

DRAFT
WISCONSIN TIMBER WOLF RECOVERY PLAN
ENVIRONMENTAL ANALYSIS*

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Section 1. Project Summary

General Description of Proposed Action:

In January 1986 the Secretary's Office established a 12 member Recovery Team to oversee the development of a Wisconsin Timber Wolf Recovery Plan. Citizen comments and concerns were sought by the Team at various intervals as the plan was created (See also Section 5: Summary of Issue Identification Activities and Attachment 2). The latest citizen input was obtained in response to a draft Wisconsin Timber-Wolf Recovery Plan (hereafter referred to as Draft Plan) made available for public review in October 1987. Following their review of public responses to the Draft Plan the team made modifications and submitted the latest version of the Wisconsin Timber Wolf Recovery Plan (hereafter referred to as the Wisconsin Timber Wolf Recovery Plan, or simply Recovery Plan) to the Division of Resource Management Administration in April 1988 for their review and approval. The Recovery Plan, which has not been approved awaits the outcome of an Environmental Assessment.

The Draft Plan and the Recovery Plan, while similar, differ in some areas. The goal of the Draft Plan of 60 to 100 wolves has been changed in the Recovery Plan to 80 wolves. The following management activities have been added to the Recovery Plan: (A) conduct periodic program evaluations to assure that actions meet the Goal, (B) establishment of a committee to develop a wolf management program for the species once the Goal has been met, and (c) use volunteers to assist in Educational and population monitoring activities. These actions were not present in the Draft Plan, but were created in response to public comments on the Draft Plan. Also, under Protective Measures the development of a reward fund, established in cooperation with various organizations, is listed in the Recovery Plan.

The Wisconsin Timber Wolf Recovery Plan consists of various management activities selected to assist the expansion of the existing Wisconsin wolf population to the Recovery Goal of 80 wolves. The following activities are recommended: (1) increase public education activities, (2) reduce the incidence of human caused killings through increased protective measures and improved law enforcement actions, (3) enter into cooperative habitat management with landowners, (4) monitor population changes annually, (5) curb losses of litters due to disease, (6) conduct periodic program evaluations, (7) implement an acceptable livestock damage control program, (8) increase cooperation/coordination of activities with other agencies and interested organizations, (9) continue a Citizen Participation program, (10) use of volunteers to assist in educational and population monitoring activities, (11) establish criteria for delisting the wolf and establish an inter-disciplinary committee to develop a wolf management program following delisting, and (12) consider translocation of individual wild Wisconsin wolves after year 5 if necessary.

Purpose and Need:

The purpose of this Environmental Assessment is to determine whether any of the proposed management activities described in the Wisconsin Timber Wolf Recovery Plan will significantly affect the quality of the human environment, and whether an Environmental Impact Statement is required.

The purpose of the Wisconsin Timber Wolf Recovery Plan is to review the processes that have caused significant declines in the number and distribution of Eastern Timber Wolves (Canis lupus lycaon Schreber) within Wisconsin and to propose measures to recover this species. The Eastern Timber Wolf was listed as an Endangered Species within Wisconsin by the U.S. Department of Interior, U.S. Fish & Wildlife Service in 1967 and by the State of Wisconsin, Department of Natural Resources in 1975.

The Bureau of Environmental Analysis and Review has determined an Environmental Analysis is necessary because there are several alternatives regarding wolf recovery and these should receive public and agency review before proceeding.

Authorities and Approvals:

The Wisconsin Department of Natural Resources (DNR) is directed by state statute 29.415 (7a) to implement programs "directed at conserving, protecting, restoring and propagating selected state endangered and threatened species to the maximum extent practicable." The Eastern Timber Wolf is listed as an endangered species in Wisconsin by the U.S. Fish & Wildlife Service (FWS) and the Wisconsin DNR. The purpose in developing a Wolf Recovery Plan is to comply with state statute by restoring this species to a secure population level. The option to "do nothing" is not consistent with the intent of state law, and should not be considered unless Wisconsin's wolf population fails to respond to practical management activities. It will be necessary to extend the federal permit to capture and radio collar wolves for purposes of telemetry studies. It may also be necessary to obtain a federal permit to allow taking of individual wolves causing livestock depredations, pursuant to Section 9 (2)(A & B) of the US Endangered Species Act, Amendments of 1982. Permits may also be required if translocation of individual wolves within the state is recommended.

Funding Sources/ Estimated Costs:

Funding sources for Timber Wolf Recovery in Wisconsin could be a combination of Endangered Resources funds, Federal Endangered Species Act funds, Pittman-Robertson funds, direct donations and wildlife Management Segregated funds in the form of wildlife managers salary to help implement the plan. The Bureau of Endangered Resources should develop a funding strategy to insure an adequate budget for the implementation of this plan. Table 1 provides estimated annual Recovery Plan program costs developed by the Team.

TABLE 1 - SCHEDULE OF MANPOWER AND COST (in 1,000s) FOR IMPLEMENTING THE WISCONSIN TIMBER WOLF RECOVERY PLAN BY FISCAL YEAR¹

ACTIVITY	(1) 1988-89		(2) 1989-90		(3) 1990-91		(4) 1991-92		(5) 1992-93		(6) 1993-94		(7) 1994-95		(8) 1995-96		(9) 1996-97		(10) 1997-98		
	HRS.	\$	HRS.	\$																	
1. EDUCATION	450	7.7	460	9.9	310	5.2	310	1.9	230	8.9	20	10									
2. PROTECTION	80	.4	90	1.2	50	.2	50	.2	90	.2	50	.2	50	.2	50	1.2	50	10.2	40	.2	
3. HABITAT MANAGEMENT	480	1.4	480	1.4	310	1.1	190	0.3	190	0.3	190	0.3	190	0.3	190	0.3	190	0.3	190	0.3	
4. MONITORING	500	25	400	25	400	25	400	25	400	25	400	25	400	25	400	25	400	25	400	25	
5. DISEASE ABATEMENT	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	
6. EVALUATION					40	1.0			80	1.0					40	1.0			80	1.0	
7. DAMAGE CONTROL	50	0.5	30	0.2	30	0.2	30	0.2	30	0.2	40	0.2	40	0.2	40	0.2	40	0.2	40	0.2	

¹ Hours are for project coordination; salary costs for project coordinator and intra-agency cooperation are not included in the cost estimates. Coop salary are not in dollar costs but costs of project coordinator are included.

TABLE 1 - SCHEDULE OF MANPOWER AND COST FOR IMPLEMENTING THE WISCONSIN TIMBER WOLF RECOVERY PLAN BY FISCAL YEAR¹

ACTIVITY	(1) 1988-89		(2) 1989-90		(3) 1990-91		(4) 1991-92		(5) 1992-93		(6) 1993-94		(7) 1994-95		(8) 1995-96		(9) 1996-97		(10) 1997-98	
	HRS.	\$	HRS.	\$																
8. COORDINATION	70	1.1	60	0.8	60	0.5	60	0.5	60	0.5	60	0.5	60	0.5	60	0.5	60	0.5	60	0.5
9. CITIZEN PARTICIPATION	200	2.0	200	2.0	200	2.0	200	2.0	200	2.0	200	2.0	200	2.0	200	2.0	200	2.0	200	2.0
10. VOLUNTEERS	270	2.2	250	3.2	130	3.0	90	2.0	90	2.0	90	2.0	90	2.0	90	2.0	90	2.0	90	2.0
11. RECLASSIFICATION																			660	1.3
12. TRANSLOCATION (If Necessary)									450	2.5	110	13.5								
TOTALS	2130	43.2	2010	43.9	1570	39.5	1370	34.1	1860	45.6	1190	55.7	1060	32.2	1100	34.2	1060	32.2	1780	34.5

Section 2. Affected Environment

Issues of Concern:

The following issues and concerns were developed by the Recovery Team from public contacts and numerous meetings with professional resource managers within and outside the agency. Public involvement process is summarized in Attachment 2.

1. Concern over costs and sources of funding the Recovery Plan.
2. Who within the Department will be charged with implementing the Plan, especially if a coordinator position is not established?
3. Wisconsin Recovery Plan's wolf population goal should compliment federal and regional goals for this species.
4. Educating the public about wolves is of paramount importance to succeed.
5. Increase fines on the state level for killing wolves.
6. Fear that access management will adversely affect logging and the timber industry, and may create hardships for snowmobilers, hunters, hikers, handicapped etc.
7. Fear wolves will have adverse impact on deer herd.
8. Oppose translocating wolves.
9. Support compensation for depredations on livestock.
10. What will the Department do if wolf numbers exceed the goal level?

Physical Environment of Importance:

The federal Eastern Timber Wolf Recovery Plan (Bailey 1978) identified four major factors critical to the survival of wolves. They are:

"(1) availability of adequate wild prey, (2) large tracts of wild land with low human densities and minimal accessibility, (3) ecologically sound management, and (4) adequate understanding of wolf ecology and management."

Wolves are habitat generalists and can survive anywhere where they are not persecuted. At present vast portions of the state are unsuitable to wolves because of direct conflicts with human land uses; however many areas in Wisconsin's northern forest region could potentially support wolves.

Two factors have limited wolf populations: 1.) availability of ungulate prey, and 2.) the presence of people, the wolf's only significant predator. Presently wolf distribution in Wisconsin is governed by (1) human uses of land, and (2) the level of mortality caused by humans.

Many areas within the northern forest region of Wisconsin are considered potential wolf habitat because of an abundance of deer, their primary prey (Map 1). Wolves are capable of surviving anywhere within this region where they are not molested by humans. The impact of persecution by humans is relative to the proximity of wolves to humans and their activities. More inaccessible or relatively remote areas may have greater potential in sustaining packs of wolves.

Biological Environment:

Wolves are predators that occupy an apex position in the ecological food pyramid (Figure 1.). In the Upper Great Lakes region, which includes Wisconsin, wolves prey primarily on deer and beaver. All three species (wolf, deer, beaver) are, in turn, preyed on by humans.

Wolves may potentially affect their prey populations; and may themselves be affected by humans.

Deer: Biologists studying wolves and deer believe that wolf predation generally poses no serious threat to deer herds. In Minnesota legal and illegal harvesting by humans and severe winters (which occur about every 4 years), have the greatest impact on deer numbers, even where wolves are common. Wolves can impact deer populations especially during and following a series of severe winters, but wolf predation usually "compensates" for other forms of deer mortality during severe winters. Wolf predation rates of 8 adult deer per wolf per year, and 4 fawns per wolf from October through May were determined from a recent radio telemetry study in north-central Minnesota (T. Fuller, pers. comm.).

Most wolf-prey relations studies concluded that wolves do not deplete prey populations. Studies conducted in the Upper Great Lakes region by Stenlund (1955), Thompson (1952) Pimlott et al. (1969) and Kolenosky (1972) indicated that wolves were not present in sufficient numbers to adversely affect deer populations.

In one study area monitored by Mech and Karns (1977) wolves were involved in the depletion of a deer population. Contributing factors in the decline of deer in their study area were a series of severe winters, forest succession and a concomitant deterioration of deer habitat, and unusually high wolf densities. These biologists argued, "...logic dictates that if a predator depletes its prey resource over a large enough area, the predator-prey system cannot persist.", and they concluded, "From this analysis, and from the fact that deer herds so seldom disappear, we can conclude that deer populations are remarkably resilient. Only when such important factors as declining habitat, inclement weather, and intensive predation are combined for several consecutive years are local herds unable to survive."

The Recovery Plan wolf population goal of 80 individuals represents a three to four fold increase over existing numbers of wolves in Wisconsin. As the wolf population increases (under proposed management activities), wolf distribution in Wisconsin will also change. Wolves will spread out and occupy other deer management units. However, the impact of wolves on deer even within any additional units will probably be negligible because of the unlikelihood that any one unit would be 100% occupied by wolves.

The Team believes the presence of Wolves will not affect deer populations in general. Northern Wisconsin overwinters approximately 265,000 deer. If 80 wolves each eats 18 deer per year, 1450 deer would be required. Even if all

these deer were removed from the wintering herd (the low point in the annual population trend) wolves would take less than 1/2 of 1 percent of the northern forest deer herd. Wolves may impact deer numbers on a local basis during and following especially severe winters but a population of 80 wolves will not affect northern Wisconsin's deer population.

Beaver: Beaver constitute an important seasonal component of the wolf's diet in the Upper Great Lakes States (Mandernack 1983, Peterson 1977, Pimlott et al. 1969, Voight et al. 1976). In some areas beaver provide a "buffer" prey species during summer months, which may actually augment pup survival.

Wolf predation on beaver is not considered intense enough to affect their populations, although no studies have been conducted to ascertain any impacts. In Wisconsin beaver populations have been considered at "nuisance" levels since the late 1970's (Bureau of Wildlife Management files, Pils 1983). Wolf predation on beaver, which occurs during the snow-free months (Mandernack 1983), has little or no effect on beaver populations (Thiel, unpublished data).

Northern Forests: The northern forest region of Wisconsin encompasses approximately 15,000 square miles of contiguous forested land in the northern quarter of the state (McCaffery 1987, Map 1). Numerous studies of white-tailed deer habitat needs, summarized by McCaffery (1987), indicate that shade intolerant forest tree species such as aspen, jack pine and scrub oak, provide vital summer range for deer in northern Wisconsin. About 30 % of the northern forest region is composed of shade intolerant species, but acreage of these vegetative components are decreasing (Raile, 1985: Table 1, page 16) due to natural succession and conversion to other timber types (McCaffery 1987). Most deer habitat management activities focusses on the maintenance of shade intolerant forest types in areas where they presently occur, and depend principally on commercial forestry operations.

Wolf-Human Interactions: Deer, beaver and wolves are, in turn, affected by humans - the prime apex predator within any biological system (Figure 1), including Wisconsin's northern forest region. Deer harvests have been regulated since 1927 when the Wisconsin Conservation Department was established (Lindberg and Hovind 1985, Scott 1980). Annual deer harvest levels vary, and have averaged over 200,000 statewide during the 1980's (DNR files). Deer hunting (both archery and gun) provide a significant recreational opportunity for hundreds of thousands of hunters annually.

Beaver were drastically reduced within Wisconsin by the turn of the century due to over-trapping and loss of habitat with the felling of our forests. A fur trapping season was re-established on them in the 1930's following a lengthy period in which they were either totally protected or short restrictive seasons were in effect. Currently the statewide beaver population is at an all-time high. An average of 32,000 beaver were harvested annually in Wisconsin since 1983. An additional 5000 beaver were taken as nuisances under a special control program in 1985 and 1986.

Wolves were found throughout Wisconsin prior to settlement, but in this century they have been limited to the northern forest region of the state. Keener (1955) reported that wolves were restricted to perhaps 4 or 5 localities in the north and, using Thompson's (1952) density estimate of 1 wolf per 42 to 50 square miles, he estimated 50 individuals occupied 2,000 square miles of occupied habitat by 1953-55. Thiel (1978) felt that the breeding population of wolves had been extirpated by 1960, but documented occasional activity of lone wolves within the state between 1968 and 1975. A state bounty, which operated from 1865 to 1957, was a major cause of the inevitable extirpation of the species from the state by 1960.

By this time Minnesota held the last remaining wolf population in the conterminous United States. Shortly after that population was afforded protection through the federal Endangered Species Act of 1966, the wolf's range began expanding. Individual wolves began reappearing in Wisconsin during the early 1970's, and several wolf carcasses were recovered in the mid 1970's (Mech and Nowak 1981). The presence of wolf packs and breeding among wolves was documented in the late 1970's (Thiel and Welch 1981), and telemetry studies conducted by the Department of Natural Resources since 1979-80 indicate the presence of 15 to 25 wolves in 4 to 6 breeding groups (or packs) in Wisconsin (Thiel 1982, Thiel 1987).

The presence and actions of people are considered significant in limiting wolf distribution. Negative attitudes and misconceptions perpetuate human caused deaths to this day (Hook & Robinson 1982, Knight and Thiel in prep.) despite laws protecting the species. Surveys of people in Michigan and Wisconsin indicate that approximately 15 percent display anti-predator attitudes and believe wolves should be eliminated. Human persecution of wolves probably suppresses their re-establishment in Upper Peninsula Michigan and Wisconsin (Robinson and Smith 1977, Mech and Nowak 1981, Thiel and Hammill Submitted).

Accidental and intentional deaths by people account for about 70 percent of all known Wisconsin wolf deaths (Table 2).

TABLE 2. Summary of 21 known Wisconsin wolf-mortalities, 1975-1986

	Man Caused			Natural	Unknown	Total	
	Shot	Trapped*	Other				
No. Wolves	9	3	3	15	5	1	21
Percent	43	14	14	71	24	5	100

*In addition, single wolves were trapped and released in 1982, 1985, and 1986 by private trappers with the help of DNR officials.

An annual adult wolf mortality rate of 38 percent was calculated for radio-collared Wisconsin wolves between 1979 and 1984 using the method described by Heisey and Fuller (1985). Only three types of mortality-natural, unknown and shot- were identified based on necropsied radioed wolves. Shootings, the major source of mortality, were highest in fall, while natural deaths occurred only during winter.

Wolf range is determined by the degree and intensity of human activity in any area. As human activity increases, wolf mortality increases, either through accidental or intentional killings by humans.

Human activity is conditioned by access. As access (principally via roads) improves, so does the use of roads by people. And as use increases (for whatever reason) so, too, the likelihood of encounters between wolves and people.

Roads don't kill wolves; people do. The simple truth is that if the roads weren't there fewer people would be there also. Roads increase wolf-human encounters that can potentially result in accidental or intentional deaths.

Recently scientists learned that levels of roads greater than one linear mile of open, improved road per square mile seems to impact adversely on wolf populations. (Thiel 1985, Mech et al. 1988)

People specifically those with negative attitudes towards wolves, who use roads in wolf county pose the greatest hazard to wolves. In order to use the road system, they must be open to public use.

Given current attitudes, improved roads open to public travel that are easily used and receive a fairly high and consistent level of use, make it possible for humans to over-exploit wolves. Autumn is the critical period for wolves in the upper Great Lakes states. The majority of deaths, caused by humans, occur during this season.

Cultural Environment:

Land Use: Historically some cultures have despised wolves (ie. western Europeans) while others revere the species (ie. North American Indian tribes) (Lopez 1978). In recent times Wisconsinites have displayed a wide range of animosity towards wolves. Negative attitudes towards wolves are generally formed through (1) fear of wolves, (2) a real or perceived threat of livelihood, and/or (3) the competition wolves pose for game animals. These stem from such diverse items as the influence of a culture's childhood fairy tales (ie. "Little Red Riding Hood"), conflicts arising from depredations on livestock, to differences in the manner in which certain forms of wildlife (ie. big game) are valued by various factions within the culture.

Among Wisconsinites of largely European background (Current 1977), attitudes towards wolves are mixed (Knight 1986, Nelson and Hanson 1988). The wolf is held in esteem by Wisconsin's Indian tribes, and many individuals are members of tribal Wolf Clans (eg. Winnebago and Oneida, among others).

Wolf attacks on humans in North America are unsubstantiated (Mech 1970). However, certain conflicts can and do arise in areas where wolves and humans coexist. Wolves need an available prey base and sufficient areas of land to roam in. Conflicts frequently result from the rather large land requirements of wolves and the diverse use of land by humans. Examples of direct conflict

over land use by humans include livestock production, urban areas, and intensive recreational opportunities. Conflicts may also arise anywhere people have the opportunity to encounter and kill wolves either accidentally or intentionally.

Social/Economic: County, federal and state lands occupy about 40 percent of the northern forest region. Eleven percent is owned by industrial forests and an additional 4 percent is owned by the US Bureau of Indian Affairs and Indian tribes. The remaining 47 percent is owned by private landowners (Raile 1985).

The major economic industries in the northern forests region, timber production and tourism, depend on maintaining the integrity of our forests (Lindberg and Hovind 1985). Statewide, primary timber industries generate an estimated 1.6 billion dollars, and the tourist industry generates 3.5 billion dollars into the Wisconsin economy (Lindberg and Hovind 1985).

Recreational pursuits contribute substantially to the tourism industry. Fishing, hunting, hiking, snowmobiling, cross-country skiing are examples of forms of recreation that contribute greatly in tourist dollars expended in the northern forest region.

Harvesting of deer and beaver provides economic gains for Wisconsin citizens. Deer hunters spend roughly 120 million dollars each year in Wisconsin (Bureau of Wildlife Management files). In the past decade approximately 4.2 million dollars in beaver pelts were sold in the state, making beaver one of the more valuable Wisconsin furbearers (Pils 1983). Snowmobiling and cross-country skiing have transposed the winter months in northern Wisconsin from a tourism "off-season" period to a major economic boon (Cooper et al. 1979).

The forested region of northern Minnesota is home to approximately 1200 wolves. Educational touring packages and night howling recreational opportunities are gaining popularity and are helping to boost some local economies in that state (Miller 1988, Kjellstrand 1988). Lindberg and Hovind (1985:72) wisely observed, "Also immeasurable in meaningful economic terms are the ethereal feelings Wisconsinites have for the [forest] resource". The wolf contributes to that sense and may, in the near future, play a more active role in contributing positively to Wisconsin's economy just as they are in Minnesota.

Protecting, enhancing and wisely utilizing the renewable resources of Wisconsin's northern forest region is a responsibility shared by many agencies, organizations and individuals. The Department of Natural Resources works in cooperation with others in managing the state's forest resources.

