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COOPERATIVE WOLF DEPREDATION MANAGEMENT IN WISCONSIN

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Abstract: A depredation management plan was an important component of Federal and State recovery plans for the endangered gray wolf (*Canis lupus*) in Wisconsin. The Wisconsin Department of Natural Resources (WDNR) entered into a cooperative agreement with USDA-APHIS-ADC to cooperatively manage wolf depredations. Response to complaints involving wolf-dog hybrids was also part of the cooperative agreement. From 1990-1996 ADC investigated 60 wolf complaints and confirmed 10 depredations. In the same time period, WDNR paid a total of \$21,376 in compensation payments for 21 incidents of wolf depredations. Wolves may be downlisted from endangered to threatened within the next five years. As the wolf population increases so will the need for effective response to depredations.

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Gray wolves (*Canis lupus*) occurred across Wisconsin prior to European settlement, with populations estimated at 3,000 - 5,000 (Wydeven et al. 1995). As the State was settled, the wolf population dramatically declined from a combination of habitat alteration, prey reduction, and removal. Bounties on wolves were commonplace from 1865 until the 1950's (Thiel 1993). By 1900, wolves were considered extirpated from the southern half of the State (Jackson 1961).

Wolves could be found in northern Wisconsin at least until the early 1950's (Thiel 1993). The existence of several large tracts of protected forest land with limited vehicle access allowed a small number wolves to persist in Wisconsin long after the species had disappeared from much of the U.S. However, pressure to open closed government fire lanes to public use in the 1950's resulted in increased access to remote areas by trappers (Thiel 1993). By the time bounties were eliminated in Wisconsin in 1957, and wolves were listed as a protected species, very few wolves could be found in the State. One of the last Wisconsin wolves, "Old Two Toes," was killed by a car in January, 1958.

Between 1960-1975 wolves were considered extirpated from the State. The elimination of wolf bounties in neighboring Michigan and Minnesota, and increased Federal protection for the species, set the stage for wolf recovery. Mech and Nowak (1981) indicated that a wolf pack was established in eastern Minnesota near the Wisconsin border in 1974, and reported 5 wolves killed in Wisconsin between 1975-1979.

The Wisconsin Department of Natural Resources (WDNR), in cooperation with U.S. Fish and Wildlife Service, initiated a three year wolf monitoring project in 1979 (Thiel 1993). The winter 1979-1980 wolf population was estimated at 25 animals. However, high pup mortality due to canine parvo virus, Lyme disease, and continued human caused adult mortality had reduced the population to about 15 animals by 1985 (Wydeven et al. 1995).

The wolf population showed slow but steady growth after 1985. Increased management efforts by WDNR, including expanded educational and law

enforcement efforts, may have contributed to a reduction of human caused wolf mortality from 72% of overall mortality (1979-1985) to 24% (1986-1992). Also, the number of animals testing positive for parvo virus declined between 1986 and 1992 (Wydeven et al. 1995).

Wisconsin initiated a wolf recovery plan in 1989 that set a goal of 80 wolves in the State by the year 2,000 (Thiel and Valen 1995). In establishing criteria for eventual reclassification of the Wisconsin wolf population from endangered to threatened, the Federal wolf recovery plan supported the 80 animal goal. In addition, the Federal plan stated a combined Wisconsin - Michigan population must reach a minimum of 100 wolves for five consecutive years before delisting could occur (USFWS 1992).

The Wisconsin population first exceeded 80 animals in 1995, and was estimated at 99 - 105 in 1996 (Wydeven 1996). In 1994, the combined Wisconsin-Michigan population was estimated at 110 wolves, and surpassed expectations by reaching over 200 animals by 1996. The Wisconsin population potentially could reach 400 animals within 40 years (Mladenoff et al. 1997). Currently, wolves exist in at least 30 distinct packs across northern Wisconsin, primarily in the northwest and northcentral regions, but also in central Wisconsin.

Depredation management issues were addressed by both the Federal and State recovery plans. It was recognized by WDNR that depredations on domestic animals would occur as wolf populations increased, and that clear, detailed depredation management procedures and policies were an important component of wolf recovery. In 1988 wolf depredation management was incorporated into a cooperative agreement between WDNR and USDA-APHIS-ADC. This paper discusses the Wisconsin cooperative wolf depredation management program, 1990-1996.

