wolf population estimates. Second, the WDNR stood firm on interventions and compensation for dog losses: (a) the WDNR never employed lethal or non-lethal interventions against wolves that attacked hounds on public land (Wydeven et al., 2004); (b) the WDNR capped payments for hounds at $2,500 per dog; and (c) the WDNR tried to limit compensation for dead dogs to one incident per year per site (see "5-mile rule").

In contrast to bear hunters who use dogs, protectionists aligned with state and federal wolf policy from 1982–2002. Several factors promoted alignment. First, starting in 1984 and gaining momentum in 1995 (Figure 1), wolf damage payments came from voluntary



* Wisconsin Department of Natural Resources (WDNR); Bureau of Endangered Resources (ER)

Figure 1. Major events in wolf policy and politics in Wisconsin, 1980–2008.

contributions to the WDNR Bureau of Endangered Resources (ER) Fund. Those contributing to the Fund were predominantly motivated by protectionist values. They bought thousands of ER vehicle license plates bearing a wolf logo, or contributed voluntarily on annual state income tax forms (Treves et al., in review; Wilson, 1999). By 2004, these donors were contributing $1.4 million annually to endangered species management in the state (Joint Committee on Finance, 2005). Second, beginning in 1995, the WDNR recruited and trained volunteers from across the state to supplement the annual wolf population count. Each year, a median of 95 volunteers conducted winter track surveys and more than doubled the survey mileage covered by WDNR staff (Wiedenhoeft, Boles, & Wydeven, 2003). Thus, the WDNR depended on anonymous donors for compensation funds, and on citizen volunteers for monitoring wolves since the mid 1980s. This broadened the set of stakeholders motivated to participate in policy formulation and sparked WDNR interest in broad public opinion of wolf policy.

Before 2002, WDNR policy on management of depredations reflected protectionist values even beyond the federal mandates for wolf recovery. For example, the WDNR did not intervene against wolves that attacked domestic animals until 1991, when suspected livestock predators were relocated to public forested lands (Treves et al., 2002). Wolves that attacked hounds on public land were never subject to any intervention (Treves et al., 2002; WDNR, 2007a). In 1999, protests in Madison, the capitol city and a stronghold of donors to the ER Fund (Treves, Naughton-Treves, Schanning, & Wydeven, 2007) led wolf policy makers to shelve a controversial Appendix from the 1999 Wolf Management Plan dealing with an eventual wolf hunting/trapping season (R. Jurewicz, WDNR Bureau of ER, personal communication February 21, 2008; Stern & Herschelman, 1999; WDNR, 1999).

The Role of Human Dimensions Research in the Early Years of Wolf Policy

Collaborative research to describe the landscape features within wolf pack territories heightened WDNR interest in human dimensions of wolf management. Spatial analysis uncovered one variable (road density) that best predicted wolf pack territory locations (Mladenoff, Haight, Sickley, & Wydeven, 1997; Mladenoff, Sickley, Haight, & Wydeven, 1995). The role of road density was not new (Mech, Fritts, Radde, & Paul, 1988; Thiel, 1985), but its emergence as the *best* predictor sharply focused managers' attention on human causes of wolf mortality (Wydeven et al., 2001). Also, the WDNR began to support attitudinal surveys. An early survey revealed wolf recovery was popular with a majority of farmers and other landowners, as was compensation for livestock damage by wolves (Nelson & Franson, 1988). Wilson (1999) found most state residents valued protection of rare predators, and a smaller majority supported WDNR efforts to increase wolf numbers. These findings confirmed popular support for state wolf policy. Continuing demand for human dimensions research is reflected in the recommendations of the 2001 WDNR Wildlife Action Plan for wolves (WDNR, 2008b), and in 2004, a social scientist was invited to join the Wolf Science Committee. The coming years would see increased WDNR interest in human dimensions research as it related to lethal control of suspected livestock predators, compensation, and hunting.