Archeological/Historical: No development is proposed; hence any information in the environment would be preserved.

Section 3: Environmental Consequences

Physical:

With implementation of the Wisconsin Timber Wolf Recovery Plan the wolf population should expand to a goal level of approximately 80 wolves in 10 packs within 10 years.

In selecting the various management prescriptions, the Recovery Team made certain assumptions based on biological and socio-political data. These assumptions were:

Biological:

- 1). With optimal prey base and minimal molestation from disease or predators (principally humans) wolves have a high reproductive potential (Mech 1970).
- 2). The northern forest region will continue to support adequate prey populations to sustain wolves.
- 3). Adult wolf mortality (human caused and natural - including disease) in Wisconsin will not exceed current levels of approximately 35 percent per year.
 - a). With an adequate educational program human-caused wolf deaths will decrease.
- 4). Litter losses caused by disease will decline and stabilize below 1983 and 1984 levels.
- 5). Finite rate of population increase will approximate 1.15.
- 6). Finite rate of pack increase will approximate 1.08.

Socio-political:

- 1). Although human attitudes towards wolves and other controversial wildlife is gradually improving, human tolerance towards wolves is "delicate" (eg. Nelson and Hanson 1988) and can be upset easily.
 - a). Certain types of management programs may be particularly offensive to some which could, through biological and/or political manifestations, compromise efforts to help the wolf.
 - b). Management programs must be sought which would improve conditions for the wolf in Wisconsin without negatively influencing human tolerance of the species.
- 2). Management activities should be compatible with existing programs, and should be timely and cost effective.

Biological:

Prey base: The wolf's major diet in Wisconsin consists of deer and beaver (Mandernack 1983). These herbivores are dependant upon shade intolerant forests as their prime habitat. At present the shade intolerant forest component in the northern forest region is maintained predominantly through commercial forestry operations on government, industrial forest, Indian and private landholdings. Despite commercial cuttings, this component is decreasing in total acreage (McCaffery 1987, Raile 1985). Implementation of the Recovery Plan will assist the Department in maintaining the habitat necessary to support deer populations at goal levels in the northern forest region (McCaffery 1987).

Wolves occasionally prey on livestock, and any wolf recovery program must provide a fair and effective damage abatement and compensation program. It is important, however, to keep this issue in proper perspective. Neighboring Minnesota is home to an estimated 1,000 to 1,200 wolves. There are more than 12,000 livestock operations in Minnesota's wolf range; yet between 1979 and 1984 an average of only 23 farms per year lost livestock to wolves. Wisconsin has had a population of 15 to 25 wolves for the past decade or more, and only two cases of wolf depredation on livestock have been confirmed. Livestock depredation by wolves will probably not be a serious problem in Wisconsin even if the population Goal is attained.

The DNR, US Department of Agriculture, and FWS will cooperatively agree upon a livestock damage control program to remove individual wolves causing damage. DNR or federal agents will verify losses and carry out nonlethal or lethal actions necessary to curtail depredations, following procedures established in Minnesota.

A federal permit will be necessary to control wolves causing livestock damage pursuant to Section 10 (A and B) Endangered Species Act, 1982 Amendments.

Three percent of the annual check-off revenue is placed in the endangered Resources Fund which establishes money for paying damage caused by endangered species. If wolf depredation becomes a problem, legislation will be drafted recommending that a fund be established for a wolf damage abatement program providing 100% compensation for verified livestock losses.

Northern forests: The Recovery Plan directs that shade intolerant forest management programs be adopted between the Department of Natural Resources and other agencies and landowners willing to cooperate in maintaining habitat for deer and wolves. This program is intended to support those already in existence for the purpose of maintaining quality summer deer range in the northern forest region. The majority of maintenance activities occur on soils and in types dominated by shade intolerant species. Implementation of the Recovery Plan may assist the Department in diminishing the amount of shade intolerant forest expected to be lost due to natural succession and conversion to other types. It is not anticipated that these actions will result in any significant alteration of any present day northern forest timber type components.

No significant adverse impact should be felt by deep forest species such as interior avifauna due to the Recovery Plan since no alteration in forest timber types should result from implementation of the Recovery Plan. Browse damage to herb layers in old growth forest caused by deer should not increase from implementation of the Recovery Plan because most deer herd maintenance activities would occur in shade intolerant forest types. It is also anticipated that the northern forest deer herd will decline in the future because this forest type is expected to diminish in acreage (McCaffery 1987). Bald eagles, ravens, numerous small bird species, fisher, marten and other mammals should benefit from an increased wolf population because wolf kill sites provide an important source of food for many species especially during winter months (Pimlott et al. 1969:42).

Cultural:

Land use: One of the major thrusts of the Recovery Plan is in the area of public education regarding wolf ecology. If implemented an educational program may significantly decrease negative attitudes towards wolves. This would eventually give rise to a more environmentally enlightened and understanding public, and as a consequence fewer wolves would be killed by humans.

Recovery Plan programs such as the Cooperative Habitat Management concept, Livestock Damage Control and Citizen Participation activities should mitigate and/or minimize conflicts that could arise with other land management objectives (eg. rearing livestock, maintaining old growth forest).

The Cooperative Habitat Management and Citizen Participation activities of the Recovery Plan will provide a balance at the local level between the type and levels of access necessary for the continuation of logging activities as determined through forest management, recreation (eg. snowmobiling, ORVs, handicapped/ special use, hunting, hiking, skiing) and associated multiple use activities while assuring the integrity of the forest in providing the degree of seclusion necessary for wolf survival (Thiel 1985).

Access management is controversial among the public (Nelson and Franson 1988) primarily because it is construed by some to be synonymous to road and trail "closures". The focus of access management will be to hold access at present levels by encouraging landowners to (1) manage for the minimum amount of access necessary to fulfill multiple use objectives, and (2) limit motorized public access on lower standard roads wherever possible through gating, berming, etc. This should not be construed as recommending the closure of existing improved roads or motorized recreational trails such as snowmobile trails, ATV trails, etc.

Recovery Team members carefully selected an access management program that would not inconvenience logging practices, pursuit of recreation by Wisconsin citizens (eg. snowmobiling, cross-country skiing, hiking trails, hunter walking trails), or interfere with the manner in which land owners prefer to

manage their lands. Any modification of an area's access system under the Recovery Plan would be carried out on the initiative of the land owner through Cooperative Habitat Management and Citizen Participation activities.

Approximately 95 percent of the northern forest region is within 1 mile of an improved road (defined as a road graded at least once per year) (Smith 1986: 12;45). Since the Recovery Plan stresses holding access on improved roads and existing recreational trails at present levels, little or no impact should be felt by users. The Plan advises that motorized public access on lower standard roads (ie. woods trails) should be held to a minimum. Use of these poorer roads is minimal and should not create any major problems since use is light, and foot travel would still be possible.

Social/Economic:

Implementation of the Recovery Plan will not affect land ownership patterns in the northern forest region, nor significantly alter the manner in which landowners presently manage their forest lands. Managing lands to benefit wolves will be voluntary, and conducted in a cooperative spirit.

Implementation of the Recovery Plan should not have an adverse impact on the economy within the northern forest region. The two major industries, timber production and tourism, should not be affected by implementation of the Recovery Plan. The plan is compatible with logging interests because it recognizes the value of commercial cuttings in maintaining shade intolerant forest types. Tourism in the northern forest region should not be adversely affected, and may ultimately gain economically through creation of an additional form of recreation (organized tours of wolf country). Existing forms of recreation should not be adversely affected, and additional opportunities may be created.

Cooperation between the Department and other agencies, organizations and individuals will result from implementation of the Recovery Plan. The Department is presently participating in the Integrated Resource Management Team (IRM) planning activities initiated by the US Forest Service to implement National Forest Land and Resource Management Plans for the Nicolet and Chequamegon National Forests (C.D. Besadny memo dated September 11, 1986). A part of the IRM process includes discussions on implementation of habitat management actions of benefit to wolves.

Summary of Adverse and Unavoidable Impacts:

(1) It is anticipated that some farms within the northern forest region may occasionally experience wolf - livestock depredations. (2) As a consequence of depredations authorities may occasionally need to kill individual wolves to terminate depredations on livestock.

Section 4: Alternatives

Several alternative management activities were either proposed by citizen participants and/or by the Recovery Team. On 12 August 1986 the Team circulated a letter to approximately 3000 organizations and individuals describing its purpose and acquainting prospective participants of the process by which a management plan for wolves would be developed. The Team stated it will, "make every effort to consider all interests..." in making decisions in developing the plan.

Alternatives were prepared for public scrutiny in the "Issues Report" released for public review in February, 1987. Decisions on the selection of alternatives were made by the Team as it prepared the Draft Plan (released for public review in October, 1987) based on (1) the biological "needs" of the species and (2) public response to the Issues Report.

Management alternatives, summarized below, were considered by both the Recovery Team and numerous interested citizens, agencies and organizations that participated in one or more of several public reviews as the plan was developed (Attachment 2).

Management Alternatives:

- (1) Strengthen protective measures, including an increase in state fines to \$5,000 - \$10,000, revocation of hunting privileges for life, and increase law enforcement efforts.
- (2) Stock wolf packs to attain the Recovery Plan population goal quickly and cheaply.
- (3) Establish management zones; regions in Wisconsin where wolves would be allowed to roam, and areas where - because of the likelihood of conflict - wolves would be removed by government agents.
- (4) Allow natural regulation of wolf population without any disease control actions (eg. vaccinations) to minimize losses.
- (5) Adopt minimal management activities limited to modest protective measures in an effort to be cost effective, and to assure that wolves will not be nurtured unnecessarily.

In making its decisions, the Recovery Team compared each of the respective management alternatives with the set of assumptions (listed above) and attempted to predict whether the response would produce the desired outcome (ie. a population goal of 80 wolves in 10 years in a tolerant societal setting).

Alternatives (1), (2) and (3) address aspects of the biological and environmental needs of wolves at the cost of certain social and economical considerations. Substantial increases in fines may not be warranted, and may be unnecessarily harsh and socially unacceptable. A modest increase in state

finer, comparable to forfeitures for poaching big game, was proposed in the Recovery Plan.

When considering the notion of stocking the Recovery Team had to ask, "Is it biologically necessary to stock wolves in Wisconsin in order to restore a population?" Wisconsin has been home to a small breeding population of wolves for about 15 years. In that time the Wisconsin population has weathered significant problems caused by humans and disease. It may be argued that the proliferation of wolves into Wisconsin in recent times has not resulted in the reoccupation of a significant portion of the available habitat. Yet up until now no management programs have been devised to improve wolf survival. The presence of wolves and their recolonization of isolated areas of northern Wisconsin is a product of this species remarkable tenacity to survive. Based on these observations the Team has concluded that stocking is not biologically necessary at this time.

Aside from biological considerations, social and political realities must also be weighed when making a decision to stock wolves. Wherever they would occur, stocking of wolves would not take place in a biological vacuum. Brown (1983:171-2) pointed out the administrative entanglements inherent in approving such a program involving a controversial predator like the wolf. As an example he mentions, "Those responsible for a reintroduction effort could find themselves liable for any losses incurred from the animals' release." (Ibid.:172). Mech (1979:445) provides some balance with his statement, "Ecological, social, economic, political and legal studies must be conducted to determine the suitability of the target area for wolves."

Public support is crucial to program success. Mech (1979:445) stressed the importance of public input in the decision-making process. The Team presented the stocking option to participants in its Issues Report in order to obtain public input. A majority of those responding to this issue opposed it. The Team received numerous comments in opposition to stocking in response to the draft recovery plan even though stocking wasn't mentioned.

The Team consulted with many DNR and US Forest Service personnel in developing its plan. In the assessment of these professionals, public resentment to stocking is high and would not only cause the failure of any stocking activities, but might also jeopardize the survival of existing wolf packs in the state. In listening to these comments the Team was reminded of the most recent wolf stocking project attempted in upper Michigan in 1974 (Weise et al. 1975). Despite the fact that an attitudinal study (Hook and Robinson 1982) indicated less than 15 percent of Michigan residents displayed intensely negative attitudes towards wolves, all four transplanted wolves were killed by humans in less than 10 months.

The Team weighed the positive and negative aspects of stocking and it concluded that stocking is not presently necessary nor advisable because of certain socio-political risks.

The Department process of establishing management zones would probably be perceived as somewhat arbitrary and indifferent to the management decisions of other agencies and private land owners. Much confusion was expressed at various public review meetings regarding the authority of the Department to dictate management on non-Department lands. No clear authority exists. The Wisconsin Endangered and Threatened Species law (State Statute 29.415) states "the Department [of Natural Resources] may enter into agreements with federal agencies, other states, political subdivisions of this state, or private persons with respect to programs designed to conserve endangered or threatened species of wild animals or plants". The Team felt that establishment of zones would further confuse the public regarding state authority, increase apprehensions, and otherwise disrupt the Department goal of re-establishing a wolf population.

Alternatives (4) and (5) are economically cost-effective since they advocate minimal actions and they are socially preferred by those who either have negative attitudes towards wolves, or are uncertain about whether the return of wolves to Wisconsin's northern forest region is personally acceptable. However, while these alternatives may be attractive economically and perhaps within certain social circles, they do not satisfy the legal commitment of the state (State Statute 29.415) to effectuate reasonable management efforts to restore an endangered species such as the wolf because they do not address many of the biological needs necessary for the species to continue to exist within the state, and they fail to consider the desires of that segment of society who believe that efforts should be made to restore wolves to the state.

The management activities selected by the Recovery Team as written in the Plan (major actions are reiterated below) provides a balance in management activities necessary to provide a biological and socio-political environment suitable for recovering a population of 80 wolves. To review, these include: (1) increase public education activities, (2) reduce the incidence of human caused killings through increased protective measures and improved law enforcement actions, (3) enter into cooperative habitat management with landowners, (4) monitor population changes annually, (5) curb losses of litters due to disease, (6) conduct periodic program evaluations, (7) implement an acceptable livestock damage control program, (8) increase cooperative/coordination of activities with other agencies and interested organizations, (9) continue a Citizen Participation program, (10) use of volunteers to assist in educational and population monitoring activities, (11) establish criteria for delisting the wolf and establish an inter-disciplinary committee to develop a wolf management program following delist, and (12) consider translocations of individual wild Wisconsin wolves after year 5 if necessary.

The Team made certain assumptions, and recognized that in so doing, it invited the possibility of error. It made one final assumption (not listed above); one or more of those assumptions may be in error. This could substantially change the management programs prescribed to achieve the Plan goal. Therefore the Plan specifies that the Department should conduct periodic evaluations of the program with the option to modify programs as needed to ensure that every

reasonable effort is being made to restore the wolf. The Plan also describes a five year evaluation to include an assessment, involving citizen participation, of whether limited translocations of individual wolves might further recovery efforts.

Section 5: Evaluation of Project significance

The actions proposed in the Recovery Plan represent a topic significant to citizens of Wisconsin and the nation (McNaught 1987) - the restoration of a rare carnivores mammal to an area it formerly inhabited. The actions proposed in the Wisconsin Timber Wolf Recovery Plan would have a lasting, positive influence on the environment by rebuilding a modest population of the state and federally endangered timber wolf within the state of Wisconsin. It would further contribute to more meaningful cooperation between the Department, other agencies, organizations and Wisconsin citizens, and it would improve citizen appreciation for the resources of Wisconsin.

Significance of Cumulative Effects:

Few, if any, adverse cumulative effects on the environment are anticipated as a result of implementing the Recovery Plan. The Recovery Plan is compatible with federal (US Fish & Wildlife Service and US Forest Service) recovery goals, and with the interests of the states of Michigan and Minnesota in contributing to the restoration of a wolf population in the Upper Great Lakes northern forest region. A possible conflict may result from public fear that wolf proliferation into Upper Peninsula (a possible effect of the Wisconsin Recovery Plan) may conflict with sportsmen's efforts to restore moose in that region of Michigan.

It is also possible that localized deer herds could be reduced if conditions described by Mech and Karns (1977) were repeated in northern Wisconsin.

Significant Risks:

Several risks appear to be possible. (1) If action is not taken to increase the existing Wisconsin wolf population the Department invites the risk that wolves could become extirpated once again within Wisconsin. (2) If the wolf population response to management activities listed in the Recovery Plan exceeds the Teams expectations, what risks might result and how can these be resolved? Signs of wolf overpopulation may include, but not be limited to, the appearance of wolves in areas where conflicts with livestock and/or human land use could become common place; noticeable reductions in localized prey populations (per Mech and Karns 1977); increased wolf social stress resulting in an increased incidence of starvation, disease, and interspecific strife among wolves, etc. In the Recovery Plan the Team recommends the establishment of an interdisciplinary committee to develop a wolf management program for a recovered wolf population (Management Action #11). The committee is formed in the 5th year of the 10 year recovery effort so that an approved program can be instituted once the population is recovered (by year 10). Many legal and

practical management applications need to be reviewed in preparing a program to manage a wolf population at recovery levels. One of the responsibilities of the committee would be to establish programs responding to a possible overpopulation problem, should that occur. (3) In developing the Plan the Recovery Team made certain assumptions (See Section 3) from which they measured possible scenarios resulting from proposed management activities. If one or more of these assumptions is incorrect the Team may have erred in selecting the appropriate actions. However, to circumvent any such problems the Team designed a "failsafe" mechanism into the plan with the stipulation that the Department conduct periodic reviews of Plan activities with the option to make alterations if and when necessary.

Significance of precedent:

Implementation of the Wisconsin Timber Wolf Recovery Plan:

(1) would not influence future decisions or options that may affect the quality of the human environment,

(2) would not conflict with local, county, state, federal or private plans or policies that provide protection for, and the wise use of Wisconsin's renewable resources.

Any conflicts with landowner policies and plans would be mitigated in the process of drafting cooperative agreements with landowners desiring to assist the Department. Problems of wolf depredation on livestock, although anticipated to be minimal (Fritts 1982, Thiel unpubl data), will occur occasionally. Recovery Plan education, livestock loss compensation, and control activities will reduce any conflicts that may develop from time to time.

It would be naive to believe that all controversy regarding the wolf would cease upon implementation of the Recovery Plan. Persons who dislike wolves will continue to express their dissatisfaction over Department actions. Of the many issues and concerns the Recovery Team and citizen participants identified in the planning process, the following will likely continue to create controversy: (1) concern over the deer resource, (2) concern that government funds are ill-spent on wolves.

The following issues will in all likelihood be viewed with skepticism and will diminish as management activities demonstrate that such concerns are unfounded: (1) shade-intolerant forest type management conflicts with old growth types (Refer to discussion in Section 3; Biological - subsection on Northern Forests), (2) access management may pose an adverse impact on forest management practices and timber cutting (with impacts on the timber industry), snowmobiling, cross-country skiing, hunting, fishing and related forms of recreation (and spin-off affects on tourism)(refer to discussion in Section 3; Cultural - subsection on Land Use), (3) Department authority (per State Statute 29.415) will supercede other agencies, industry's, and private citizen's ability to manage their own lands (Refer to discussion in Section 4; Management Alternatives).

Summary of Issue Identification Activities:

The Recovery Team recognized at the outset of preparing the Wisconsin Timber Wolf Recovery Plan that citizen involvement was crucial for success. Their emphasis early in the planning process was getting to know affected interests and sharing information on needs and concerns. Later attention shifted to meeting individually with various interest groups to address key issues and find common ground. Finally, the Team sought comments on a draft recovery plan before developing a final version. Citizen involvement was not limited to the public segment; other federal, state, tribal and county agencies were consulted and included in this process.

The Team held 9 public information forums; 71 meetings; 25 talks; 8 statewide Department news releases; 5 statewide mailings (initial =3000; 2nd and 3rd= 1000); 3 articles and over 30 interviews with newspapers, radio and television media. The first major public contact occurred in August through October, 1986. A second major public contact period extended from February through April, 1987, and a third major effort occurred from October 1987 to January 1988.

Individuals, Agencies, Organizations contacted:

During the recovery planning process the Recovery Team consulted with and sought comments from major state and national conservation and environmental organizations, the U.S. Forest Service, the County Forest Association, individual County Forestry Administrators, Great Lakes Indian Fish & Wildlife Commission, National Park Service, U. S. Fish and Wildlife Service, Wisconsin, Michigan and Minnesota DNR personnel, and numerous private citizens. Attachment 2 lists major participation with these interested publics. A list of the team's participants are available on request to the Bureau of Endangered Resources.

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CORRESPONDENCE/MEMORANDUM.....State of Wisconsin

DATE: 27 October, 1988

TO: Gary Birch

FROM: Dick Thiel DT

SUBJECT: Responses to Timber Wolf EA

We received 24 letters from groups or individuals in response to public review (comment period lasting from 1 to 23 September, 1988) of the Timber Wolf Recovery Plan Environmental Assessment (EA). Six respondents have suggested changes to the EA, or have indicated omissions exist in the EA. One respondent called for an Environmental Impact Statement on the Wolf Recovery Plan.

Reference is made (below) to each of the comments that respondents felt needed to be addressed.

No. 1:
Pages 3 & 4. The EA lists 10 year costs at \$395,100, a drop of over 60 percent from the \$1,026,000 estimated in the Draft Plan, despite the addition of 3 new management programs.