STUDY AREA

Wisconsin is a 145,400 km² state located in the upper Midwest at the western edge of the Great Lakes. About 44% of the state is forested, 43% is farmland, 6% urban or developed, 4% non-forested wetlands, and 3% open water (Spencer et al. 1988). The

population in 1990 was 4,705,521. The majority of Wisconsin residents are found in the southern half of the state. Land use in southern Wisconsin is primarily agricultural. Existing and potential wolf range is found mostly in northern Wisconsin, except for a 10,000 km² area of forest and marshland in the west central part of the state.

Wolf habitat in northern Wisconsin is a mosaic of Federal, State, and County public forest, industrial forest, privately owned recreational lands, lakes, resorts, small towns, and scattered farms (Mladenoff et al. 1995). In some areas farming is extensive. In the 21 counties which encompass the majority of potential wolf range in northern Wisconsin there were 12,520 farms covering 2,751,000 acres in 1995 (WASS 1996). Livestock on these farms included 527,000 cattle and calves, 30,500 hogs and pigs, and lesser numbers of sheep, goats, and exotic livestock (WASS 1996). Cattle were primarily used in dairy operations.

METHODS

Protocol and procedures for cooperative wolf depredation management in Wisconsin were detailed in a depredation plan prepared by WDNR in support of the state recovery plan, as well as in a cooperative agreement negotiated annually by WDNR and USDA-APHIS-ADC.

Wisconsin citizens contacted ADC directly to report a wolf depredation, or were referred to ADC by WDNR. ADC maintained a toll-free phone line which was listed in phone books of all major towns in northern Wisconsin. After a depredation complaint was received by ADC, a site investigation was conducted within 48 hours.

If ADC personnel determined the reported depredation to be caused by a wolf or wolf-dog hybrid, WDNR was contacted immediately. Abatement options were discussed by WDNR and ADC, taking into consideration location of depredation in relation to known wolves or wolf packs, severity of damage, type and size of farm operation, and other factors.

Abatement options included recommendations for non-lethal methods such as flashing lights, improved fencing, changes in animal husbandry practices, and proper carcass disposal. In addition, WDNR may make the determination that the wolf or wolves involved should be trapped and removed from the area. Since wolves in Wisconsin are currently classified as endangered, the State does not have the authority to conduct lethal control. Any wolves trapped were radio collared, translocated within the State, and monitored. In situations involving wolf-dog hybrids it was WDNR policy to euthanize such animals once hybrid determination had been made. Hybrid determination was made by United States Fish and Wildlife Service, based on information provided by WDNR.

Trapping of wolves was conducted by ADC personnel except in areas where WDNR wolf research personnel were active, using equipment and methods similar to those used by ADC in Minnesota wolf control efforts (Fritts et al. 1992). Trapped wolves were immobilized with 3:1 Ketamine HCL-Xylazine HCL mixture and placed in a covered holding cage. The animals were transferred to WDNR personnel for translocation.

In all confirmed depredation situations the complainant was eligible for State sponsored damage compensation payments. A percentage of an

endangered resources income tax "checkoff" fund is dedicated for the payment of damage claims involving endangered species in Wisconsin. ADC provided a detailed damage assessment to WDNR for each confirmed depredation. Payments were made by the WDNR Bureau of Endangered Resources.

RESULTS AND DISCUSSION

From 1990-1996 ADC responded to 60 wolf complaints (Table 1). Of the complaints investigated by ADC, 10 (17%) were confirmed wolf depredations. WDNR paid a total of \$21,376 in compensation for 21 wolf damage claims, 1990-1996 (Table 2). Some complaints were investigated independently by WDNR during this period. In one situation involving the death of two hunting hounds, ADC determined a depredation was not consistent with wolf predation; however, WDNR felt enough doubt existed to justify compensation payments. In another situation a reported loss of six calves could not be confirmed because of a lack of physical evidence, but compensation payments were made by WDNR based on circumstantial evidence, including the known presence of radio-collared wolves in the immediate vicinity. The depredations confirmed by ADC involved calves and cattle, sheep and lambs, hunting dogs, and turkeys (Table 1).

Table 1. Wolf complaints investigated by USDA-APHIS-ADC in Wisconsin, 1990 - 1996.