Wisconsin Wolf Policy and Interest Groups in the Lethal Control Years (2003–2008)

By 2003, all three states met federal criteria for wolf reclassification (USFWS, 2003). Wolves in Wisconsin were federally down-listed to threatened status in 2003 as part of the

proposed eastern distinct population segment (DPS), but federal court action in 2005 reversed this reclassification and the vast DPS itself (USFWS, 2006). In response, Michigan and Wisconsin applied for and received permits from the USFWS to kill livestock predators (but not wolves that attacked hounds on public land). National protectionist groups—Animal Protection Institute, National Wildlife Federation, Defenders of Wildlife and the Humane Society of the United States notably—successfully challenged the federal government's reclassification and issuance of lethal control permits. For three years, protectionist groups and the government vied in federal court over lethal control permits. Intermittently from 2003–2008, nearly 100 wolves were trapped and euthanized in Wisconsin, but their population grew from 327 to 540 wolves during the same period (Figure 1: WDNR, 2007b). In March 2007, the federal government removed gray wolves from its list of threatened and endangered species in the western Great Lakes DPS (USFWS, 2007), three years after Wisconsin had done so at the state level (Figure 1). As this article went to press, a federal lawsuit against delisting was pending—with state and federal agencies and hunting advocates lined up against national protectionist groups.

The repeated litigation of national wolf protection groups irked some WDNR wolf managers because (a) they thought they had secured agreement with several of the groups about eventual destruction of wolves implicated in livestock predation and (b) they suspected some of the co-plaintiffs were motivated to litigate by the opportunity to raise funds nationally (R. Jurewicz, personal communication February 21, 2008). The WDNR opposed protectionist lawsuits because they sought authority to enact flexible management of wolves. Disaffection between WDNR wolf managers and wolf protectionist organizations set in.

With wolf management entrusted to Wisconsin in 2007 and the aforementioned rift between the WDNR and several national wolf protectionist groups, wolf policy began to shift toward the interests of livestock and hunting groups, as reflected in more liberal lethal control and compensation rules. Soon after wolves were delisted, the WDNR granted permission to landowners to kill wolves on private land if domestic animals were threatened (WDNR, 2007a). They also designated five "proactive control areas" where landowners, their families, and pre-registered agents can shoot wolves on their property, irrespective of past depredations (WDNR, 2007a). In addition, the WDNR began to pay for missing livestock after an 11-year dispute between a beef-cattle farm over missing calves. The owners of this farm claimed 110 calves disappeared because of wolf predation from 1994–2002; <10% of losses were verifiable by WDNR criteria (Treves et al., 2002; WDNR, 2007a). The WDNR relocated or killed members of three wolf packs in and around that one property over the years (R. Jurewicz, ER, personal communication February 21, 2008). The owners requested compensation for missing calves, then refused partial compensation of $21,082 in 2002, and eventually filed suit in state court. Under direction from elected officials and political appointees, the ER eventually paid for all missing calves in 2005 (R. Jurewicz, ER, personal communication February 21, 2008). It took two more years before payments for missing livestock became part of the administrative rules (WDNR, 2002, 2007a). In sum, the WDNR slowly acceded to livestock interests regarding lethal control by landowners and livestock payment rules.

Nine years after this first unsuccessful effort to publish ideas on wolf hunting (see earlier), public discussion of hunting wolves resurfaced. On April 14, 2008, the Wisconsin Conservation Congress (WCC)—a statutory, advisory body to the WDNR—requested public comment from those attending statewide WCC meetings and a yes/no vote on the following question: "Do you favor the WDNR, WCC, and the Wisconsin Legislature develop a season framework and harvest goals to maintain the wolf population within

management objectives?" Statewide, 4,848 of 5,620 (86%) respondents from 72 counties endorsed it (WDNR, 2008c). This strong endorsement deserves caution because of sampling bias and structural bias in the questionnaire. Sampling bias arose because participants were self-selected attendees to the WCC, which has long been dominated by hunting/angling interests—evidenced by (a) its logo featuring a hunter with gun and dog and game species only and (b) seven of 23 WCC subcommittees addressed game and fish issues directly, whereas only two addressed Endangered Resources directly (Conservation Congress, 2008). The questionnaire design also contained structural, acquiescence bias (Smyth, Dillman, Christian, & Stern, 2006). Respondents could not elect a neutral option, and few respondents skipped the question to express neutrality (WDNR, 2008c). These two biases could generate substantially inflated rates of affirmative responses.