Response: In response to public input on the Draft Plan the Recovery Team stream-lined costs by reducing Department labor and significantly increased emphasis on volunteer assistance, especially in such programs as population monitoring and education activities. The volunteer program was one of the programs added. Labor costs for a coordinator position were not included in the Revised Plan and EA because, while the needs of such a position will diminish in years following implementation, the Team was not able to estimate at what rate labor will decline.

No. 2:
Page 12, paragraph 6. The EA inadequately addresses trade-off affects of maintaining shade-intolerant forest types on old growth forest and landscape fragmentation.

Response: The Recovery Team identified less than 3,000 square miles of northern forest lands as suitable habitat for wolves, and estimated only half of that may benefit from cooperative management. The suitable habitat is itself fragmented into over a dozen parcels scattered across northern Wisconsin. Additional habitat potential exists throughout the less populated areas of the northern forest region, but habitat management agreements would be solicited there if and when packs develop.

Gary Birch; 27 October, 1988; Page 2:

As indicated in the EA (pages 12 & 13), most shade-intolerant logging practices are conducted in existing vegetative types. The impact of such activities on existing stands of old growth forests, and the present state of biotic diversity is therefore expected to be negligible. Actions specified in this plan may impact on efforts to restore or expand old growth forest components of our northern forests, with consequent impacts on biotic diversity.

No. 3:

Page 13, paragraph 5. This paragraph is confusing. Doesn't gating constitute closure?

Response: Gating constitutes controlling access for specific needs or intended purpose(s) such as maintenance, logging, hiking, hunter walking trails, seasonal snowmobiling, etc. Closure activities would preclude any and all use via abandonment, revegetating, etc. This clarification should be attached to paragraph 5, page 13.

No. 4:

Pages 13 & 14. The EA treatment of access management is vague. While the focus is on maintaining present levels, and the EA does not recommend the closure of existing trails such as snowmobile and ATV trails, the occasional need for trail relocations and changes in recreational demands are not addressed.

Response: The Recovery Team recognizes that recreational trail routes are occasionally altered for a variety of reasons. If a trail route needs to be rerouted because of conflicts with wolf management, the Department will use the same procedures as it would when rerouting for other reasons. Continuation of citizen participation activities should identify, in advance, any potential conflicts and seek resolution with local trail clubs. An emphasis in working with local clubs will be on averting any problems, and avoiding trail reroutes wherever possible.

Changes in recreational demands periodically result in the need to develop additional trails. Under current policy, trail developers and sponsors work with the Department and various other agencies in seeking approvals. In this process many variables are normally considered before approvals are given to proceed with trail development. Adoption of a Wolf Recovery Plan would not affect the process already in existence, except that impacts on the wolf resource would be included in the review of trail proposals when and where applicable.

Gary Birch; 27 October, 1988; Page 3:

No. 5:

Pages 13 & 14. Implementing access management in 100 square mile areas, the minimum size required to maintain a wolf pack, would have a significant impact in denying users the opportunity to recreate on northern forested lands.

Response: Totally shutting down access to areas of such magnitude would significantly impact on a wide variety of human uses of our northern forests. The Department's Recovery Plan advocates adoption of access management strategies that are in balance with multiple use forestry objectives (including needs for wildlife like wolves). For a number of reasons (budgetary, liability, fire protection, wildlife conservation) thoughtful consideration must be given when designing or evaluating the future access needs of a property. The Plan encourages land managers to, "manage for the minimum amount of access necessary to fulfill multiple use objectives". It does not advocate closing down and/or removing all access in any area of Wisconsin.

The Recovery Plan and EA stresses that access management will be instituted voluntarily in a cooperative spirit with landowners. It will focus on maintaining access at existing levels and emphasize managing access for the minimum levels necessary to accomplish multiple use objectives.

Since parcels of 100 square miles are seldom held under single ownership, many areas of suitable habitat would be partially affected. If, for instance, a 100 square mile area of suitable habitat exists on County Forest lands the County Forest Administrator will decide if the County desires to participate. The administrator would also determine the extent and type of access management recommended by the Wolf Recovery Plan that are compatible with the multiple use objectives established by the County.

Access management programs will be implemented voluntarily by landowners with such decisions based on a balance with other multiple use objectives. The Department will continue to seek input from interest groups via the Plan's citizen participation activities. The estimated amount of potentially affected land (1350 square miles) represents less than 10 percent of Wisconsin's northern forests. For these reasons the Department has determined that no significant impact will be felt on recreational opportunities (hiking, hunting, fishing, snowmobiling, A-TV's, skiing, handicapped opportunities etc.).

Gary Birch; 27 October, 1988; Page 4:

No. 6:

Page 17, paragraph 1. Does 'management' refer to wildlife management or land management?

Response: This paragraph discussed land management options.

No. 7:

P. 6, 7 & 10. The EA did not adequately address the environmental and economic impact on the northern tourism industry because it failed to discuss (a) loss in revenue to taxidermists and fur buyers due to the deer gun coyote closure, (b) the decline of the deer herd following severe winters and increased predation caused by increased wolf, and increased coyote populations (due to lost opportunity to keep coyotes in check via the deer gun season), and (c) concomitant declines in hunters and hunting opportunities due to smaller deer herds.

Response to (a): The EA failed to mention impacts of the coyote closure during the annual nine-day deer gun season.

A coyote closure in northern Wisconsin during the annual nine-day deer gun season is recommended under the Plan's Protective Measures activities. The EA did not discuss impacts of implementing this action because such a closure was implemented by Administrative Rule change in 1987 and remains in effect. The Team questioned whether to remove this action from its Plan because of the recently enacted Rule change. It was noted that a similar Rule change, closing coyote hunting in northern Wisconsin during the nine-day deer gun season between 1982 and 1984 to protect wolves, was reversed. Therefore, the Team decided to retain the recommendation as a statement of support of such action.

Approximately 2500-3000 coyotes have been harvested annually in Wisconsin in recent years. Slightly more than half of the coyotes harvested are taken by hunters. Coyotes harvested by hunters are taken primarily by those using hounds outside the annual nine-day deer gun season (Wisconsin DNR, unpublished data).

Pelt values in 1987-88 averaged \$14.33. The coyote harvest contributed \$33,426.00 (less than 0.5 percent) to the \$8.5 million fur harvest industry in Wisconsin that year (Pils, C. 1988. Wisconsin fur harvest report, 1987-88. DNR).

Coyotes do not contribute significantly to the fur industry, and they do not constitute a great amount of state taxidermist business (DNR unpublished data). A majority of the coyotes harvested are taken outside the nine-day deer gun season. A

Gary Birch; 27 October, 1988; Page 5:

coyote closure during the nine-day deer gun season in the northern quarter of Wisconsin is already in effect. For these reasons the Plan's recommended coyote closure action does not pose a significant and adverse impact on the state's tourism economy.

Response to (b): The impacts of increased coyote predation on the northern deer herd, due to an inability of deer hunters to exercise 'control' because of the coyote closure, would be negligible and would not adversely affect deer hunting opportunities. Severe winters, wolf predation, and the combined impacts of severe winters and wolf predation were discussed in the EA (pages 6 & 7). Predation, whether by wolf, bear, or coyote, is felt in most cases to be 'compensatory', i.e. have no affect on the supply of deer because it compensates for other forms of loss the herd would otherwise experience.

While coyotes do prey on deer, they are not considered major deer predators. Furthermore, not enough coyotes are harvested during the nine-day deer gun seasons to influence positively or negatively any predation impacts on the northern deer herd.

Response to (c): The EA failed to discuss the direct impacts on deer hunting opportunities.

Implementation of the Recovery Plan would not cause a significant loss in hunting opportunities through loss in deer habitat, a reduction in deer herd size, or through a reduction in access.

The impacts of severe winters and wolf predation on the northern deer herd are discussed on pages 6 & 7 of the EA which concluded, "a population of 80 wolves will not affect northern Wisconsin's deer population."

Declines in shade-intolerant forest types will cause continued declines in the deer herd. As pointed out on page 12 in the EA, implementing the Plan's habitat management program may diminish, "the amount of shade intolerant forest expected to be lost due to natural succession and conversion to other types." Proposed actions will actually have an ameliorating affect on deer habitat loss by maintaining current shade intolerant forest and thus benefiting hunting opportunities.

Consideration of access management on hunting opportunities are discussed in response to Issue No. 5, above.

Gary Birch; 27 October, 1988; Page 6:

No. 8:

Impacts on the Forestry and Tourism Industries as well as other valuable resources may have been underestimated. An Environmental Impact Statement should be conducted to determine economic significance of the proposed actions.

Response: Reference is made in the EA to the major industries contributing to the northern forests economy (page 10) and the economic consequences of implementing the Wolf Recovery Plan (page 14). The EA states that proposed actions "will not affect land ownership patterns in the northern forest region, nor significantly alter the manner in which landowners presently manage their forest lands. Managing lands to benefit wolves will be voluntary, and conducted in a cooperative spirit."

Responses to comments 4, 5, and 8, above, discuss in greater detail Departmental considerations of this issue. The scope of the Recovery Plan includes a large geographic area, but the selection of proposed actions will not adversely impact the local and regional economies.

cc: R. Jurewicz -ER
M. Cain -LS

Project Name: Timber Wolf Rec. Plan County: # 88301

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code, the Department is authorized and required to determine whether it has complied with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

29. Complete either A or B below.

A. EIS Process Not Required

Analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion therefore, an environmental impact statement is not required prior to final action by the Department on this project.

B. Major Action Requiring the Full EIS Process.

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator <i>Richard P. Piro</i>	Date Signed <i>9 November 1988</i>
Noted: Area Director or Bureau Director <i>Ronald G. Heston</i>	Date Signed <i>14 Nov. 1988</i>

Copy of news release or other notice attached? Yes No

Number of responses to notice 24

Public response log attached? Yes No

CERTIFIED TO BE IN COMPLIANCE WITH WEPA	
District Director or Director of BEAR (or designee) <i>Sally A. Birch</i>	Date Signed <i>11/14/88</i>

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Note: Not all Department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.

This notice is provided pursuant to section 227.48(2), Stats.

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ATTACHMENTS

Attachment 1

Richard P. Thiel biographical sketch.

Through the late 1960's and 1970's Richard P. Thiel was involved in the documentation of wolf occurrences in Wisconsin. This resulted in the 1975 reclassification of wolves by the DNR from "extirpated" to an endangered species. Privately funded investigations in the late 1970's enabled Thiel to verify the presence of wolf packs and breeding among wolves within the state.

In 1980 Thiel assumed duties as Project Leader of the Wisconsin Timber Wolf Field Study for the Bureau of Endangered Resources. In 1986 he was appointed Chairman of the 12 member Wisconsin DNR Timber Wolf Recovery Team. Thiel has written seven technical papers on various aspects of wolf ecology in Wisconsin, and has written numerous articles on wolves.

Attachment 2

Summary of Major Public Review Periods in the Wolf Recovery Planning Process, 1986 to 1988.

<u>Dates</u>	<u>Event</u>	<u>Number of Participants</u>
August 1986	Announce Public Forums	3000 mailings; news releases.
September 1986	9 Public Forums	628 participants; 120 written comments.
February 1987	Issues Report Review	700+ mailings.
Mar-Apr 1987	Meetings re. Issues Rept.	17 meetings with interested publics.
October 1987	Draft Recovery Plan Review	1000 mailings.
Oct 1987-Jan 1988	Meetings re. Draft Plan	19 meetings with interested publics.

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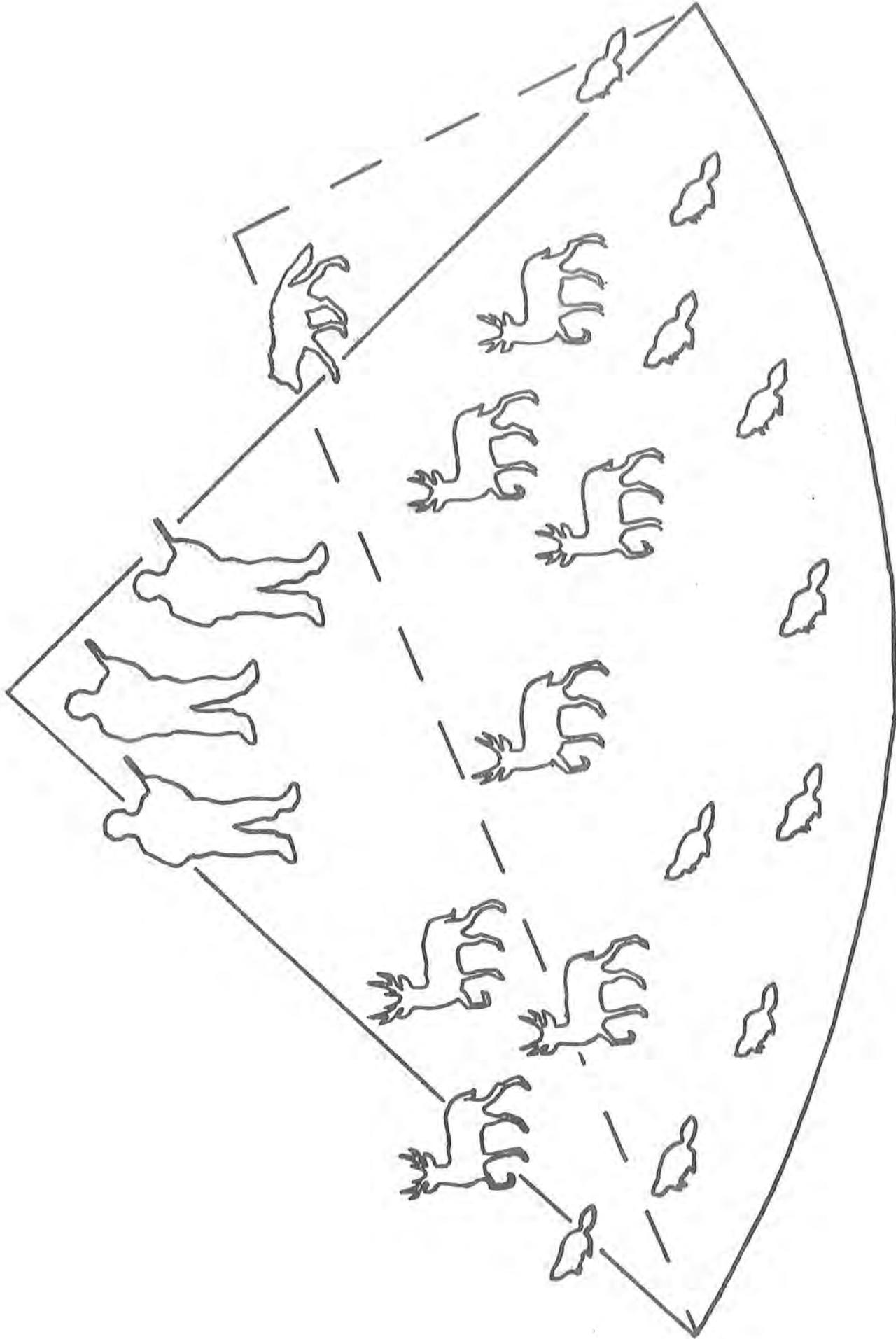
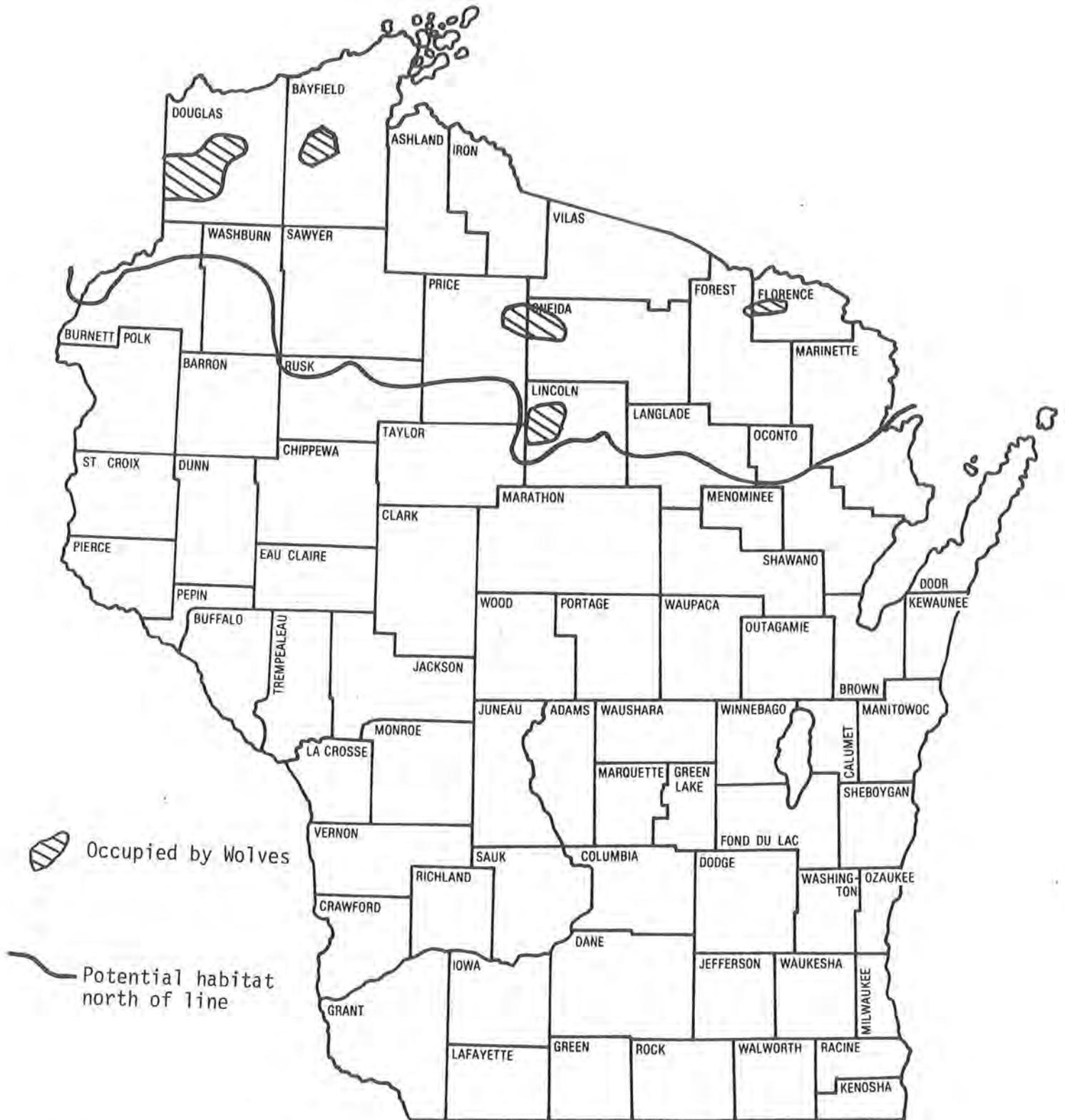


Figure 1. Humans have replaced wolves as the apex predator in Wisconsin's ecosystem.



Map 1. Potential wolf habitat exists throughout the northern forest region in Wisconsin wherever wolves would not be molested or conflict with human land uses (ex: live-stock production).

WISCONSIN

TIMBER WOLF

RECOVERY PLAN



Department of Natural Resources
Bureau of Endangered Resources
Box 7921
Madison, WI 53707

APRIL 1988

Wisconsin Timber Wolf Recovery Plan

Prepared by: Wisconsin Timber Wolf Recovery Team

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ACKNOWLEDGEMENTS

The Recovery Team wishes to express appreciation to Irene Schmidt, Kathleen Fruth, Pam Birschbach, Chris Maldonado (Endangered Resources, Madison); Marcia Johnson, Sue Wallace (Northwest District, Spooner) and Marlys Foley (Word Processing, Madison) for production and clerical assistance. Judy Wilson (West Central District, Eau Claire) lent us her skills in analyzing public comments during several phases of the citizen participation exercises. Keith McCaffery (Bureau of Research, Rhinelander) and Cliff Wiita (Wildlife Management, Park Falls) provided information and advice on northern Wisconsin's deer herd. Sally Benjamin (Information and Education, Madison) provided advice and assistance in adopting a citizen participation program that greatly facilitated networking between the Team and the interested public.

The Team also thanks the many citizens and agency staffs of the DNR and U.S. Forest Service for their comments and contributions in the development of the Wisconsin Timber Wolf Recovery Plan.

- Wisconsin Timber Wolf Recovery Team
Madison, WI April 1988

PART I.

LIFE HISTORY NOTES, CHANGES AND CAUSES OF WISCONSIN WOLF POPULATION DECLINES

A. INTRODUCTION

The purpose of this recovery plan is to review the processes that have caused significant declines in the number and distribution of Eastern Timber Wolves (Canis lupus lycaon Schreber) within Wisconsin and to propose measures to recover this species. The Eastern Timber Wolf was listed as an Endangered Species within Wisconsin by the U.S. Department of Interior, U. S. Fish & Wildlife Service in 1967 and by the State of Wisconsin, Department of Natural Resources in 1975.

B. STATUS AND DISTRIBUTION

U.S./Continental

Former Range: Prior to widespread settlement and agricultural development, gray or timber wolves were found almost everywhere north of central Mexico on the North American continent. The Eastern Timber Wolf, one of many recognized races of wolves, formerly occurred in the eastern seaboard states from Maine to Georgia and west through northeast Alabama, eastern Tennessee, to northeastern Iowa and eastern Minnesota (Jorgensen 1970).