Year	No. Complaints Investigated	No. Complaints Confirmed	Resources Involved	County	Complaint Resolution
1990	0	0	None	NA	NA
1991	2	2	_Lamb (1) _Turkeys (115)	Douglas Washburn	_Payment only _Single Wolf trapped by DNR and relocated/Payment
1992	9	1	Sheep (8), Calf (1)	Douglas	Payment only
1993	14	2	_Adult cattle (1) _Turkeys (25)	Douglas Washburn	_Payment only _Traps set by DNR/ Payment
1994	6	0	None		None
1995	20	3	_Calves (2) _Calves (1) _Calves (1)	Burnett Douglas Price	_Traps set by ADC/ Payment _ Payment only _ Payment only
1996	9	2	_Hunting Dog _Calves (1)	Sawyer Burnett	_ Payment only _ Traps set by ADC/

Table 2. Value of resources lost to wolves as confirmed by ADC, and payments made by WDNR, 1991 - 1996.

YEAR	CONFIRMED BY ADC	PAYMENTS BY WDNR
1990	\$0.00	\$187.55
1991	\$895.00	\$1,035.00
1992	\$340.00	\$1,600.00
1993	\$274.00	\$5,225.00
1994	\$0.00	\$1,800.00
1995	\$850.00	\$3,563.00
1996	\$500.00	\$7,475.45
TOTALS	\$2,859.00	\$21,376.12

In three situations wolf depredation situations met criteria for attempted live trapping and translocation. In 1991 a lone adult female wolf was live trapped by WDNR research personnel at a turkey farm where 115 turkeys had been killed by a wolf. The wolf was translocated to National Forest land at least 140 miles from the depredation site. The wolf remained in the new area until it died from complications after an immobilization procedure 2.5 months after release. In 1995 ADC initiated trapping activity at a large cattle ranch after a lone, radio-collared wolf was suspected in depredations on two calves. Traps were removed when the wolf moved out of the area and no further depredations occurred. Traps were set at the same ranch in 1996 after wolf depredation on a calf was confirmed. The radio collared wolf, along with a second animal, were suspected in the depredations. However, control operations were terminated after the wolves again moved out of the area and no further depredations occurred.

Under the terms of the cooperative agreement with WDNR, ADC also responded to complaints involving wolf-dog hybrids. From 1990 -1996 ADC responded to 5 wolf-dog hybrid complaints. Most complaints involved threats to human safety or pets. In 3 situations ADC was requested to trap the animals involved, and a total of 5 wolf-dog hybrids were live-trapped. There have been at least 11 incidents of free-roaming wolf-dog hybrid problems in Wisconsin, 1989-1996.

Although ADC received 60 reported wolf depredation complaints in 1990-1996, actual wolf depredations were confirmed in only a small number of situations. Depredations on livestock by wolves is still a relatively uncommon occurrence in Wisconsin. However, complaints are increasing. The majority of depredations confirmed by ADC involved livestock, while the majority of damage compensation funds paid by WDNR involved hunting dogs being used for bear, bobcat, or coyote pursuit in forest land situations.

Currently, the Wisconsin wolf population is found primarily in the most optimum habitat available in the state. These areas are characterized by low road density, low human density, and a high percentage of Federal, State, or County managed forest land (Mladenoff et al. 1995). As wolves expand their range in the state the potential for conflict with domestic animals will increase. Consequently the need for effective depredation management also will increase.

Wolf management in Wisconsin is shifting from a recovery emphasis to an emphasis on management of a stable population. The State is currently developing a wolf management plan which will eventually replace the State recovery plan. Public comments were sought as a guide for development of a new management plan. In general, the public opposed any private trapping or hunting efforts to control wolf depredations, but in principle accepted the need for professional response to wolf depredations, including removal if absolutely necessary. The reclassification of wolves in Wisconsin from endangered to threatened, which could occur as early as 1998, could allow the State to lethally remove depredating wolves when appropriate.

The cooperative wolf depredation management program in Wisconsin was able to provide prompt, professional assistance to citizens experiencing wolf depredation problems during a critical phase in the recovery process. Through a combination of technical assistance, damage compensation payments, and direct control most complaints were satisfactorily resolved. Depredation management was an important component of wolf recovery in Wisconsin. The role ADC will play in the continued management of wolves in the State will not be clear until the wolf management plan is finalized.

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