WDNR wolf managers did not immediately embrace the WCC vote. One cited discomfort at the haste to discuss wolf hunting/trapping before the delisting lawsuit was resolved (R. Jurewicz, ER, personal communication February 21, 2008). Rather than using the WCC vote to accelerate planning for a wolf hunt, the lead WDNR wolf manager cautioned that the WCC did not represent state-wide opinion, noted the vote was non-binding, and emphasized state legislation would be required before a hunt could begin (A. Wydeven, public panel convened to discuss hunting/trapping of wolves during the Midwest Wolf Stewards Meeting, Hinckley, MN, April 23, 2008). In sum, wolf policy slowly shifted toward livestock and hunting interests.

The Role of Human Dimensions Research 2003–2008

Greater attention to problem wolf control spurred new human dimensions research including attitudinal surveys addressing specific management options, and spatial analysis of sites of wolf depredation. Attitudinal surveys sampled three distinct sets of Wisconsin residents (a) 535 Wisconsin respondents from townships with verified wolf depredations supplemented by members of a state bear hunting association (Naughton-Treves et al., 2003); (b) 644 state residents selected at random (K. Schanning, Northland College, unpublished); and (c) 1,364 residents selected randomly from six zip codes split evenly between rural and urban, wolf range and non-wolf-range, and spanning low to high support for the ER Fund (Treves et al., in review). The three studies (summarized in Treves et al., 2007) revealed common ground on wolf policy and public endorsement of post-recovery wolf management. For example, compensation payments did not directly raise individual tolerance for wolves, yet were widely endorsed as a conflict mitigation strategy in all three studies. Approval was highest for livestock payments, but not for losses of hunting dogs in all three studies. Based on these survey results and on the rising costs of compensation, the WDNR proposed price caps, deductibles (claimant payment of low-cost losses before state payment), and other means to limit their liabilities for wolf damage (Treves et al., in review). Although survey results were included in formal management plans and presented to the WDNR Board (Treves et al., 2007; L. Naughton, personal communication, May 8, 2008), lobbying by key interest groups shaped post-recovery management rules more powerfully than did survey data (Treves et al., in review).

In addition, human dimensions research explored the predictability of wolf depredation, in relation to land use, land cover, and wolf pack demographics (Treves et al., 2004; Wydeven et al., 2004). One of these analyses led to a political confrontation between the WDNR and bear hunters who used dogs. The WDNR protected the wolves that attacked hounds on public land because the public lands were seen as core habitat necessary for wolf population viability (WDNR, 1999). However, the WDNR *did* relocate (through

2002) or euthanize (after 2002) wolves implicated in livestock predation from core areas (Treves et al., 2002; WDNR, 2007b; Wydeven et al., 1995). Disparate treatment of wolf attacks on livestock versus dogs seems to have reflected more than protection of core habitat. Perhaps the WDNR wolf managers justified compensation for livelihood losses (livestock) differently form those for recreational losses (hunting dogs). The losses of dogs occurring on public rather than private lands and differences in wolf depredation behavior in the two cases may also have influenced control policy. For instance, Wydeven et al. (2004) showed wolf packs that attacked a hunting dog repeated such attacks in 45–75% of succeeding years, and larger packs more frequently attacked dogs than did smaller packs. Attacks on dogs showed signs of territorial defense rather than predation (Treves et al., 2002; Wydeven et al., 2004). Livestock attacks had lower rates of repetition (possibly due to control action) and involved smaller wolf packs usually consuming the livestock completely. These findings could justify lethal control of wolves that attacked dogs, if the sole objective was to reduce depredations. Instead, the WDNR proposed a change in hunter behavior, referred to as the "5-mile rule." In brief, the 5-mile rule stipulated (a) no compensation after the first payment for a hunting dog loss at the same time and (b) the WDNR would post warning signs in a 5-mile radius around the first site, to alert dog owners of the risk. However, state politicians influenced by bear hunters rejected the rule change (Treves et al., in review). Human dimensions research proved useful in formulating management rules and bolstering agency proposals, but inadequate to change policy in the face of interest group pressure.