Current Range: Within the past 300 years wolf range has declined by 50% in North America. Continental wolf populations are largely confined to Canada and Alaska. In the United States, Eastern Timber Wolf populations are restricted to northeastern Minnesota, Isle Royale National Park, Michigan, scattered areas of Wisconsin, and perhaps Upper Peninsula Michigan (Jorgensen 1970, Mech 1977, Thiel and Hammill in prep, Hendrickson et al. 1975). This represents a 97% reduction in distribution of this race within the United States (Jorgensen 1970).

WISCONSIN

Former Numbers and Distribution: The Eastern Timber Wolf occurred throughout the state of Wisconsin during pre-settlement times (Jackson 1961:293). Jackson (1961:293), who probably used Seton's (1929) popular pre-settlement density estimate of 1 wolf per 3 square miles, estimated Wisconsin's pre-settlement wolf population at 20-25 thousand animals. Prior to settlement wolves were more prevalent in southern Wisconsin where a variety of prey lived in abundance. Undisturbed expanses of old-age northern forest supported fewer prey and fewer wolves.

By the late 1940's wolves were confined to, "less than a dozen suitable areas..." primarily east of Bayfield County (Thompson 1950:42). Keener (1955) reported that wolves were restricted to perhaps 4 or 5 localities in the north and, using Thompson's (1952) density estimate of 1 wolf per 42 to 50 square miles, he estimated 50 individuals occupied 2,000 square miles of occupied habitat by 1953-55. Thiel (1978) felt that the breeding population of wolves had been extirpated by 1960, but documented occasional activity of lone wolves within the state between 1968 and 1975.

Recent Numbers and Distribution: A pack of wolves was identified within the Nemadji State Forest along the Wisconsin border in Pine County, Minnesota by 1974 and rapid proliferation occurred into adjacent areas of Douglas County, Wisconsin (Mech and Nowak 1981). Breeding of at least 2 wolf packs in the border country of Douglas County was documented during 1978 (Thiel & Welch 1981). Two wolves were killed by humans in Lincoln County, Wisconsin in 1979 (Mech & Nowak 1981, Thiel unpubl. data) and during the following winter a pack of wolves was confirmed there (Thiel & Hale 1980). Annual winter track surveys, summer howl surveys and radio telemetry work indicate an average statewide mid winter population of 15-25 timber wolves (Table 1).

Packs are scattered across several areas of northwestern and north central Wisconsin, and several lone wolves are found in the northeast (Map 1).

Table 1. Number of wolves and wolf packs in Wisconsin, 1979-80 to 1985-86.

Year	No. Packs	No. Wolves (mid-winter)
1979-80	5	25-27
1980-81	5	20-22
1981-82	4	23-27
1982-83	5	19+
1983-84	4	16-17
1984-85	4	14-16
1985-86	4	15
1986-87	5	18-22
1987-88	6	22-24

Reasons For Change of Status: Indiscriminate killing of wolves, fueled by various state and county financed bounties and intense negative attitudes, caused the demise of the wolf in the state by 1960. A state bounty existed from 1865 to 1957. This paralleled a nationwide trend in wolf extinctions (Flader 1974).

Habitat alterations were the proximate cause of the decline of wolves within the state. As settlement progressed wolves' native prey (elk, buffalo, moose and deer) were reduced or eliminated and replaced by livestock. Wolves were exterminated from the prairie regions of the state before 1880 but they persisted in northern forested tracts where they were less visible and thus less vulnerable. Eventually with increased human activity and improvements in access, humans over-exploited the species and by 1960 wolves disappeared from northern Wisconsin (Thiel 1985).

C. NATURAL HISTORY (Taken from Mech 1970, unless otherwise stated.)

Characteristics: Pelt color seldom varies in Eastern Timber Wolves; grizzled gray and brown predominate, while a few black or white individuals are occasionally noted (Mech & Frenzel 1971, Fritts & Mech 1981). The winter pelage in general is grayish and sometimes heavily overlain by black on neck, shoulders and back; head and underparts cinnamon, with latter grading into a pinkish buff. The summer pelage is similar though paler or washed with less black prominent on upper parts (Young and Goldman 1964).

Size: Adult Eastern Timber Wolves weigh from 45-100 pounds. Most females weigh 60-65 pounds and males average around 70-75 pounds.

Adult wolves are 4.5 -6.5 feet long from tail tip to nose tip and stand 28-34 inches at the shoulder.

Social System: Wolves live in family groups called packs. Packs generally consist of a dominant breeding pair, called Alphas, surviving offspring produced in the previous year (yearlings), and the current year's pups. Occasionally an older offspring may remain with its natal pack and sometimes an unrelated adult wolf may be a member of the pack. In areas such as Wisconsin where deer are the primary prey, pack size tends to range from 6 to 10 wolves in unmolested packs during winter months. Each family group

occupies an exclusive territory ranging in size from 45-160 square miles, averaging 100 square miles. Territories of adjacent packs sometimes overlap but core areas are defended against other wolves (Peters & Mech 1975).

Between August and March (median October - November) many yearling wolves emigrate alone from their natal packs, seeking a mate and a territory. Occasional dispersal of adults has been noted (Fritts & Mech 1981). Dispersers may travel up to 500 miles in less than 10 months time (Fritts 1983).

Reproduction: Wolves are sexually mature at 22 months. The breeding season is from late January to early March and gestation is 60-63 days. The average litter size is 5-6 pups. Usually the dominant or Alpha pair produce the pups and they inhibit sexual contact between all other mature members of the pack.

The litter is born in April in a den usually excavated by the Alpha pair. They will live at that site for their first six weeks. After weaning, the pups are moved to a homesite (rendezvous site). Denning sites and homesites are usually located near a source of water such as a wooded stream or beaver pond. During the summer months the pack may periodically move their pups to new homesites as occupied ones become soiled with droppings and prey remains. Around September or October when the pups are large enough to travel with the adults, the homesites are abandoned and the pack moves as a single unit throughout their territory until the next denning season.

Mortality: Wolves are susceptible to starvation, diseases, predation (mainly human), and accidents. Where limited harvests are allowed and even where the species is totally protected, killings by man can account for 50-75% of the total mortality (Fritts & Mech 1981, Berg & Kuehn 1982). When annual mortality rates exceed 30-40 percent wolf populations decline (Keith 1983). Marginal wolf populations such as Wisconsin's may be especially vulnerable to mortality exceeding 30 percent.

Habitat Requirements: Wolves formerly existed throughout Wisconsin (See Status & Distribution). Wolves are habitat generalists and can survive anywhere where they are not persecuted. At present vast portions of the state are unsuitable to wolves because of direct conflicts with human land uses; however many areas in Wisconsin's northern forest region could potentially support wolves (Map 1) (see Reasons for Change in Status).

Sizes of individual pack territories range from 45 to 160 square miles. Individual pack habitat requirements currently recognized by biologists are areas of at least 100 square miles (average pack territory size) containing low human densities, limited public accessibility and confined to areas where livestock production is absent or minimal (Bailey 1978, Thiel 1985, Mech 1979). At least 2,700 square miles of habitat in Wisconsin meet these criteria (Map 2).

Food: B. A. Mandernack (1983), who analyzed 334 scats of Wisconsin wolves from 1980-82, determined that the relative estimated bulk diet was composed of deer, 55 percent; beaver, 16 percent; and snowshoe hare, 10 percent. Miscellaneous items accounted for an additional 20 percent. Domestic animals (hog & dog) were found in 2 percent of the scats.

Densities of wolves are related to prey densities. In northeast Minnesota (where moose is a minor source of the wolf's diet) Mech (1986) reported a density of one wolf per 15 square miles in an area with deer densities of

about one deer per square mile (Nelson and Mech 1986). In north-central Minnesota wolf densities of one wolf per 8 square miles were found in an area supporting 10 deer per square mile (T. Fuller, pers. comm.). In the northern forest region of Wisconsin, which includes 44 deer management units, average deer densities vary from 10 to 25 deer per square mile overwinter between individual units. In units where wolves presently exist, deer densities range from an average of 10 to 25 deer per square mile. (For a discussion of anticipated wolf impacts on the northern deer population see Appendix 1).

Beaver are abundant throughout northern Wisconsin and are a common food item of Wisconsin's wolves in spring, summer and fall. During spring as much as 30 percent of the wolf's diet is beaver (Mandernack 1983).

D. WISCONSIN HABITAT

Potential Habitat: Many areas within the northern forest region of Wisconsin are considered potential wolf habitat because of an abundance of deer, their primary prey (Map 1). Wolves are capable of surviving anywhere within this region where they are not molested by humans. The impact of persecution by humans is relative to the proximity of wolves to humans and their activities. More inaccessible or relatively remote areas may have greater potential in sustaining packs of wolves.

Suitable Habitat: Fairly remote areas are scattered throughout the northern tier of counties (Map 2). These areas, of varying size, have relatively low resident human densities and minimal levels of access, and they have correspondingly lower amounts of human activity. Because of this these areas may be especially well suited to support wolves. Of the 2,700 square miles of relatively remote country that has been identified, about 720 square miles (or 27 percent) is currently occupied by wolves.

E. LIMITING FACTORS

Past and Present: Historically only two factors have limited wolf populations: 1.) availability of ungulate prey, and 2.) the presence of people, the wolf's only significant predator. Presently wolf distribution in Wisconsin is governed by (1) human uses of land, and (2) the level of mortality caused by humans.

Diseases and parasitism are known to suppress wolf populations. In Wisconsin, where wolves have nearly been eliminated because of human activities, the presence of disease can have a profound impact on the survival of the few isolated breeding packs that remain. Wisconsin wolves have been exposed to such diseases as Canine Distemper, Canine Parvovirus, Lyme Disease (Thiel, unpubl. data) and Blastomycosis (Thiel et al. 1987). Parasites include protozoans and numerous intestinal worms, Dermacentor ticks, lice and heartworm (Mech et al. 1985, Archer et. al. 1986, Thiel, unpubl. data).

The presence and actions of people are considered significant in limiting wolf distribution in Wisconsin. Negative attitudes and misconceptions perpetuate human caused deaths to this day (Hook & Robinson 1982, Knight and Thiel in prep.) despite laws protecting the species. Surveys of people in Michigan and Wisconsin indicate that approximately 15 percent display anti-predator attitudes and believe wolves should be eliminated. Human persecution of,

wolves probably suppresses their re-establishment in Upper Peninsula Michigan and Wisconsin (Robinson and Smith 1977, Mech and Nowak 1981, Thiel and Hammill Submitted).

Accidental and intentional deaths by people account for about 70 percent of all known Wisconsin wolf deaths (Table 2.).

TABLE 2. Summary of 21 known Wisconsin wolf-mortalities, 1975-1986

	Man Caused				Natural	Unknown	Total
	Shot	Trapped*	Other	Subtotal			
No. Wolves	9	3	3	15	5	1	21
Percent	43	14	14	71	24	5	100

*In addition, single wolves were trapped and released in 1982, 1985, and 1986 by private trappers with the help of DNR officials.

An annual adult wolf mortality rate of 38 percent was calculated for radio-collared Wisconsin wolves between 1979 and 1984 using the method described by Heisey and Fuller (1985). Only three types of mortality-natural, unknown and shot- were identified based on necropsied radioed wolves. Shootings, the major source of mortality, were highest in fall, while natural deaths occurred only during winter.

The total known number of pups present during winter in Wisconsin has ranged from 2 to 8 per year (Table 3). No mortality data is available for pups. However, data on survival of litters to winter are provided in Table 3. Litter survival was lowest in 1983 and 1984, averaging 43 percent survival vs. 65 percent survival for all other years combined. Disease is implicated in the losses of at least 8 litters from 1981 to 1986. Litter losses can be especially harmful to Wisconsin's fragmented population which depends on reproduction as a major source of population recruitment.

Wolves from Minnesota's major wolf range occasionally disperse into Wisconsin. Despite this, the maintenance of Wisconsin's wolf population depends primarily on natural production. Immigration is beneficial to the recovery of wolves in Wisconsin because it can offset problems of low productivity, and provide gene pool diversity.

TABLE 3. Annual survival of Wisconsin wolf pack litters in winter.

Litter status	- YEAR -								Total	Percent
	1980	81	82	83	84	85	86	87		
Total litters	4	4	3	4	4	3	3	5	30	-
Litters lost	2	1	1	3	2	1	1	1	12	40
Litters survived	2	3	2	1	2	2	2	4	18	60
Percent survival	50	75	67	25	50	67	67	80	60	-
Pups present		>7	>2	4	6	3	5	8		

F. CRITICAL FACTORS

The federal Eastern Timber Wolf Recovery Plan (Bailey 1978) identified four major factors critical to the survival of wolves. They are:

"(1) availability of adequate wild prey, (2) large tracts of wild land with low human densities and minimal accessibility, (3) ecologically sound management, and (4) adequate understanding of wolf ecology and management."

These four items bring together the biological requirements (1 & 2) and human socio-political elements (3 & 4) necessary to support a viable wolf population.

Wolves need an available prey base and sufficient areas of land to roam in. Conflicts frequently result from the rather large land requirements of wolves and the diverse use of land by humans. Examples of direct conflict over land use by humans include livestock production, urban areas, and intensive recreational opportunities. Conflicts may also arise anywhere people have the opportunity to encounter and kill wolves either accidentally or intentionally.

In 1955 Wisconsin Conservation Department game manager, John Keener, commented, "One advance, which has hurt the wolf, is the greatly improved access in heretofore untraveled areas. ... This has caused the wolf to pull himself into the few areas that are least frequently used by man." (Keener 1955). These words, written by a man who would become Director of DNR's Bureau of Wildlife Management, are as pertinent today as they were over 30 years ago. Recent studies have confirmed a relationship between public access and relative wolf abundance (Thiel 1985, Jensen et al. 1986, Mech et al. 1988). In these studies, wolves were found in areas of Wisconsin, Minnesota and Ontario, Canada where public accessibility was limited. Roads, which provide humans with the means to "access" areas, were used to measure "accessibility". The amount, or density, of improved roads where wolves were found was below about one mile of road per square mile in area (For more detailed information on road standards and road densities see Appendix 2).

Public education about wolves has been identified as an overriding factor in the ultimate success of any wolf conservation program. The federal Eastern Timber Wolf Recovery Plan also stressed the need for public support by an informed public. Information must be made available to the public and managers alike through a well coordinated educational program.

Wolf populations are not adversely affected by humans where no direct conflict with human land use occurs, and/or where human densities are low and public accessibility is minimal. As the level of human tolerance towards wolves increases, access will have less affect on wolf populations.

G. CURRENT RESEARCH AND MANAGEMENT

Research on Status and Biology: Since 1979 the DNR, US Forest Service and the U.S. Fish & Wildlife Service (FWS) have been conducting an investigation (Study 101) into the population biology of wolves in Wisconsin in an effort to identify problems the species is facing in their environment (Thiel & Hale 1980, Thiel 1981, 1982, 1983, 1984). During this period forty-one wolves in four regions of the state have been radio-collared and studied. Other major work included investigations of food habits (Mandernack, 1983), parasite (Archer et al. 1986 Mech et al. 1985) and disease surveys (Thiel et al. 1987).

Monitoring Programs and Their Adequacy: The current investigations (See research on Status and Biology, above) are adequately monitoring wolf numbers and distribution within Wisconsin. Expansion in the species' distribution, however, will require additional manpower and financial support to be effective.

SUMMARY

Eastern Timber Wolves, formerly found throughout Wisconsin, suffered from indiscriminate killings inspired by government bounties until they were considered extirpated by 1960. A resurgence in wolf activity occurred by 1975 and the current population, estimated at 22-24 wolves (1987-88), exists in several areas of northern Wisconsin. Although the wolf is a federally and state listed Endangered Species, deaths persist largely due to negative attitudes about wolves. Maintaining remote habitat, continuation of wolf population investigations, and an extensive public education program are key requirements for the long-term survival of Eastern Timber Wolves in Wisconsin.

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PART II.

RECOVERY STRATEGIES AND STEP-DOWN OUTLINE

Part II is divided into two sections. Section 1 discusses the Plan Goal and the major management actions necessary to attain that goal. The second section details each of the activities of the various management actions. Each action and activity is preceded by a numeric code. That code number appears in Part III to more easily reference actions with costs and areas of primary responsibility.

Appendices and a Glossary are provided to give the reader pertinent background information. The first time a technical term appears in the narrative section it is underlined and it appears in the Glossary.

SECTION 1. NARRATIVE

- RECOVERY GOAL: (1) A SELF-SUSTAINING POPULATION OF 80 TIMBER WOLVES IN NORTHERN WISCONSIN.
- (2) RECLASSIFY THE WOLF TO STATE "THREATENED" WHEN A SELF-SUSTAINING POPULATION IS ACHIEVED.
- (3) CONTRIBUTE TOWARDS A FEDERAL RECLASSIFICATION TO "THREATENED" THROUGHOUT THE UPPER GREAT LAKES STATES.

PLAN HORIZON: 10 YEARS.

INTRODUCTION

The Wisconsin Department of Natural Resources (DNR) is directed by state statute 29.415 (7a) to implement programs "directed at conserving, protecting, restoring and propagating selected state endangered and threatened species to the maximum extent practicable." The Eastern Timber Wolf is listed as an endangered species in Wisconsin by the U.S. Fish & Wildlife Service (FWS) and the Wisconsin DNR. The purpose in developing a Wolf Recovery Plan is to comply with state statute by restoring this species to a secure population level. The option to "do nothing" is not consistent with the intent of state law, and should not be considered unless Wisconsin's wolf population fails to respond to practical management activities.

Wisconsin's wolf population was considered extirpated between 1960 and 1970 (Thiel 1978), but by the mid 1970's wolves reappeared in northwestern and north-central Wisconsin. The wolves most likely came from Minnesota. Despite the lack of any special management programs, wolf packs formed in several areas. Between 1970 and 1980 the population grew from just a few to approximately 15-25 wolves in 4 to 5 breeding packs between. Ear-tagging and telemetry studies indicate that wolf populations in Wisconsin and wolves existing in western upper Michigan are an extension of Minnesota's population (Berg and Kuehn 1982, Thiel submitted, Fritts pers. comm., Thiel unpubl data). Recent studies indicate that persecution of wolves, combined with the chronic loss of wolf litters due to disease during the early 1980's, have affected the population growth witnessed during the 1970's.

In 1986 and 1987 various service, industry and conservation groups, and interested citizens participated in informational exchanges with the Wisconsin Timber Wolf Recovery Team. The public generally supports wolf restoration activities provided that such measures are practical and reasonable. The most favored management activities are those which assist Wisconsin's existing wolf population to survive and grow. Moderate support was expressed for translocation of individual wild Wisconsin wolves as a means of assisting population growth. The least favored were wolf pack stocking activities. Stocking entire wolf packs (as from Minnesota) into areas of northern Wisconsin is not presently publicly acceptable.

The Team has established a recovery goal of 80 wolves. The population goal is based on densities of wolves presently existing within the state and the estimated amount of occupied habitat projected to exist in the future.

Wolf distribution in northern Wisconsin could be improved by enhancing existing populations in northwestern and north-central Wisconsin, and encouraging the natural re-establishment of packs in suitable habitats within northeastern Wisconsin.

The Wisconsin goal complements a Fish and Wildlife Service regional wolf recovery goal of establishing at least one viable population of at least 100 wolves in a 5,000 square mile region within 100 miles of the established Minnesota wolf population (Bailey 1978). The essential factors in determining viable populations of Eastern Timber Wolves are: (1) availability of wild prey, (2) large tracts of wild lands and minimal accessibility (3) ecologically sound management, and (4) adequate understanding of wolf ecology (Bailey 1978).

This Recovery Plan consists of various management activities selected to assist the expansion of the existing Wisconsin wolf population to the Recovery Goal of 80 wolves. The following activities are recommended: (1) increase public education activities, (2) reduce the incidence of human caused killings through increased protective measures and improved law enforcement actions, (3) enter into cooperative habitat management with landowners, (4) monitor population changes annually, (5) curb losses of litters due to disease, (6) conduct periodic program evaluations, (7) implement an acceptable livestock damage control program, (8) increase cooperation/coordination of activities with other agencies and interested organizations, (9) continue a Citizen Participation program, (10) use of volunteers to assist in educational and population monitoring activities, (11) establish criteria for delisting the wolf and establish an inter-disciplinary committee to develop a wolf management program following delisting, and (12) consider translocations of individual wild Wisconsin wolves after year 5 if necessary.

RECOVERY ACTIONS

The following narrative provides rationale and activities for each of the above listed steps.

- (1) Educational Activities: The timber wolf population can become self-sustaining only if people allow it to recover. Knowledge will help alleviate unfounded fears and will reduce rumors and myths.

Both adults and children can benefit from knowledge about wolves; the biological requirements of the species, its role in the ecosystem, and its value in our natural heritage.

The Department of Natural Resources will work with other agencies such as the U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Department of the Interior, and private organizations to develop and distribute information and educational materials about the timber wolf.

With the input and direction of cooperators, a clear, unbiased educational program can be developed using a variety of tools including slide/tape shows, videotape programs, curriculum projects and publications.

An effort will be made to involve teachers from the northern part of Wisconsin in cooperation with education staff specialists from DNR and the Dept. of Public Instruction (DPI) in the development of educational materials. The DNR will work with private organizations in evaluating existing educational materials and developing new ones.

Cooperative educational program activities include:

- (a) developing the slide/tapes, curriculum guides, youth wolf ecology projects, and acquiring any existing educational materials for distribution to K through 12th level school and adult audiences.
 - (b) DNR will: (1) periodically update its "Eastern Timber Wolf Life Tracks" publication, (2) provide guidelines for distinguishing differences between coyotes and wolves, and include information on wolf ecology status in the hunter and trapper educational curricula, (3) provide technical advice to groups, agencies and organizations interested in educational efforts, and (4) also conduct periodic surveys to measure the effects of educational efforts on human attitudes towards this species.
- (2) Protective Measures: In addition to state and federal penalties provided to protect wolves from illegal killings, the following protective measures will enhance wolf survival:
- (a) Continue the coyote season closure in northern Wisconsin during the annual deer gun season to eliminate hunter mistakes in differentiating between wolves and coyotes.
 - (b) A cooperative DNR/ Wisconsin Trappers Association program encouraging trappers to report and assist in releasing wolves caught accidentally.
 - (c) Revise penalties for the destruction of Endangered and Threatened Species under Chapter 29.415 (5a), making penalty provisions equal to the illegal take of big game (deer, bear).
 - (d) Improve law enforcement surveillance and cooperation between state and federal authorities in successfully apprehending and prosecuting violators of state and federal endangered species laws.
 - (e) Develop a reward fund in conjunction with various organizations to offer a reward for information that would lead to the arrest and conviction of persons who have killed wolves.
- (3) Cooperative Habitat Management Objectives: The Wisconsin Endangered and Threatened Species law (section 29.415, Wis. Stats.) states "the Department [of Natural Resources] may enter into agreements with federal agencies, other states, political subdivisions of this state, or private persons with respect to programs designed to conserve endangered or threatened species of wild animals or plants". Major portions of the northern forest region of Wisconsin (Map 1) are not owned by the state. National forests, County forests, tribal lands, industrial forests, and private lands make up the majority of land ownership. Wolf recovery would be enhanced through the cooperation of these landowners. The DNR will work with individual landowners and public agencies in developing habitat management programs tailored to the management styles of the respective land managers. Forest Management: Wolves require deer, beaver and other prey to survive. Deer and beaver are most abundant in early successional forest environments. Historically, disturbances were created through windstorms and fires, but in recent times disturbances have been maintained through timber cutting and other forest management practices.

Managing for deer within the context of current forest management benefits not only deer and wolves, but sport hunters, recreationists, and the forest products industry, among others (see Appendix 1).

Habitat management objectives for wolves include maintaining an abundance of prey species, by managing for an early successional forest environment.

Access Management: Wolf populations can be affected by the level of human caused mortality (see Appendix 2). Education (see Section 1) and access management can address this problem. Managing the amount, type and level of open public access can minimize encounters between humans and wolves that may result in accidental or intentional wolf deaths. In deciding upon an access management program variables such as administrative, economic and recreational land use, human population demographics, attitudes of the local population towards wolves, and historic trends in wolf mortality need to be taken into account. Access management practices serve to reduce forest road maintenance and fire abatement costs, and they would benefit not only wolves, but sensitive species such as bear, lynx, bobcat, fisher, marten, warblers and various plant species and communities, and certain types of recreation and sport hunting activities.

So long as wolves are not harmed by people, restrictive access management practices are not necessary. Past research has looked at how improved roads, open to public travel are related to wolf distribution and the level of human caused wolf mortality (see Appendix 2). These studies suggest that wolves exist primarily in areas with less than or up to one mile of open, improved road per square mile. The Team recognizes that lower-standard, minimally maintained roads may also have an impact on wolves in addition to the improved road systems that were studied (see Appendix 2).

The focus of access management will be to hold access at present levels by encouraging landowners to (1) manage for the minimum amount of access necessary to fulfill multiple use objectives, and (2) limit motorized public access on lower standard roads wherever possible through gating, berming, etc. This should not be construed as recommending the closure of existing improved roads or motorized recreational trails such as snowmobile trails, ATV trails, etc.

Cooperative Management: The DNR will seek to cooperate on a voluntary basis with landowners. Habitat management can be accomplished within the framework of multiple use management. The type and manner of deer habitat and access management activities will be mutually determined by each of the parties on a case-by-case basis.

- (4) Population Monitoring: Wolf population surveys are necessary to provide information on changes in wolf numbers and distribution in Wisconsin. This information is vital to the success of management activities. It may also indicate if and when management activities need to be modified and whether translocation activities (5 below) may be warranted.
 - (a) Annual radio telemetry work on selected packs is necessary to provide data on pack size trends, mortality rates, dispersals and re-colonization rates as well as to provide general information on wolf distribution, food habits and disease problems.

- (b) Intensive winter track surveys will be run every other year in coordination with cooperating agencies and volunteers to provide detailed wolf distribution data.
 - (c) Annual summer howling surveys will be coordinated with cooperating agencies and volunteers to determine reproductive status of existing packs.
 - (d) Carcasses will be retrieved, necropsied at FWS's National Animal Health Lab, and deposited in recognized scientific museums or utilized for educational purposes.
- (5) Disease Abatement: Blood and fecal samples of wolf carcasses and wolves captured for telemetry purposes will be tested for signs of disease and parasitism. Captured wolves will be routinely examined and vaccinated against common canine diseases. Oral vaccines will be developed and administered via baits if necessary to curtail pup mortalities.
- (6) Periodic Evaluations: DNR will periodically evaluate the progress of wolf recovery activities. Program reviews should take place in years 3,5,8 and 10. Each review will assess the progress of each of the 12 management activities, compare these with the anticipated wolf population response and include, if necessary, recommended revisions in plan programs (Table 4).

TABLE 4. Anticipated wolf population growth during plan implementation period.

Plan Yr.	Fiscal Yr.	Winter Population ¹ Estimate	No. of ² Packs	Program Review Check-Point
1	1988-89	22	5	
2	89-90	25	5	
3	90-91	29	5-6	1
4	91-92	33	6	
5	92-93	38	6-7	2
6	93-94	44	7-8	
7	94-95	51	8	
8	95-96	58	8	3
9	96-97	67	9-10	
10	97-98	78	10	4

¹ Finite rate of increase = 1.15; based on literature and recent growth rate of 1.23 observed in Wisconsin (1985-86 to 1987-88).

² Finite rate of increase = 1.083 as observed in Wisconsin between 1979-80 (3 packs) and 1987-88 (5 packs).

- (7) Livestock Damage Control Activities: Wolves occasionally prey on livestock, and any wolf recovery program must provide a fair and effective damage abatement and compensation program. It is important, however, to keep this issue in proper perspective. Neighboring Minnesota is home to an estimated 1,000 to 1,200 wolves. There are more than 12,000 livestock

operations in Minnesota's wolf range; yet between 1979 and 1984 an average of only 23 farms per year lost livestock to wolves. Wisconsin has had a population of 15 to 25 wolves for the past decade or more, and only two cases of wolf depredation on livestock have been confirmed. Livestock depredation by wolves will probably not be a serious problem in Wisconsin even if the population Goal is attained.

The DNR, US Department of Agriculture, and FWS will cooperatively agree upon a livestock damage control program to remove individual wolves causing damage. DNR or federal agents will verify losses and carry out nonlethal or lethal actions necessary to curtail depredations, following procedures established in Minnesota. A federal permit will be necessary to control wolves causing livestock damage pursuant to Section 10 (A and B) Endangered Species Act, 1982 Amendments (see Appendix 3).

Three percent of the annual check-off revenue is placed in the Endangered Resources Fund which establishes money for paying damage caused by endangered species. If wolf depredation becomes a problem, legislation will be drafted recommending that a fund be established for a wolf damage abatement program providing 100% compensation for verified livestock losses.

- (8) Inter-Agency Cooperation/Coordination: Our efforts to achieve a population of 80 wolves should be viewed as the Wisconsin contribution to a regional wolf population involving Minnesota, Michigan, Wisconsin, and Ontario. Efforts in Wisconsin should mesh with those of the FWS Eastern Timber Wolf Recovery Team, our neighboring states, and the Province of Ontario, Canada. The Team recommends creation of a Coordinating Committee consisting of representatives of various federal government agencies, Indian tribes, the states of Minnesota, Michigan and Wisconsin, and the Province of Ontario. Activities that would be enhanced in a coordinated, cooperative atmosphere include population surveys, law enforcement investigations, education, control programs, protective measures, and monitoring changes in wolf use of dispersal corridors in east-central Minnesota and the St. Mary's River region in Ontario.
- (9) Continued Citizen Participation: From the outset the Team has asked for and received public assistance in the development of this wolf recovery plan. That openness to citizen participation will continue through the implementation and evaluation phase of wolf recovery.
- (10) Volunteer Program: Many Wisconsin citizens have offered their assistance to the DNR in wolf recovery efforts. Obtaining active participation of citizens is important in maintaining public commitment to wolf recovery activities. The Team has identified two areas where volunteer involvement is recommended:
 - (a) Developing educational materials and giving educational presentations to interested parties, and
 - (b) Assisting in winter tracking and summer howling population assessment activities.

(11) Reclassifying Criteria and Future Population Management:

The Team must provide a set of recommendations for reclassifying the wolf if restoration activities are successful. Furthermore, once the Team's Goal has been accomplished provisions must be established to wisely manage Wisconsin's wolf population.

The Team will consider Wisconsin's wolf population recovered and recommend delisting the wolf to the state "threatened" classification when these conditions have been met: (a) a minimum of 80 wolves are present during winter population surveys in each of 3 consecutive years, (b) a minimum of ten packs are present in each of 3 consecutive years and (c) a minimum of 4 packs are present east of Highway 13.

The Team recommends that Wisconsin, Minnesota and Michigan DNR's petition FWS to declassify the wolf to federal "threatened" classification within these states if joint surveys reveal more than 100 wolves in Wisconsin and Michigan, based on federal criteria for re-establishing a viable wolf population for these 2 states (Bailey 1978, Bailey to Nelson September 15, 1981).

The Team recommends the establishment of an inter-disciplinary committee to work in concert with key interest groups to provide recommendations for a wolf management program to maintain a "recovered" population. This committee should be established in year 5.

- (12) Translocation Activities: All management activities should be evaluated at planning year 5 (1992-93) to determine wolf population response to restoration activities. Citizen participation will be an important part of that evaluation process. If the wolf population has not shown signs of growth (Table 4), translocation of individual wild Wisconsin wolves into other areas of suitable wolf habitat where lone wolves are known to occur will be considered to promote wolf recovery. DNR will also consult with resource user groups and local citizens in implementing translocation activities if evaluations indicate such action is advisable. Federal permits will also be necessary to translocate individual Wisconsin wolves.

SECTION 2. STEP-DOWN OUTLINE

1. Direct Educational Activities on Wolf Ecology.
 - 1.1 Develop audio/visual materials for use and distribution.
 - 1.1.1 Develop two 20-minute videotapes on wolf ecology; one suitable for K through 8th level and the other for high school and adult audiences.
 - 1.1.2 Develop two 20-minute slide tape programs on wolf ecology.
 - 1.1.3 Prepare a minimum of 50 copies and distribute to the 12 Cooperative Educational Service Agencies (CESA's), 6 DNR Districts, and private volunteer citizens.
 - 1.2 Develop and develop wolf ecology supplements to the elementary and secondary level Project Wild guides.
 - 1.3 Develop a list of suggested wolf projects for youth groups (Scouts, 4-H, etc.)
 - 1.4 Acquire six copies of the film "Wolf Pack" to be used under DNR direction.
 - 1.5 Update, reprint, as necessary, and distribute to CESA's, DNR and volunteers the DNR "Life Tracks" publication, Eastern Timber Wolf (Publication ER-500).
 - 1.6 Include wolf ecology information in hunter and trapper educational/informational materials.
 - 1.6.1 In the hunting regulations booklet, include a map showing the area closed to coyote hunting during the gun-deer season explaining the wolf's legal status in Wisconsin.
 - 1.6.2 Include information on wolf ecology and management in the hunter and trapper education curricula. Stress individual responsibility in the recovery of endangered or threatened species.
 - 1.7 Conduct surveys to measure the effect of education efforts on attitudes towards the wolf and wolf recovery in Wisconsin.
 - 1.8 Provide technical advice to organizations and agencies interested in developing and distributing information on the ecology of wolves in Wisconsin.
2. Provide added legal protection to wolves.
 - 2.1 Continue the coyote hunting season closure in the northern one-third of Wisconsin during the annual November deer gun season.
 - 2.2 Enact legislation providing increased penalties for killing Endangered and Threatened Species. Fines should be comparable to the illegal killing of big game.
 - 2.3 Seek improved law enforcement surveillance and investigations by conducting wolf management workshops.
 - 2.4 Increase cooperation between DNR, U.S. Forest Service and Fish and Wildlife Service law enforcement authorities by conducting wolf management workshops.
 - 2.5 Work with organizations to establish a "reward fund" for information that would result in the apprehension of persons who have killed wolves.
 - 2.6 Work cooperatively with the Wisconsin Trappers Association to reduce accidental trapping.

3. Cooperatively Manage Habitats with Landowners.
 - 3.1 Identify areas where existing land management practices do or can support wolves.
 - 3.2 Cooperatively manage habitats with (a) industrial forests, (b) county forests, (c) state properties, (d) national forests, (e) tribal nations, and (f) private landowners (via Managed Forest Act Cooperators, etc.).
 - 3.2.1 Identify and agree on deer habitat improvement practices.
 - 3.2.2 Identify and agree on appropriate access management practices (gating, berming of new roads, use of temporary access to fulfill management objectives, etc.)
 - 3.2.3 Identify specific management activities that may be cost-shared through Pittman-Robertson, Citizen Tax Check-off Revenues, Segregated Funds, Forest Service Challenge Grant Programs or Donations.
4. Monitor the annual population trends and distribution of wolves in Wisconsin via:
 - 4.1 Annual techniques capable of censusing wolves and determining population changes.
 - 4.1.1 Conduct annual summer night howl surveys to determine productivity rates.
 - 4.1.2 Monitor wolf activity, behavior, population trends, territory size, dispersal and survival rates by live-trapping, and radio-collaring wolves.
 - 4.1.3 Collect carcasses and submit to the FWS National Wildlife Health Lab for necropsy to determine age, productivity, disease and parasitism.
 - 4.1.4 Deposit specimens in qualified museums or salvage as educational materials.
 - 4.2 Conduct bi-annual winter track surveys to determine wolf distribution and to supplement telemetry data on wolf population trends.
5. Initiate disease abatement activities.
 - 5.1 Assess prevalence/impacts of disease-parasitism through necropsies of dead wolves and examinations, blood and fecal sampling of wolves captured for telemetry monitoring.
 - 5.2 Routinely vaccinate wolves captured for telemetry monitoring.
 - 5.3 Develop and administer effective oral vaccines via baits at summer homesites.
6. Evaluate progress of each management activity and compare with population response.
 - 6.1 Review work activities and compare with changes in wolf population.
 - 6.2 Develop recommendations to change activities in order to achieve a positive population response.
7. Implement livestock damage control activities.
 - 7.1 Develop a cooperative agreement with FWS on livestock damage control program that permits DNR to take individual wolves when necessary.
 - 7.2 Institute a livestock depredation compensation program.
 - 7.2.1 Obtain special funds to compensate fully the appraised value of verified livestock losses.
 - 7.2.2 Compensation will be based on an appraisal by the County Agriculture Agent and an independent livestock breeder.

8. Coordinate wolf management activities with federal, state and county agencies.
 - 8.1 Seek establishment of a regional Lakes states wolf recovery coordinating committee and secure representation from Wisconsin.
 - 8.2 Develop interstate dispersal corridor management guidelines to maintain conditions suitable for the natural movement of wolves between northern Minnesota, Wisconsin, Upper Michigan and Ontario.
 - 8.3 Maintain formal (via workshops, conferences, etc.) and informal (via personal communications) contact with others involved in regional wolf recovery efforts.

9. Continue citizen participation activities.
 - 9.1 Continue to provide regular wolf (recovery) status reports to interested citizens, citizen groups and agencies.
 - 9.2 Obtain periodic citizen input on management activities.

10. Volunteer Program Activities:
 - 10.1 Maintain a list of volunteers and determine qualifications and availability of volunteers to assist in various projects.
 - 10.2 Conduct volunteer workshops to train volunteers on project objectives, and provide volunteers with the information and experience necessary to fulfill objectives.
 - 10.3 Provide coordinator services to supervise and coordinate volunteer activities.
 - 10.4 Volunteer projects will consist of assistance in (a) education, and (b) monitoring winter populations and summer reproductive success.

11. Reclassifying Criteria
 - 11.1 Reclassify the wolf to state "threatened" when wolf population of more than 80 wolves in 10 packs have been identified as present in each of 3 consecutive years.
 - 11.2 Work with Michigan and Minnesota DNR to successfully petition FWS to federally reclassify wolf to "Threatened" when at least 100 wolves are present in Wisconsin and upper peninsula Michigan.
 - 11.3 Establish a DNR committee to develop a management program for a recovered Wisconsin wolf population.
 - 11.3.1 Initiate committee activities at plan implementation year 5 (Program Review 2; Table 4) or as soon thereafter as population progress meets expectations.
 - 11.3.2 Seek advice and consult with resource user groups, conservation and environmental groups and interested citizens in developing a wolf management program.

12. Determine whether translocation activities are warranted by assessing wolf population response to management activities (via Program Review; Table 4) at year 5 (1992-93 if plan implemented in 1988-89).
 - 12.1 Determine where lone, resident wolves exist.
 - 12.2 Determine the sex, home range, and other ecological parameters of lone wolf candidate.
 - 12.3 Seek advice and support of resource user groups, conservation organizations and local citizens in the translocation of potential mates for lone, resident wolves.
 - 12.4 Obtain the necessary federal permit to translocate a wolf as a potential mate for the lone, resident wolf.

- 12.5 Obtain permission from landowners where wolf capture and release will take place.
- 12.6 Construct a release pen at the release site.
- 12.7 Capture an appropriate wolf from a Wisconsin pack.
 - 12.7.1 Examine wolf to determine health status.
 - 12.7.2 Retain the wolf in an interim holding facility until after fall hunting seasons and then place it in the release site pen.
- 12.8 Train appropriate volunteer personnel and provide 24 hour surveillance of wolf while in release site.

PART III.

SCHEDULE OF PRIORITIES, RESPONSIBILITIES AND COST

INTRODUCTION:

Part III delineates the major Agency and Bureau responsibilities and proposes a fiscal year budget for each of the major management actions listed in Part II. Part III is presented in tabular form. Table 5 summarizes expenditures by source for wolf project activities 1979-80 through 1986-87. Table 6. provides a budget estimate to carry out the most important management activities prescribed in this plan. Table 7 provides a list of agency responsibilities and projected manpower needs and expenditures for each job activity presented in the Step-down outline (Part II, Section 2).

Funding sources for Timber Wolf Recovery in Wisconsin could be a combination of Endangered Resource funds, Federal Endangered Species Act funds, Pittman-Robertson funds, direct donations and Wildlife Management Segregated funds in the form of wildlife managers salary to help implement the plan. The BER should develop a funding strategy to insure an adequate budget for the implementation of this plan.

The recovery actions described in this plan, represent many hours of work and will require, as in the case of population monitoring, the application of special knowledges and skills.

The recovery team believes it is essential to wolf recovery that the Bureau of Endangered Resources within DNR continue to provide the services of a biologist to guide the recovery program and carry out certain specialized recovery activities.

TABLE 5 - WISCONSIN TIMBER WOLF MANAGEMENT BUDGET FROM 1979-80 to 1986-87

FISCAL YEAR	FUNDING SOURCE				TOTALS
	CHECKOFF ¹	SEG ² /GPR ³	S-6 ⁴	P-R ⁵	
1979-80	0	5,000	15,000	0	20,000
1980-81	0	5,425	16,275	0	21,700
1981-82	0	7,734	35,000	0	42,213
1982-83	13,013	?	0	35,200	48,213
1983-84	27,905	?	0	51,440	79,345
1984-85	11,804	?	0	28,125	39,929
1985-86	16,842	6,783	30,800	29,800	84,225
1986-76	36,554	7,575	18,000	38,305	100,434
TOTALS			115,075	182,870	436,580

¹ Endangered Resources Checkoff Funds.

² Segregated Fish & Wildlife Funds.

³ General Purpose Revenue.

⁴ Section 6 Funds.

⁵ Pittman-Robertson Funds.

TABLE 6 - MOST IMPORTANT MANAGEMENT ACTIVITIES

<u>Activity</u>	<u>Job</u>	<u>Description</u>	<u>Cost</u>	<u>Totals</u>
Education	1.1.2	Wolf Ecology Slide-tapes	500	
	1.1.3	Distribute 50 slide-tapes	2,500	
	1.5	Reprint "Life Tracks"	6,000	
	1.6.2	Hunter/trapper education	2,000	
	1.8	Technical advice	1,500	
				12,000
Protection	2.5	Reward fund	1,000	1,000
Agreements	3.2	Establish cooperative Agreements	1,000	1,000
Monitoring	4.1.1	Howl surveys	4,000	
	4.1.2	Telemetry work	20,000	
	4.1.3	Carcass necropsies	1,000	25,000
Disease Work	5.1	Disease Surveys	1,500	
	5.2	Vaccinations	500	2,000
Evaluation	(Priority given in years 5 and 10)			
Depredation	7.2	Livestock compensation	3% of tax checkoff	
Inter-Agency	8.2	Corridor management	1,000	1,000
Citizen Participation	9.1	Status updates	500	500
Volunteer 1	10.2	Volunteer workshops	1,500	1,500
	10.3	Coordinate volunteers	1,500	
Total			49,500	49,500

TABLE 7 - SCHEDULE OF MANPOWER AND COST (in 1,000s) FOR IMPLEMENTING THE WISCONSIN TIMBER WOLF RECOVERY PLAN BY FISCAL YEAR¹.