Finally, human dimensions research also influenced discussion of wolf hunting/trapping. WDNR staff speculated that hunting/trapping activities might be usefully focused on sites of livestock depredation (A. Wydeven, Midwest Wolf Stewards Meeting, April 23, 2008). This idea draws support from research showing wolf depredation sites thus far have been few in number, highly predictable from landscape features, and located mainly along the fringe of expanding recolonization fronts (Treves et al., 2004). Wydeven's suggestion is further bolstered by recent public opinion surveys showing a majority of state respondents would approve of regulated wolf hunting/trapping if biologists deemed an annual hunt sustainable, or if depredations became unmanageable (Treves et al., 2007). The combination of ecological and social science, spatial predictive models and attitudinal surveys has generated novel proposals for management.

Conclusions about Wolf Policy and Interest Groups

Wolf policy in Wisconsin over the past 29 years has reflected interest group pressures acting on state managers striving to regain authority from the federal government. The policy shifted from strict protection during recovery to more flexible management to maintain wolves in a human-dominated landscape. Change reflected dramatic increases in wolf numbers and shifting alliances between state wolf managers and interest groups. Federal rules framed WDNR policies, but the agency went beyond federal mandates, including protecting wolves more strictly during the 1980s and 1990s and eliminating problem wolves in the past six years. As wolf numbers rose and complaints about depredation mounted between 1980 and 2008 (Figure 1), the state sought to manage wolves more as they do other wildlife (i.e., as a resource). To do so, they had to balance one interest group against another without alienating any irrevocably. The three interest groups (bear hunters, wolf protectionists, and livestock producers) did not effectively form coalitions to work in concert nor did any one muster strong support from another powerful lobby (e.g., the state's deer hunters). The most likely alliance—bear hunters and other hunters—did not emerge, perhaps

because bear hunters who use dogs experience episodes of statewide criticism (Lott, 2002). The Wisconsin case demonstrates that hunters are a heterogeneous group with variable opinions on wolf recovery. Likewise, national protectionist groups did not rally the state's wolf protectionists in large numbers. The latter donated the most to wolf damage compensation, but those contributions were anonymous and donors unorganized (Treves et al., in review).

Human dimensions research revealed common ground, exposed extreme views of wolf policy, and discouraged simplistic narratives about human–wolf interactions (e.g., that wolves threaten livestock anywhere they roam, or that urban residents will reject a wolf hunt). Public surveys documented the silent majority that endorsed much of the state's wolf policy and state wolf managers successfully occupied the common ground between interest groups and the silent majority.

Had state wolf policy makers failed to occupy the common ground, they might have lost authority and flexibility through various mechanisms: (a) had wolf population and threats to it been mismanaged, the federal government might have delayed delisting (USFWS, 2007, 2008); (b) had property damages, population growth, or lethal control of wolves been widely perceived as mismanaged, interest groups might have tried direct democracy or additional lawsuits to wrest authority from the WDNR as has happened in other states (Gill, 1996; Jacobson & Decker, 2008; Torres, Mansfield, Foley, Lupo, & Brinkhaus, 1996); or (c) had illegal killing of wolves reached unsustainable levels, the WDNR might have lost control *de facto*. Few of these events transpired and the ones that did were not overwhelming. The history is remarkable because the state agency balanced three seemingly powerful interest groups while forging ahead to recover a species laden with symbolism and conflicting economic, ecological, aesthetic, and recreational values in a human-dominated region.

The success of WDNR wolf management also reflects expertise in the agency, a factor that has received little attention in current analyses of the political process underlying wildlife policy (e.g., Jacobson & Decker, 2008; Nie, 2002). The prior authors have noted the need for wildlife managers to acknowledge diverse wildlife values and bring stakeholders together for deliberative, consensus-based discussions; make decisions that meet local views of fair, democratic legitimacy; and measure the changing attitudes of their many constituencies. I would add that wildlife managers must master the many detailed arguments potentially marshaled by interest groups, including economic, ecological, aesthetic, or recreational ones. The professional expertise and scientific training of the state wolf managers was essential to such mastery. Without this mastery, state managers cannot counter special interest arguments, to steer policy toward a more inclusive vision and long-term goal of prudent wildlife conservation.

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