ACTIVITY	OUTLINE NUMBER	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(8)		(10)	
		1988-89	\$	1989-90	\$	1990-91	\$	1991-92	\$	1992-93	\$	1993-94	\$	1994-95	\$	1995-96	\$	1996-97	\$	1997-98	\$
1. EDUCATION																					
	1.1.1	20	1.0		.6																
	1.1.2	10	.5	20	2.5																
	1.2			20	.5		.5														
	1.3				.3																
	1.4		.8		.8		.8														
	1.5	10	2.0	10	2.5		2.0				2.0										
	1.6		NC																		
	1.6.2	10	.4	10	.4	10	.4	10	.4	10	.4										
	1.7									20	5.0			20	10.0						
	1.8	400	3.0	400	2.3	300	1.5	300	1.5	200	1.5										
2. PROTECTION																					
	2.1		NC																		
	2.2		NC																		
	2.3			20	.5					20							.5				
	2.4			20	.5					20							.5				
	2.5	40	.2	10		10		10		10		10		10		10		10	10		
	2.6	40	.2	40	.2	40	.2	40	.2	40	.2	40	.2	40	.2	40	.2	40	.2	40	.2
3. HABITAT MANAGEMENT																					
	3.1	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1
	3.2.1	100	.5	100	.5	60	.5	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1	40	.1
	3.2.2	300	.7	300	.7	200	.5	100	.1	100	.1	100	.1	100	.1	100	.1	100	.1	100	.1
	3.2.3	40	.1	40	.1	10		10		10		10		10		10		10		10	
4. MONITORING																					
		500	25	400	25	400	25	400	25	400	25	400	25	400	25	400	25	400	25	400	25
5. DISEASE ABATEMENT																					
		40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0	40	2.0
6. EVALUATION																					
						40	1.0			80	1.0					40	1.0			80	1.0
7. DAMAGE CONTROL																					
	7.1	10	.2																		
	7.2.1	20	.1	20	.1	20	.1	20	.1	20	.1	20	.1	20	.1	20	.1	20	.1	20	.1
	7.2.2	20	.1	10	.1	10	.1	10	.1	10	.1	20	.1	20	.1	20	.1	20	.1	20	.1

¹ Hours are for project coordination; salary costs for project coordinator and intra-agency cooperation are not included in the cost estimates. Coop salary are not in dollar costs but costs of project coordinator are included.

TABLE 7 - SCHEDULE OF MANPOWER AND COST FOR IMPLEMENTING THE WISCONSIN TIMBER WOLF RECOVERY PLAN BY FISCAL YEAR¹.

ACTIVITY	OUTLINE NUMBER	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(8)		(10)	
		1988-89	\$	1989-90	\$	1990-91	\$	1991-92	\$	1992-93	\$	1993-94	\$	1994-95	\$	1995-96	\$	1996-97	\$	1997-98	\$
8. COORDINATION																					
	8.1	20	.3	10		10		10		10		10		10		10		10		10	
	8.2	10	.3	10	.3	10	.3	10		10		10		10		10		10		10	
	8.3	40	.5	40	.5	40	.5	40	.5	40	.5	40	.5	40	.5	40	.5	40	.5	40	.5
9. CITIZEN PARTICIPATION																					
	9.1	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0
	9.2	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	1.0
10. VOLUNTEERS																					
	10.1	60	.2	40	.2																
	10.2	160	2.0	160	2.0	80	1.0	40	1.0	40	1.0	40	1.0	40	1.0	40	1.0	40	1.0	40	1.0
	10.3	50	2.0	50	1.0	50	2.0	50	1.0	50	1.0	50	1.0	50	1.0	50	1.0	50	1.0	50	1.0
	10.4		NC																		
11. RECLASSIFICATION																					
	11.1																			160	.5
	11.2																			160	.2
	11.3.1																			160	.1
	11.3.2																			160	.5
12. TRANSLOCATION (If Necessary)																					
	12.1																				
	12.2																				
	12.3									360		NC									
	12.4									10		NC									
	12.5									80		.5									
	12.6													20		2.5					
	12.7.1															NC					
	12.7.2													10		1.0					
	12.8													80		10.0					
TOTALS		2130	43.2	2010	43.9	1570	39.5	1370	34.1	1860	45.6	1190	55.7	1060	32.2	1100	34.2	1060	32.2	1780	34.5
5390M																					



Map 1. Potential wolf habitat exists throughout the northern forest region in Wisconsin wherever wolves would not be molested or conflict with human land uses (ex: live-stock production).



MAP 2. Remote Areas identified in Wisconsin.

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GLOSSARY

EASTERN TIMBER WOLF RECOVERY TEAM = A team of eight individuals appointed by the Director of the U.S. Fish & Wildlife Service to develop a recovery plan for this sub-species of wolf. This federal team consists of representatives from the Fish & Wildlife Service, U.S. Forest Service, National Park Service, and the states of Michigan, Minnesota and Wisconsin. The team's Eastern Timber Wolf Recovery Plan was approved by the Fish & Wildlife Service in 1978. This federal plan is used primarily as a guideline to direct the activities of various federal agencies in promoting wolf conservation.

ENDANGERED RESOURCE CHECKOFF FUNDS (CHECKOFF) - Voluntary state donations from Wisconsin income tax used to fund endangered resource programs such as the timber wolf program.

GENERAL PURPOSE REVENUE (GPR) - General state taxes and other monies which we collected by state agencies and deposit into the general fund, and are available for appropriation by the legislature.

IMPROVED ROADS = Travelways allowing motorized vehicles that are sloped, drained, graded, surfaced or paved (See Appendix 1 for a complete discussion on roads).

LOW-STANDARD ROADS = Travelways allowing motorized vehicles that are unimproved, are not generally surfaced, are narrow and designed for specific use, and are minimally maintained. Travel is usually slow and tedious (See Appendix 1 for a complete discussion on roads).

LIVESTOCK = any domesticated animal owned and raised as stock, including poultry, swine, sheep, goat, cattle, horses and kin, cats and dogs.

LIVESTOCK DAMAGE CONTROL PROGRAM = A program to (1) provide educational aid to livestock owners in minimizing wolf depredations, (2) provide assistance through nonlethal means where possible, and trapping/removal activities when necessary (including euthanasia) and (3) a compensation program to cover 100% of the assessed value of verified livestock losses.

MOTORIZED ACCESS - Access designed to accommodate conventional 4 wheeled vehicles (e.g. cars, pick-ups).

PITTMAN-ROBERTSON FUNDS - (PR) - An 11% federal excise tax on rifles, shotguns, ammunition and archery equipment and a 10% excise tax on handguns. Receipts are allocated to the Wisconsin DNR on basis of the size of the state and its number of licensed hunters.

POTENTIAL WOLF HABITAT = Major forested areas of northern Wisconsin where there is suitable wolf habitat. Forests generally cover more than 50 percent of the region, and resident human populations are lower than other regions of the state. Suitable wolf habitat is scattered throughout this region. Additional areas of suitable wolf habitat may also be present within this region (See Map 1).

ROAD = An avenue that creates or allows uncontrolled motorized access by the public (See Appendix 1 for a complete description of roads).

SECTION 6 FUNDS (S-6) - Federal refunds obtained from federal endangered resource revenue.

SEGREGATED FISH AND WILDLIFE FUNDS (SEG) - State funds generated from license sales (hunting, fishing and trapping) that are used to fund fish and wildlife programs.

SERVICE LEVEL ROADS = The major traffic characteristics and operating conditions that determine the design standards of a road. Roads service many different transportation needs. Each is designed to accommodate a variety of needs, depending on the purpose and intended use. For example roads that will serve greater volumes of traffic at increased speeds have higher design standards and are rigorously maintained. See Appendix 1 for further information on roads.

STOCKING = The technique of capturing wolf packs and transplanting them into another area (either inter or intra state transplants are possible).

SUITABLE WOLF HABITAT = Wolves can live in any area where ungulate prey is available on a sustained basis, and where human caused deaths are not excessive. In Wisconsin white-tailed deer are present in sufficient numbers and prey availability is not considered a likely limiting factor. However, people can be considered a potential limiting factor since Wisconsin is well populated by people. In Wisconsin livestock is largely absent within suitable wolf habitat, and areas capable of sustaining individual packs must be at least 100 square miles in size with less than one mile per square mile of open, publicly used roads.

TRANSLOCATION = The technique of capturing a single wolf and transplanting it into another area.

WISCONSIN TIMBER WOLF RECOVERY TEAM = A team of twelve people within Wisconsin established by the Secretary of the Wisconsin DNR in January 1986 to develop a recovery plan for the wolf. Representing DNR are five Wildlife Managers, two Endangered Species Biologists, one Public Information Specialist, one Wildlife Staff Specialist and one Forester within DNR. Non DNR members include one U.S. Forest Service Biologist and the Executive Secretary of the Wisconsin County Forests Association. The state team was given the task of developing a recovery plan to guide and direct management activities for restoring a wolf population in Wisconsin. When completed the recovery plan will be presented to Wisconsin DNR administration for their review and approval.

APPENDIX 1

IMPACT OF WOLVES ON DEER IN WISCONSIN

Wolves feed primarily on hoofed mammals. In Wisconsin the major diet of wolves is white-tailed deer. At present Wisconsin's wolf population is estimated at 15 to 25 animals, and the Recovery Team has established a recovery goal of 80 wolves. Concerns over the impact of wolves on deer populations in northern Wisconsin have been raised by 1). deer hunters, 2). the tourist industry, and 3). persons who enjoy viewing deer.

Biologists studying wolves and deer in Minnesota believe that wolf predation generally poses no serious threat to deer herds. In Minnesota legal and illegal harvesting by humans and severe winters (which occur about every 4 years), have the greatest impact on deer numbers, even where wolves are common. Wolves can impact deer populations especially during and following a series of severe winters. Biologists believe that wolf predation "compensates" for other forms of mortality to deer during severe winters. Wolf predation rates of 8 adult deer per wolf per year, and 4 fawns per wolf from October through May were determined from a recent radio telemetry study in north-central Minnesota (T. Fuller, pers. comm.).

In an effort to determine the affects of wolf predation on deer in Wisconsin, deer management unit data for several units occupied by wolves were compared to data from similar units without wolves. Deer densities, buck harvest rates and hunter densities were similar for units 4 and 14, and units 32 and 38. Wolves are present in units 4 and 32, but are absent from units 14 and 38. Wolves occupy about 75% of unit 4 and less than 25% of unit 32. Deer habitat in unit 4 is similar to habitat in unit 14. Habitat conditions between units 32 and 38 are similar to each other. However, deer densities are lower in units 4 and 14 and higher in units 32 and 38 (Table 8).

Table 8. Comparison of deer population characteristics in 2 deer management units with wolves vs. 2 units without wolves.

Unit	Wolves Present	Unit Wolf Density	Unit Overwinter Deer Density	Hunter Density	Annual Gun Season Buck Kill
Lower Deer Density Units:					
4	Yes	1/30 mi ²	10.5/mi ² (8-15)	5.8/mi ² (4-7)	1.0/mi ² (1)
14	No	N/A	11.0/mi ² (8-16)	5.0/mi ² (3-6)	1.0/mi ² (1-2)
Higher Deer Density Units:					
32	Yes	1/52 mi ²	18.7/mi ² (13-24)	15.1/mi ² (11-17)	1.9/mi ² (1-2)
38	No	N/A	23.7/mi ² (17-34)	9.8/mi ² (8-14)	2.8/mi ² (2-3)

Figure 1, shows trends in the deer population deer densities for units 4 (wolves present) and unit 14 (wolves absent). Both units 4 and 14 are in northwestern Wisconsin. The fluctuations are very similar. Unit 4 does not deviate from trends in areas without wolves, or from regional population trends. Wolf impacts on deer management unit populations do not appear to be appreciable.

The Recovery Plan wolf population goal of 80 individuals represents a three to four fold increase over existing numbers of wolves in Wisconsin. As the wolf Population increases (under proposed management activities), wolf distribution in Wisconsin will also change. Wolves will spread out and occupy other deer management units. However, the impact of wolves on deer even within any additional units will probably be negligible because of the unlikelihood that any one unit would be 100% occupied by wolves.

The Team believes the presence of wolves will not affect deer populations in general. Northern Wisconsin overwinters approximately 265,000 deer. If 80 wolves each eats 18 deer per year, 1450 deer would be required. Even if all these deer were removed from the wintering herd (the low point in the annual population trend) wolves would take less than 1/2 of 1 percent of the northern forest deer herd. Wolves may impact deer numbers on a local basis during and following especially severe winters but a population of 80 wolves will not affect northern Wisconsin's deer population.

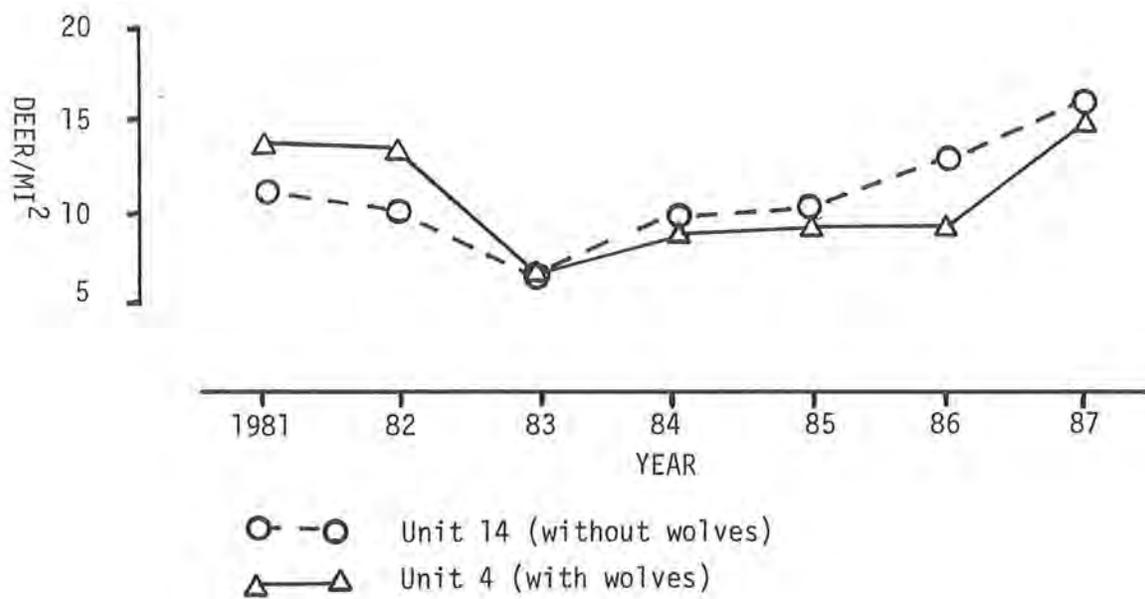


Fig. 1 Comparison of deer population trends in Northwest Wisconsin.

APPENDIX 2

ROADS AND THEIR IMPACTS ON WOLVES

Wolves are found wherever prey is available and where they are not over-exploited by humans. Major wolf populations only exist in regions sparsely populated by humans. The present day continental wolf population is confined to nonagricultural regions of Canada and Alaska. Today, people are the predominate limiting factor of wolf populations.

Wolves occur sparingly in areas proximate to higher human populations or areas frequently used by humans. These occur along the farm-fringe areas of Canada and a few of our northern states that border the vast northern forests of the continent. In some of these areas wolves fare well; in other areas people (and/or their activities) make life very difficult or impossible for wolves.

Wolf range is determined by the degree and intensity of human activity in any area. As human activity increases, wolf mortality increases, either through accidental or intentional killings by humans.

Human activity is conditioned by access. As access (principally via roads) improves, so does the use of roads by people. And as use increases (for whatever reason) so, too, the likelihood of encounters between wolves and people.

Roads don't kill wolves; people do. The simple truth is that if the roads weren't there fewer people would be there also. Roads increase wolf-human encounters that can potentially result in accidental or intentional deaths.

Recently scientists learned that levels of roads greater than one linear mile of open, improved road per square mile seems to impact adversely on wolf populations.

People, specifically those with negative attitudes towards wolves, who use roads in wolf country pose the greatest hazard to wolves. In order to use the road system, they must be open to public use.

Given current attitudes, improved roads open to public travel that are easily used and receive a fairly high and consistent level of use, make it possible for humans to over-exploit wolves. Autumn is the critical period for wolves in the upper Great Lakes states. The majority of deaths, caused by humans, occur during this season.

The following diagrams provide information on the types of road design standards that are discussed in the recovery plan. Improved roads generally include the A, B, and C service level standards. In suitable wolf habitat areas, these combined service levels are below one linear mile per square mile. Our knowledge on service level D roads is very limited. These roads (which are usually designed for single purposes) should be kept to a minimum, and public access (other than the intended use) on these roads should be discouraged.

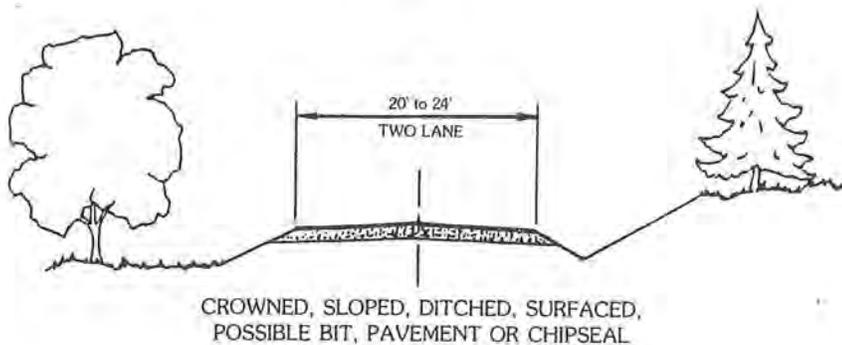
Road Classifications as Defined by the U.S. Forest Service

Traffic Service Level A

- *Normally higher standard road
- *Generally two lane, gravel or blacktopped
- *Clearing limits 25' to 45'
- *All needed facilities--ditches, culverts, signs, etc.
- *Normally open year round to public
- *Load limits posted during spring break-up
- *Frequent road maintenance

ALL WEATHER ROAD

A

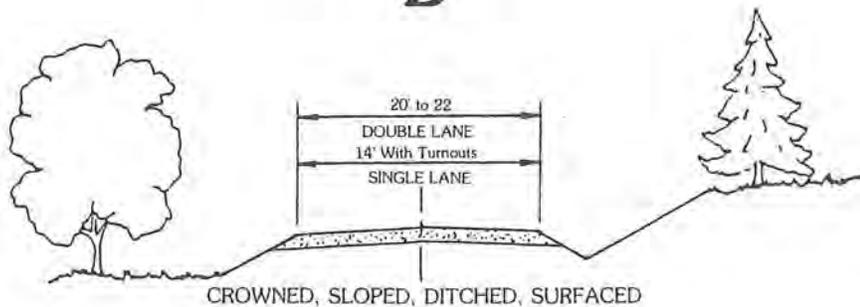


Traffic Service Level B

- *Considered medium standard road
- *May be single or double lane, usually gravel surfaced
- *Clearing limits 20' to 40'
- *All needed facilities--ditches, culverts, signs, etc.
- *Normally open year round to public vehicles but may be closed seasonally
- *Load limits posted during spring break-up
- *Typically maintained monthly or quarterly

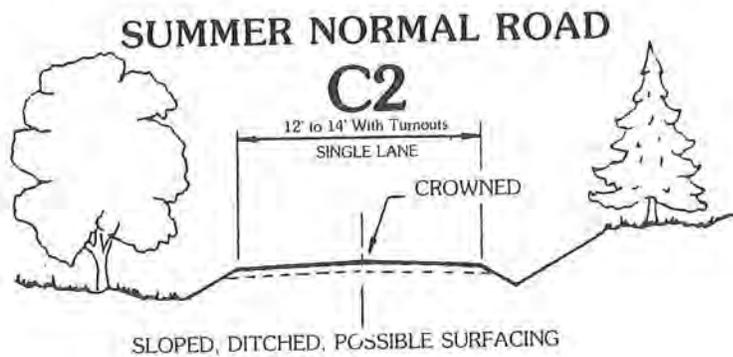
ALL WEATHER ROAD

B



Traffic Service Level C

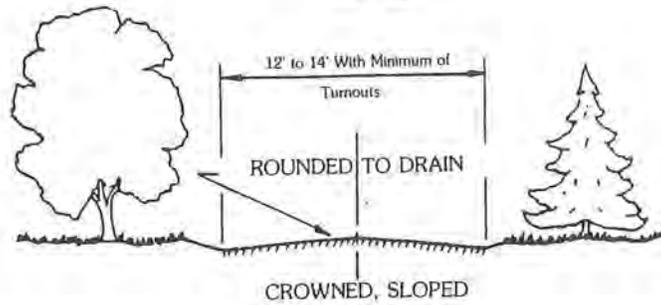
- *Considered medium to low standard
- *Single lane may be graveled or of native soil
- *Clearing limits 20' to 35'
- *All needed drainage facilities--ditches, culverts, etc.
- *Normally opened seasonally
- *May be open or closed to public vehicles to meet management objectives
- *Maintenance every other month to semi-annual



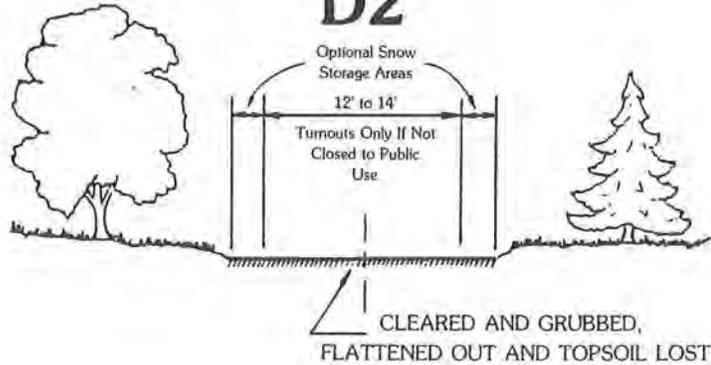
Traffic Service Level D

- *A low standard road
- *Single lane not surfaced--soft areas may be stabilized
- *Clearing limits 18' to 24'
- *Culverts in continuous drains only, or outlet ditches and dips
- *Normally operated during limited season
- *Generally public vehicle travel prohibited or restricted through gates, berms, rocks, etc. or signing
- *Maintenance performed only as needed each time road is open for specific use

**DRY SUMMER, WINTER ROAD
D1**



**WINTER ROAD
D2**



APPENDIX 3

"EXPERIMENTAL POPULATION" and ISSUE of "TAKE"

Experimental Population:

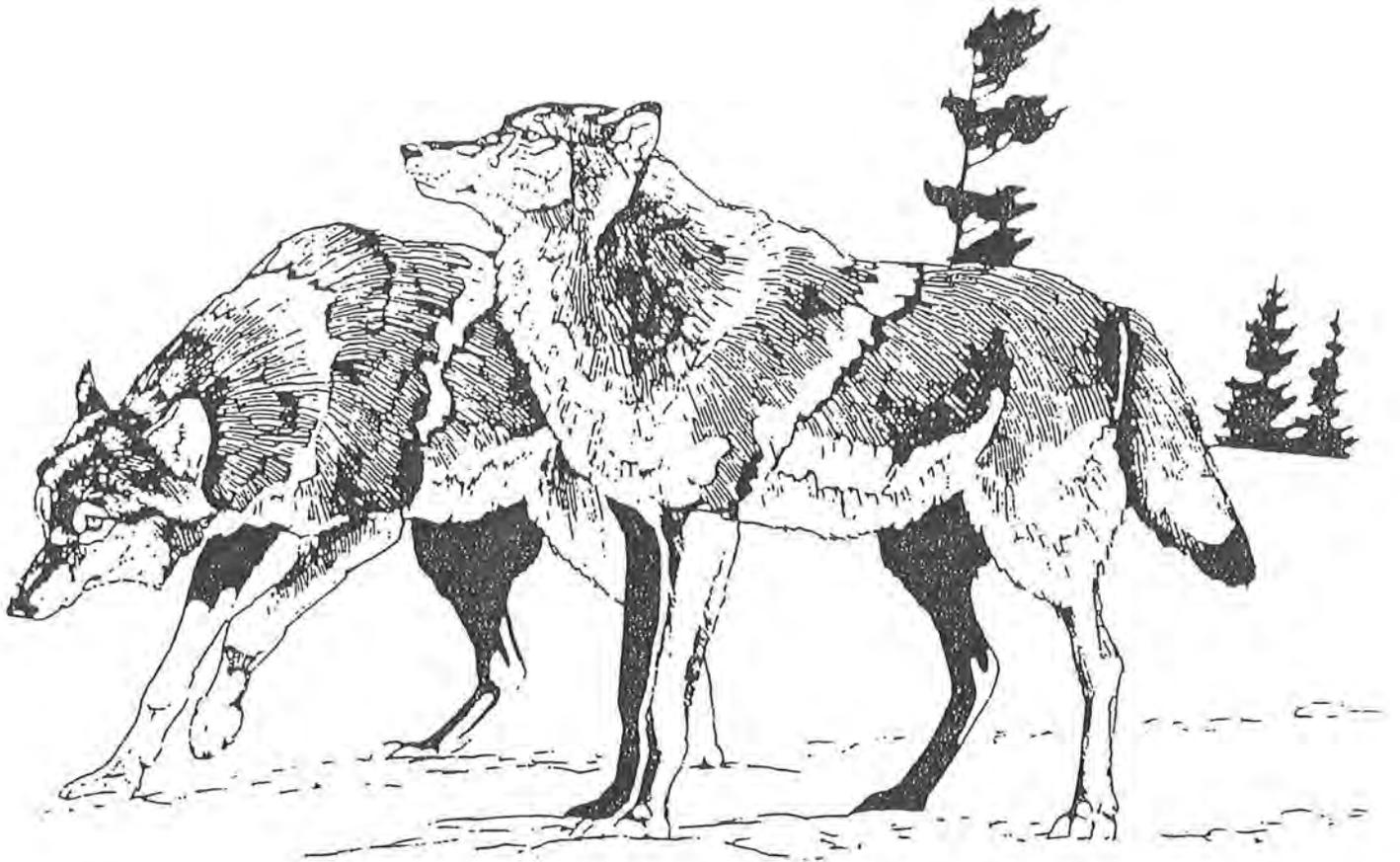
During the initial stages of the planning process, the Team made it known to the public that in order to act responsibly in the case of depredating wolves it would be necessary to "take" individuals. In recent communications with the US Fish and Wildlife Service, the Team learned that Experimental Population status can not be granted in Wisconsin because the wolves existing here live in proximity to wolves occurring in Minnesota. A condition of the Experimental Population clause is that such populations must be totally isolated from existing populations.

Take:

However, pursuant to provisions of the federal Endangered Species Act, even in situations where a species is endangered, a permit to "take", as in the case of depredating wolves, may be issued provided that such activities would be in the best interest of the survival of the species. The Team recommends that appropriate action be taken to secure such permits in the event such action may ever become necessary.

6698M
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"4-18-88"



**PUBLIC INVOLVEMENT IN THE
DEVELOPMENT OF A WISCONSIN
TIMBER WOLF RECOVERY PLAN**

Public Involvement in the Development of a Wisconsin Timber Wolf Recovery Plan

From the outset of planning in early 1986, the Wisconsin Timber Wolf Recovery Team recognized the need for public involvement in plan development.

It was reasoned that regular communication with the wide range of groups who have an interest in wolf management, both pro and con, would result in a better plan.

Early in plan development, emphasis was on getting to know affected interests and sharing information on needs and concerns. Later, attention shifted to meeting individually with the various interest groups to address issues and find common ground. More recently, team members met with these same groups to get their comments and suggestions on the draft plan.

Involvement in plan development was not limited to interested private citizens. The team also worked with affected interests within the Department of Natural Resources, US Forest Service, and other agencies.

The attached list is of specific public involvement actions taken by team members during the course of plan development. It includes 9 public forums, 71 meetings, 25 talks, 8 statewide DNR news releases, 5 statewide mailings, 3 articles by team members, and 30 interviews with print or electronic news media including 7 listener participation programs.

Active public involvement in wolf recovery work and program evaluation will continue to be sought. The completion of the recovery plan is not the end of public involvement; it simply marks the beginning of a new phase. The team intends to seek public assistance with various recovery activities such as education, field surveys, and program evaluation.

TV:sz
TVT601

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

Page 1

GROUPS OR PERSONS INVOLVED	NUM	FORM OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
General Public	---	News Release on Problems Facing Wolves in Wisconsin	Statewide	06/13/86	Thiel
Douglas Co. Forestry Committee and Administrator	10	Meeting	Solon Springs	07/10/86	Bublitz (Represented by Wildlife Manager, F. Strand)
General Public	---	News Release-Announce Team Formation, Purpose, Schedule	Statewide	08/00/86	All
DNR Employees	---	Article on Wolf Recovery in DNR Digest	Statewide	08/00/86	Kussinen
Interested Groups/Individuals, NRB, Legislators	3000	Special mailing of Wolf Recovery Information Packet	Statewide	08/07/86	All
Youth Camp Labor Group	10	Talk	Douglas Co. W.A.	08/18/86	Bublitz
General Public	---	News Release - Follow-up of Mid-August Release	Statewide	09/00/86	All
DNR Supervisors	100	Special Mailing--Recovery, Planning Information	Statewide	09/11/86	All
Listening Audience	15	Call-in Public Affairs Program -- Radio	Medford	09/19/86	Thiel
Interested Public	50	Public Forum	Park Falls	09/22/86	Thiel, Bublitz, Valen, Olson, Windmueller

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Interested Public	86	Public Forum	Madison	09/22/86	Benjamin, Pils
Interested Public	42	Public Forum	Florence	09/23/86	Thiel, Rinaldi
Interested Public	80	Public Forum	Stevens Point	09/23/86	Kuusinen, Jurewicz
Interested Public	72	Public Forum	Rice Lake	09/23/86	Valen, Bublitz
Interested Public	62	Public Forum	Superior	09/24/86	Bublitz, Valen, Adams
Interested Public	74	Public Forum	Rhineland	09/24/86	Loomans, Thiel, Rinaldi
Viewing Public	---	News Interview, Channel 5	Green Bay	09/25/86	Thiel
Interested Public	69	Public Forum	Milwaukee	09/25/86	Pils, Jurewicz, Benjamin
Interested Public	85	Public Forum	Green Bay	09/25/86	Thiel, Amundson
Lake Superior Biological Conference	50	Talk	Tomahawk	09/26/86	Thiel

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
----- Interested Public	90	Written Responses to Public Forums on Wolf Recovery Plan	Statewide	10/00/86	All
Chippewa Wildlife Society	20	Meeting	Chippewa Falls	10/00/86	Valen
Chippewa Chapter--American Society of Foresters	10	Meeting	Hayward	10/08/86	Thiel
Verona Public School Students and Teacher	70	talk	Verona	10/14/86	Thiel
Student Chapter--Isaac Walton League	200	Meeting	Stevens Point	10/29/86	Thiel
Wisconsin Association of Environmental Educators	100	Meeting	Tomahawk	10/31/86	Thiel
Milwaukee County Conservation Alliance	40	Meeting	Milwaukee	11/00/86	Kuusinen
Christ Lutheran Church	24	Meeting	Superior	11/09/86	Bublitz
Superior Optimists	40	Meeting	Superior	11/12/86	Bublitz
Trees for Tomorrow	---	Newsletter	Eagle River	12/04/86	Thiel

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
David Severtson - Free Lancer	---	News Interview		12/04/86	Thiel
Listening Public	---	News Interview - WTDY Radio	Madison	12/04/86	Thiel
Audubon Executive Council	25	Meeting	Wisconsin Dells	12/06/86	Thiel
General Public	---	News Release on Wolf Symposium	Statewide	12/10/86	All
Readers of the Shawano Evening Leader	---	Interview with John Matthews	Eau Claire	12/26/86	Valen
Chippewa Falls Rod & Gun	30	Meeting	Chippewa Falls	12/31/86	Valen
Nicolet National Forest District and Headquarters Staff	90	Meetings (5)	Nicolet National Forest	12/31/86	Rinaldi
District Scout Leaders	60	Talk	Marinette	12/31/86	Amundson
Junior High School Students and Faculty	60	Talk	Chippewa Falls	01/06/87	Valen
General Public	---	News Release - "Wolves and Humans can coexist"	Statewide	01/07/87	All

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Douglas County Fish/Game League -- Board/Directors	24	Meeting	Superior	01/07/87	Bublitz (Represented by Wildlife Mgr. F. Strand)
WIZM Radio Listeners	---	News Interview -- WIZM Radio	La Crosse	01/12/87	Thiel
WI Public Radio Listeners	---	Call-In Radio Program -- Wisconsin Public Radio	Statewide	01/14/87	Thiel
General Public	---	News release "Wolf Symposium too Packed"	Statewide	01/14/87	All
Symposium Attendees	500	Talk at Wolf Symposium	Green Bay	01/24/87	Thiel
Readers, Viewers - NE Wisconsin	---	News Interviews (2 Newspapers and Channels 2, 5 and 11)	Green Bay	01/24/87	Thiel
Capitol Times Readers	---	News Interview - Capitol Times	Madison	01/30/87	Thiel
Superior Eve. Telegram Readers	---	News Interview - Superior Eve. Leader	Superior	01/30/87	Thiel
Interested Groups/Individuals	700	Mailing of "Issues" Report	Statewide	02/00/87	All
Oak Creek Rod & Gun Club	33	Meeting	Oak Creek	02/00/87	Kuusinen

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Menominee, MI Kiwanis	30	Talk	Menominee, MI	02/00/87	Amundson
Medford Radio Station Listeners	---	Call-In Radio Show	Medford	02/05/87	Thiel
Readers of Duluth News Tribune	---	News Interview -- Duluth News Tribune	Duluth, MN	02/05/87	Bublitz
Eau Claire Leader Telegram Readers	---	News Interview -- Eau Claire Leader Telegram	Eau Claire	02/06/87	Thiel, Valen
Spooner Kiwanis Club	22	Meeting	Spooner	02/16/87	Bublitz
DNR West Central District Headquarters Staff	15	Meeting	Eau Claire	02/23/87	Valen
Interest Groups/Individuals	39	Receive and Evaluate Written Responses to "Issues Report"	Statewide	03/00/87	All
Oconto Presbyterian Men's Club	30	Talk	Oconto	03/00/87	Amundson
Marinette Women's Club	50	Talk	Marinette	03/00/87	Amundson
DNR Wardens, Foresters, Wildlife Management - Some County Foresters	60	Meeting	Tomahawk	03/04/87	Thiel

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
DPI Continuing Education Course in Winter Wildlife Ecology	30	Talk	Tomahawk	03/13/87	Thiel
Silverbrook Middle School Students and Faculty	100	Talk	West Bend	03/17/87	Thiel
All DNR Personnel in Brule Area	80	Meeting	Ashland	03/20/87	Bublitz
Larry VanGothem - Free Lancing for Timber Producers of WI and MI	---	News Interview	Eagle River	03/26/87	Thiel
Readers of Fur/Fins/Feathers Magazine	---	News Interview -- Fur/Fins/ Feathers Magazine		03/26/87	Thiel
Wisconsin Bear Hunters Association	130	Meeting	Eau Claire	03/28/87	Thiel
Sportshow Attendees -- Responded to 30-40+ Questions on Timber Wolf	---	Booth at Sportshow	Superior	03/28/87	Bublitz
Staff from Chequamegon Natl.Forest and DNR's NW District	55	Meeting	Glidden	04/01/87	Bublitz
NE WI Chapter -- Society of American Foresters	60	Meeting	Tomahawk	04/02/87	Thiel
Wisconsin Science Teachers Assn.	150	Meeting	Madison	04/03/87	Thiel

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS OR PERSONS INVOLVED	NUM	FORM OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
UW-Madison/Ecology Club	40	Meeting	Madison	04/06/87	Thiel
Alliance for Animals	8	Meeting	Madison	04/06/87	Thiel, Jurewicz, Kuusinen
Conservation Congress Committee -- Chairmen: Big Game, Endangered Resources, Hunting w/Dogs, Fur Harv.	4	Meeting	Stevens Point	04/07/87	Thiel, Valen, Jurewicz, Kuusinen
WI Trappers Association, WI Bowhunters, WI Bearhunters	3	Meeting	Stevens Point	04/07/87	Thiel, Valen
UW-Parkside/Friends of Wolves	50	Meeting	Racine	04/08/87	Thiel
Izaak Walton League and Wisconsin Audubon Council	5	Meeting	Stevens Point	04/09/87	Rinaldi, Thiel, Valen
Staff from Chequamegon Natl. Forest and DNR's Northwest District	25	Meeting	Park Falls	04/13/87	Olson, Bublitz, Thiel, Rinaldi
Oneida Wildlife Society	10	Meeting	Rhineland	04/14/87	Thiel
Staff from Nicolet Natl. Forest and DNR's North Central and Lake Michigan Districts	24	Meeting	Rhineland	04/14/87	Rinaldi, Olson, Bublitz, Amundson, Thiel
County Foresters (Lincoln, Oneida, Taylor, Forest) -- Industrial Foresters (Nekoosa, Consolidated)	8	Meeting	Rhineland	04/15/87	Olson, Bublitz, Rinaldi, Thiel

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Forestry Committee of Bayfield Co. Board of Supervisors	12	Meeting	Washburn	04/15/87	Bublitz (Represented by Wildlife Mgr. F. Strand)
Chappee Rapids Audubon Society Chapter	30	Meeting	Marinette	04/16/87	Thiel
Winnebago Audubon Society Chapter	40	Meeting	Oshkosh	04/23/87	Thiel
High School Ecology Classes	25	Talk	Mercer High School	05/00/87	Olson
Crivitz School Students and Teacher	50	Talk	Crivitz	05/00/87	Amundson
Museum Visitors and Staff	150	Talk at Neville Museum	Green Bay	05/03/87	Thiel
YCC crew and camp staff	60	Talk	Minong	05/25/87	Thiel
Interested Groups and Individuals	---	Mailing of Status Report on Recovery Planning	Statewide	05/25/87	All
Public Campers	35	Talk	Campground-N.High.St.For	07/00/87	Jeff Wilson Wildlife Tech.-- (John Olson)
Timber Producers Association of Michigan and Wisconsin	1	Meeting	Tomahawk	07/08/87	Rinaldi, Windmoeller, Thiel
Annual meeting of Conservation Congress	300	Presentation	Rhinelander	05/29/87	Jurewicz

PUBLIC INVOLVEMENT IN WOLF RECOVERY PLANNING

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
YCC crew and camp staff	60	Talk Staff	Minong	07/20/87	Thiel
Cable Museum Summer Lecture Series	45	Talk	Cable	07/22/87	Bublitz
Board of Directors and Staff of Sigurd Olson Institute	40	Meeting	Ashland	07/24/87	Thiel
Center Visitors	125	Talk - Sylvania Visitor Center	Watersmeet, Michigan	07/28/87	Thiel
Center Visitors	125	Talk at Apostle Is. Natl Lakeshore Visitor Center	Bayfield	07/29/87	Thiel
Northern Wisconsin Landowners / operators	641	Team review of Landowner Survey	Northern Wisconsin	08/00/87	All
State Park Visitors	10	Talk	Mill Bluff State Park	08/15/87	Thiel
Natural Resource Managers, Educators and Students from Great Lakes Region	100	Meeting	Munising, Michigan	08/19/87	Thiel
Station Viewers in Michigan and Wisconsin	---	News Interview -- TV	Marquette, Michigan	08/19/87	Thiel
Fairgoers - Responded to Wolf Questions	---	State Fair Booth	St. Paul	08/27/87	Valen

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Ashland County Forestry Committee	10	Meeting	Glidden	09/00/87	Olson
Readers of Chippewa Falls Herald- Telegram	---	News Interview -- Chippewa Herald-Telegram	Eau Claire	09/08/87	Valen
Safari Club International - Milwaukee Chapter	30	Meeting	Milwaukee	09/17/87	Thiel
Adult Hunter Education Class at Technical School	16	Talk	Eau Claire	09/21/87	Valen
Twin Cities Rod & Gun Club	150	Meeting	Neenah	09/24/87	Thiel
Oshkosh North High School - General Assembly and 1 Biology Class	185	Talk	Oshkosh	09/24/87	Thiel
DNR Area Secretary's Annual Meeting	15	Meeting	Wisconsin Rapids	09/29/87	Thiel
Key Legislators/Interest Groups/ Individual	---	Mailing of Draft Recovery Plan	Statewide	10/00/87	All
North Wisconsin Rod & Gun Club	75	Meeting	Ashland	10/00/87	Olson
Eau Claire Noon Exchange Club	35	Meeting	Eau Claire	10/06/87	Valen

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Isaac Walton League - Stevens Point Chapter	75	Meeting	Stevens Point	10/07/87	Thiel
Navarino Wildlife Club	45	Meeting	Shawano	10/27/87	Thiel
General Public	---	News Release Advising that Draft Recovery Plan Available	Statewide	10/27/87	All
Iron County Forestry Committee Meeting	10	Meeting	Hurley	11/16/87	Olson
Channel 13 Viewers	---	Call-In TV Show -- Channel 13	Eau Claire	11/30/87	Thiel
General Public	---	News Release - "Public Speaks Out on Wolf Recovery"	Statewide	12/00/87	All
Reviewing Publics/Other Agencies	410	Written Responses to Draft Plan	Statewide	12/00/87	All
NW WI County Forest and Industrial Foresters	5	Meeting	Hayward	12/01/87	Windmoeller, Olson, Thiel
Reps. of Chequamegon Natl.For, Great Lakes Indian Fish & WL Comm., Apostle Is. Natl. Lakeshore, Sigurd Olson Inst.	8	Meeting	Washburn	12/03/87	Thiel
North County Journal Readers	---	News Interview -- North Country Journal	Portage	12/09/87	Thiel

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Wisconsin Public Radio Listeners	---	Call-In Show -- Wisconsin Public Radio	Statewide	12/09/87	Thiel
Alliance for Animals	4	Meeting	Madison	12/09/87	Thiel
Conservation Congress Committees -- Big Game, Fur Harvest, Hunting with Dogs	40	Meeting	Marshfield	12/11/87	Thiel, Pils, Valen
Iron County Forestry Committee Meeting	10	Meeting	Hurley	12/15/87	Olson
NE County Forest and Industrial Foresters	16	Meeting	Rhineland	12/17/87	Olson, Bublitz, Rinaldi, Windmoeller
County Forest Administrators from Throughout Northern Wisconsin	65	Meeting	Rhineland	12/17/87	Olson, Windmoeller
Leader Telegram Readers	---	News Interview -- Eau Claire Leader Telegram	Eau Claire	12/30/87	Thiel
Readers of Capitol Times	---	News Interview-Capitol Times	Madison	01/00/88	Thiel
Marinette Co alliance of Sportsmen Clubs	30	Meeting	Marinette	01/00/88	Amundson
Iron River Audubon Society Chapter	25	Meeting	Iron River, Michigan	01/04/88	Thiel

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Izaak Walton League Representatives	3	Meeting	Stevens Point	01/04/88	Thiel
Staff from Nicolet Natl. Forest and DNR's North Central and Lake Michigan District	11	Meeting	Rhineland	01/07/88	Loomans, Windmoeller, Thiel, Amundson, Bublitz, Rinaldi
Readers of Manitowoc Newspaper	---	News Interview -- Newspaper	Manitowoc	01/12/88	Thiel
Reps. of Cons. Congress, WI Bowhunters -WI Bear Hunters-WI Trappers Assoc.- Snowmobile Association	12	Meeting	Stevens Point	01/13/88	Jurewicz, Kuusinen, Pils, Valen
Marinette Co. Sportsman Alliance	---	Meeting	Peshtigo	01/14/88	Amundson
Staff from Chequamegon Natl. Forest and DNR's Northwest District	26	Meeting	Park Falls	01/14/88	Olson, Windmoeller, Thiel
Local US Forest Service Personnel and Conservation Congress	10	Meeting	Florence	01/19/88	Amundson
Two Jr. High Classes at Chippewa Falls Middle School and Two Faculty Members	55	Talk	Chippewa Falls	01/19/88	Valen
Superior Storm Riders Snowmobile Club	35	Meeting	Superior	01/20/88	Thiel
Listeners	---	Radio Talk Show	Rice Lake	01/21/88	Thiel

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GROUPS_OR PERSONS INVOLVED	NUM	FORM_OF INVOLVEMENT	LOCATION	DATE	TEAM MEMBERS
Friends of Bay Beach Wildlife Sanctuary in Green Bay	25	Meeting	Tomahawk	01/30/88	Thiel
WI Association Environmental Educators	75	Meeting	Wausau	01/30/88	Thiel
Readers of Wisconsin Snowmobile News	---	Article: "Wolves and Snowmobiles Compatible"	Statewide	02/00/88	Thiel
Readers of Daily Herald	---	News Interview -- Wausau Daily Herald	Wausau	02/01/88	Thiel
Student Chapter-Izaak Walton League UW-Stevens Point	150	Meeting	Stevens Point	02/02/88	Thiel
Biology Club -- UW-Eau Claire	65	Talk	Eau Claire	02/03/88	Thiel
Sierra Club	50	Meeting	Eau Claire	02/03/88	Valen, Thiel
DNR Wildlife Bureau Staff, District Staff Specialists	20	Meeting	Plover	02/12/88	Valen, Pils
Listeners of Wisconsin Public Radio - Statewide	---	Larry Meiller Talk Show Discuss Wolf Recovery	Madison	03/01/88	Thiel

88301 6a5a
District
EA people
received EA
9/2 - J.S.B.

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
P.O. Box 7921, 101 S. Webster Street
Madison, WI 53707

FOR RELEASE: Sept. 7, 1988

CONTACT: Holly Kuusinen
(608) 266-2172

SUBJECT: Timber Wolf Environmental Assessment Completed

Julian [E]
MADISON, WI -- [The Environmental Assessment of the Wisconsin Timber Wolf Recovery Plan] by the Department of Natural Resources is finished. The 29-page assessment reviews the draft recovery plan and addresses wolf management alternatives.

"The Timber Wolf Recovery Team has worked for more than two years with the public to develop an acceptable recovery plan," said Richard Thiel, chairman of the team. "We've met personally with leaders and members of most of Wisconsin's conservation and environmental groups, and they've had direct input into the plan. We've reviewed all concerns carefully and conscientiously.

The Environmental Assessment reviews the alternative management methods and assesses whether the wolf management activities listed in the recovery plan pose a significant alteration to the human environment.

"Overall, the plan we've developed meets the biological needs of the species and takes into consideration the needs of all outdoor users, economic development concerns of the north and management concerns for the wildlife that shares the wolf's habitat. We believe our wolf management plan is sound and achievable," said Thiel.

The impact of wolves on the deer population and the issue of multiple use of the forest are the primary subjects addressed in the assessment. Presently, biologists estimate that between 25-30 wolves exist in six packs scattered in northern Wisconsin. The goal of the recovery plan is to establish a population of 80 wolves in suitable habitat in the northern third of the state.

The presence of wolves will not affect the deer populations in general, according to the assessment. Approximately 265,000 deer live in northern Wisconsin throughout the winter.

Under proposed wolf management activities, wolf populations and

distribution will change. Wolves and wolf packs will occupy other deer management units. The impact on deer would be negligible because no single management unit would be occupied 100 percent by wolves, according to the assessment.

"If 80 wolves eat a maximum of 18 deer per year each (they also eat beaver and snowshoe hare), only 1,450 deer in a total of 16 deer management units would be unavailable to hunters," said Thiel. "Eighty wolves spread throughout the north will consume less than 1/2 of 1 percent of the northern forest deer herd."

Wolves may impact deer numbers on a local basis during and especially following severe winters, but overall, 80 wolves will not affect northern Wisconsin's deer population, he said.

The recovery plan also addresses public concerns over access to public lands for recreation including hunting, snowmobiling, hiking, etc. and for logging and effective timber management. The land access management program proposed by the recovery team does not inconvenience logging practices, recreational pursuits nor does it interfere with individual private land management preferences, according to Thiel.

The recovery plan proposes keeping access on improved roads and existing recreational trails at present levels. It also calls for keeping access to lower standard roads (ie. woods trails) by motorized vehicles to a minimum. Foot travel would not be affected at all.

The plan is compatible with logging because it recognizes the value of commercial cutting in effective timber management and creation of desirable deer habitat.

Adverse and unavoidable impacts of wolf recovery are also honestly addressed in the assessment, according to Thiel. Wolves can attack livestock. Authorities may have to kill individual wolves to stop livestock depredation.

The Timber Wolf Recovery Plan proposes the following activities to achieve the goal of 80 wolves in northern Wisconsin:

- * increase public education opportunities;
- * reduce the incidence of human caused wolf killings through increased protective measures and improved law enforcement actions;
- * enter into voluntary and cooperative habitat management agreements with landowners;

- * monitor wolf populations annually;
- * reduce losses of wolf pups to disease;
- * implement an acceptable livestock damage control program;
- * increase cooperation and coordination of management

activities

with other agencies and interested organizations;

- * continue an active citizens' involvement program;
- * establish federally acceptable criteria for reclassifying the wolf from an endangered species to a threatened species;
- * conduct regular periodic recovery program evaluations;
- * consider moving individual wolves from one territory to

another

within Wisconsin (not stocking) after year five if recovery progress does not occur.

"The recovery team realizes that some people have doubts about this plan and our intentions," said Thiel. The plan we've submitted is the result of many hundreds of hours of work as a group and with the public.

"We've done everything possible to consider the diverse needs of many groups. Often times the team served as a conduit of communication between user groups with conflicting desires. One of the best things that may have come out of this process was that sharing between people.

"Our natural resources -- be they wolves, lands or waters, are ours to enhance, manage and protect. Only through this kind of continuing communication and cooperation can we work together to meet our responsibilities as stewards of those elements that sustain our quality of life."

Copies of the Department's Environmental Assessment of The Timber Wolf Recovery Plan that led to this preliminary determination can be obtained from: Bureau of Endangered Resources, Dept. of Natural Resources, P.O. Box 7921, Madison, WI 53707.

Public comments on the Environmental Assessment are welcomed and should be received by the Bureau no later than 4:30 p.m. Friday, September 23, 1988. These comments can be either verbal or written.

Contact: Richard Thiel, (608) 372-4625

DATE: August 25, 1988

TO: Persons Interested in Wisconsin Timber Wolf Recovery Plan

FROM: Dick Thiel, ^{DT}Chairman, Wisconsin Timber Wolf Recovery Team

SUBJECT: Wolf Recovery Plan Environmental Assessment

Enclosed is an Environmental Assessment of the Wisconsin Timber Wolf Recovery Plan. The purpose of the Assessment is to discuss wolf management alternatives, and to determine whether the management activities listed in the Recovery Plan pose a significant alteration to the human environment.

Following public review of the draft Recovery Plan released in October 1987, the Recovery Team made certain modifications and produced a revised Recovery Plan. The revised Plan was submitted to the Division of Resource Management in April. Approval of this Plan awaits the outcome of an Assessment. Differences between the Draft Plan and revised Plan are discussed in Section 1 of the Assessment.

We welcome your review of the enclosed Environmental Assessment. Please return any comments by September 23, 1988 to:

Timber Wolf EA - ER/4
Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707

Thank you.



State of Wisconsin

DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

BOX 7921
MADISON, WISCONSIN 53707

November 25, 1988

IN REPLY REFER TO: 1720

DEC 1 1988

Michael Sohasky
Off Road Vehicle Council
Box 460
Antigo, Wisconsin 54409

Dear Mr. Sohasky:

The Environmental Assessment (EA) on the Wisconsin Timber Wolf Recovery Plan has been completed and approved. Enclosed is (1) a memo of response to public comments which appends the EA, and (2) approval lines for completion of the EA.

The Department of Natural Resources has determine through the Environmental Assessment that this is not a major state action that would significantly affect the quality of the human environment; therefore an Environmental Impact Statement is not required.

Sincerely,

Richard P. Thiel, Chairman
Wisconsin Timber Wolf Recovery Plan

RPT:mldpc44
8901\ER9EALST.RPT

cc: R. Jurewicz - ER\4
R. Nicotera - ER\4
→ G. Birch - EA\6

Gary - Here's
your original and
a copy of letter that
went out to commenters.
Thanks for your
help.

Irene

OCT 2 P 10RR

CORRESPONDENCE/MEMORANDUM.....State of Wisconsin

DATE: 27 October, 1988

TO: Gary Birch

FROM: Dick Thiel DT

SUBJECT: Responses to Timber Wolf EA

We received 24 letters from groups or individuals in response to public review (comment period lasting from 1 to 23 September, 1988) of the Timber Wolf Recovery Plan Environmental Assessment (EA). Six respondents have suggested changes to the EA, or have indicated omissions exist in the EA. One respondent called for an Environmental Impact Statement on the Wolf Recovery Plan.

Reference is made (below) to each of the comments that respondents felt needed to be addressed.

No. 1:

Pages 3 & 4. The EA lists 10 year costs at \$395,100, a drop of over 60 percent from the \$1,026,000 estimated in the Draft Plan, despite the addition of 3 new management programs.

Response: In response to public input on the Draft Plan the Recovery Team stream-lined costs by reducing Department labor and significantly increased emphasis on volunteer assistance, especially in such programs as population monitoring and education activities. The volunteer program was one of the programs added. Labor costs for a coordinator position were not included in the Revised Plan and EA because, while the needs of such a position will diminish in years following implementation, the Team was not able to estimate at what rate labor will decline.

No. 2:

Page 12, paragraph 6. The EA inadequately addresses trade-off affects of maintaining shade-intolerant forest types on old growth forest and landscape fragmentation.

Response: The Recovery Team identified less than 3,000 square miles of northern forest lands as suitable habitat for wolves, and estimated only half of that may benefit from cooperative management. The suitable habitat is itself fragmented into over a dozen parcels scattered across northern Wisconsin. Additional habitat potential exists throughout the less populated areas of the northern forest region, but habitat management agreements would be solicited there if and when packs develop.

Gary Birch; 27 October, 1988; Page 2:

As indicated in the EA (pages 12 & 13), most shade-intolerant logging practices are conducted in existing vegetative types. The impact of such activities on existing stands of old growth forests, and the present state of biotic diversity is therefore expected to be negligible. Actions specified in this plan may impact on efforts to restore or expand old growth forest components of our northern forests, with consequent impacts on biotic diversity.

No. 3:

Page 13, paragraph 5. This paragraph is confusing. Doesn't gating constitute closure?

Response: Gating constitutes controlling access for specific needs or intended purpose(s) such as maintenance, logging, hiking, hunter walking trails, seasonal snowmobiling, etc. Closure activities would preclude any and all use via abandonment, revegetating, etc. This clarification should be attached to paragraph 5, page 13.

No. 4:

Pages 13 & 14. The EA treatment of access management is vague. While the focus is on maintaining present levels, and the EA does not recommend the closure of existing trails such as snowmobile and ATV trails, the occasional need for trail relocations and changes in recreational demands are not addressed.

Response: The Recovery Team recognizes that recreational trail routes are occasionally altered for a variety of reasons. If a trail route needs to be rerouted because of conflicts with wolf management, the Department will use the same procedures as it would when rerouting for other reasons. Continuation of citizen participation activities should identify, in advance, any potential conflicts and seek resolution with local trail clubs. An emphasis in working with local clubs will be on averting any problems, and avoiding trail reroutes wherever possible.

Changes in recreational demands periodically result in the need to develop additional trails. Under current policy, trail developers and sponsors work with the Department and various other agencies in seeking approvals. In this process many variables are normally considered before approvals are given to proceed with trail development. Adoption of a Wolf Recovery Plan would not affect the process already in existence, except that impacts on the wolf resource would be included in the review of trail proposals when and where applicable.

No. 5:

Pages 13 & 14. Implementing access management in 100 square mile areas, the minimum size required to maintain a wolf pack, would have a significant impact in denying users the opportunity to recreate on northern forested lands.

Response: Totally shutting down access to areas of such magnitude would significantly impact on a wide variety of human uses of our northern forests. The Department's Recovery Plan advocates adoption of access management strategies that are in balance with multiple use forestry objectives (including needs for wildlife like wolves). For a number of reasons (budgetary, liability, fire protection, wildlife conservation) thoughtful consideration must be given when designing or evaluating the future access needs of a property. The Plan encourages land managers to, "manage for the minimum amount of access necessary to fulfill multiple use objectives". It does not advocate closing down and/or removing all access in any area of Wisconsin.

The Recovery Plan and EA stresses that access management will be instituted voluntarily in a cooperative spirit with landowners. It will focus on maintaining access at existing levels and emphasize managing access for the minimum levels necessary to accomplish multiple use objectives.

Since parcels of 100 square miles are seldom held under single ownership, many areas of suitable habitat would be partially affected. If, for instance, a 100 square mile area of suitable habitat exists on County Forest lands the County Forest Administrator will decide if the County desires to participate. The administrator would also determine the extent and type of access management recommended by the Wolf Recovery Plan that are compatible with the multiple use objectives established by the County.

Access management programs will be implemented voluntarily by landowners with such decisions based on a balance with other multiple use objectives. The Department will continue to seek input from interest groups via the Plan's citizen participation activities. The estimated amount of potentially affected land (1350 square miles) represents less than 10 percent of Wisconsin's northern forests. For these reasons the Department has determined that no significant impact will be felt on recreational opportunities (hiking, hunting, fishing, snowmobiling, ATV's, skiing, handicapped opportunities etc.).

Gary Birch; 27 October, 1988; Page 4:

No. 6:

Page 17, paragraph 1. Does "management" refer to wildlife management or land management?

Response: This paragraph discussed land management options.

No. 7:

P. 6, 7 & 10. The EA did not adequately address the environmental and economic impact on the northern tourism industry because it failed to discuss (a) loss in revenue to taxidermists and fur buyers due to the deer gun coyote closure, (b) the decline of the deer herd following severe winters and increased predation caused by increased wolf, and increased coyote populations (due to lost opportunity to keep coyotes in check via the deer gun season), and (c) concomitant declines in hunters and hunting opportunities due to smaller deer herds.

Response to (a): The EA failed to mention impacts of the coyote closure during the annual nine-day deer gun season.

A coyote closure in northern Wisconsin during the annual nine-day deer gun season is recommended under the Plan's Protective Measures activities. The EA did not discuss impacts of implementing this action because such a closure was implemented by Administrative Rule change in 1987 and remains in effect. The Team questioned whether to remove this action from its Plan because of the recently enacted Rule change. It was noted that a similar Rule change, closing coyote hunting in northern Wisconsin during the nine-day deer gun season between 1982 and 1984 to protect wolves, was reversed. Therefore, the Team decided to retain the recommendation as a statement of support of such action.

Approximately 2500-3000 coyotes have been harvested annually in Wisconsin in recent years. Slightly more than half of the coyotes harvested are taken by hunters. Coyotes harvested by hunters are taken primarily by those using hounds outside the annual nine-day deer gun season (Wisconsin DNR, unpublished data).

Pelt values in 1987-88 averaged \$14.33. The coyote harvest contributed \$36,426.00 (less than 0.5 percent) to the \$8.5 million fur harvest industry in Wisconsin that year (Pils, C. 1988, Wisconsin fur harvest report, 1987-88, DNR).

Coyotes do not contribute significantly to the fur industry, and they do not constitute a great amount of state taxidermist business (DNR unpublished data). A majority of the coyotes harvested are taken outside the nine-day deer gun season. A

Gary Birch; 27 October, 1988; Page 5:

coyote closure during the nine-day deer gun season in the

northern quarter of Wisconsin is already in effect. For these reasons the Plan's recommended coyote closure action does not pose a significant and adverse impact on the state's tourism economy.

Response to (b): The impacts of increased coyote predation on the northern deer herd, due to an inability of deer hunters to exercise "control" because of the coyote closure, would be negligible and would not adversely affect deer hunting opportunities. Severe winters, wolf predation, and the combined impacts of severe winters and wolf predation were discussed in the EA (pages 6 & 7). Predation, whether by wolf, bear, or coyote, is felt in most cases to be "compensatory", i.e. have no affect on the supply of deer because it compensates for other forms of loss the herd would otherwise experience.

While coyotes do prey on deer, they are not considered major deer predators. Furthermore, not enough coyotes are harvested during the nine-day deer gun seasons to influence positively or negatively any predation impacts on the northern deer herd.

Response to (c): The EA failed to discuss the direct impacts on deer hunting opportunities.

Implementation of the Recovery Plan would not cause a significant loss in hunting opportunities through loss in deer habitat, a reduction in deer herd size, or through a reduction in access.

The impacts of severe winters and wolf predation on the northern deer herd are discussed on pages 6 & 7 of the EA which concluded, "a population of 80 wolves will not affect northern Wisconsin's deer population."

Declines in shade-intolerant forest types will cause continued declines in the deer herd. As pointed out on page 12 in the EA, implementing the Plan's habitat management program may diminish, "the amount of shade intolerant forest expected to be lost due to natural succession and conversion to other types." Proposed actions will actually have an ameliorating affect on deer habitat loss by maintaining current shade intolerant forest and thus benefiting hunting opportunities.

Consideration of access management on hunting opportunities are discussed in response to Issue No. 5, above.

Gary Birch; 27 October, 1988; Page 6:

No. 8:

Impacts on the Forestry and Tourism Industries as well as other valuable resources may have been underestimated. An Environmental Impact Statement should be conducted to determine economic significance of the proposed actions.

Response: Reference is made in the EA to the major industries contributing to the northern forests economy (page 10) and the economic consequences of implementing the Wolf Recovery Plan (page 14). The EA states that proposed actions "will not affect land ownership patterns in the northern forest region, nor significantly alter the manner in which landowners presently manage their forest lands. Managing lands to benefit wolves will be voluntary, and conducted in a cooperative spirit."

Responses to comments 4, 5, and 8, above, discuss in greater detail Departmental considerations of this issue. The scope of the Recovery Plan includes a large geographic area, but the selection of proposed actions will not adversely impact the local and regional economies.

cc: R. Jurewicz -ER
M. Cain -LS

Project Name: Timber Wolf Rec. Plan County: 88301

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code, the Department is authorized and required to determine whether it has complied with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

29. Complete either A or B below.

A. EIS Process Not Required

Analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion therefore, an environmental impact statement is not required prior to final action by the Department on this project.

B. Major Action Requiring the Full EIS Process.

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator <i>Richard P. Mio</i>	Date Signed 9 NOVEMBER 1988
Noted: Area Director or Bureau Director <i>Ronald G. Miotow</i>	Date Signed 14 Nov. 1988

Copy of news release or other notice attached? Yes No

Number of responses to notice 24

Public response log attached? Yes No

CERTIFIED TO BE IN COMPLIANCE WITH WEPA	
District Director or Director of BEAR (or designee) <i>Sally A. Birch</i>	Date Signed 11/19/88

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Note: Not all Department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.

This notice is provided pursuant to section 227.48(2), Stats.