

WISCONSIN ENDANGERED RESOURCES REPORT #88

STATUS OF THE TIMBER WOLF IN WISCONSIN
PERFORMANCE REPORT, 1 JULY 1991 to 30 JUNE 1992

by Adrian Wydeven

SUMMARY

This report covers activities conducted from July 1, 1991 through June 30, 1992.

Eleven wolves from 7 packs were captured and radio-collared in 1991. Fourteen radio-collared wolves were monitored during the period. Home range of 9 radio-collared wolves averaged 42 square miles. The estimate Wisconsin wolf population was about 45 wolves in 13 packs across the state. Six radio-collared wolves died during the period. Wolf observations were received from 18 counties in northern Wisconsin. Wolves were tested for 5 or 6 canine diseases. Most (8 of 12) tested positive for Lyme Disease, and several tested positive for Canine Parvovirus and Infectious Canine Hepatitis.

Project personnel were also involved in wolf educational activity, legal investigation, cooperative habitat management, and other aspects of wolf management.

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES

BOX 7921

MADISON, WISCONSIN 53707

RECOVERY OF THE TIMBER WOLF

PERFORMANCE REPORT

JULY 1, 1991 TO JUNE 30, 1992

Prepared by Adrian P. Wydeven, Nongame Wildlife Biologist

Job:	106.1	Direct educational activities
	106.2	Provide legal protection
	106.3	Cooperative habitat management
	106.4	Monitor statewide wolf population
	106.5	Initiate disease abatement
	106.6	Evaluate progress (inactive this phase)
	106.7	Implement livestock damage control action
	106.8	Coordinate with other agencies
	106.9	Citizen participation
	106.10	Volunteer program
	106.11	Develop reclassifying criteria (inactive)
	106.12	Review translocation

Background: The Wisconsin Timber Wolf Recovery Plan was approved for implementation on March 7, 1989. The Wisconsin Department of Natural Resources has conducted monitoring of wolf populations in the state since 1979. This report covers activities conducted from July 1, 1991 through June 30, 1992.

Job 106.1 DIRECT EDUCATIONAL ACTIVITIES

The project biologist (Wydeven) and assistant biologist (Ronald Schultz) provided training for 60 people at Timber Wolf Alliance (TWA) Speakers bureau on October 5, 1991 and March 28, 1992. The project biologist was the DNR liaison to TWA and attended 4 board meetings during the year. Four quarterly reports were written during the year to provide information on wolf monitoring activities and status of wolf packs. Comments were provided to TWA for updating timber wolf educational material. Technical editing and comments were made on a wolf educational booklet prepared by Karlyn Atkinson-Berg.

Job 106.2 PROVIDE ADDED LEGAL PROTECTION FOR WOLVES

The coyote hunting season closure during the deer-gun season was monitored. Six radio-collared wolves were checked 4-5 times during gun-deer hunting season; none were shot and no uncollared wolves were found shot. Project personnel patrolled wolf territory areas during the various hunting seasons.

Project personnel assisted law enforcement personnel in an illegal trapping death of Wolf 171F in Minnesota in February 1992. No arrests were made.

Randy Jurewicz and Adrian Wydeven met with wolf-dog hybrid enthusiasts on November 5, 1991 to develop guidelines for regulating wolf-dog hybrids in Wisconsin. A presentation on wolf concerns was provided for Northwest District conservation wardens on September 19, 1992.

Job 106.3 COOPERATIVELY MANAGE HABITAT WITH LANDOWNERS

Comments were made on 4 opportunity area analysis in the Chequamegon National Forest, as well as comments on mining exploration, ATV trail development, and salvage timber cuts. Comments were submitted on 5 opportunity area analysis for the Nicolet National Forest.

The project biologist worked closely with Department of Transportation officials to develop mitigation measures for wolf habitat along U.S. Highway 53 development areas in northwest Wisconsin. A cooperative research study was initiated to examine the effects of highway development on local wolf populations.

The project biologist met with Douglas County officials and the general public to discuss concerns on ATV trail development in wolf habitat.

Job 106.4 MONITOR STATEWIDE WOLF POPULATION (INCLUDES SECTION 15 PERFORMANCE REPORT)

Eleven wolves were live-trapped and radio-collared in 1991 (Table 1). The collared wolves represented 7 different wolf packs, but 2 wolves (147F and 149F) left their packs soon after capture. Collared wolves included the first wolves ever captured in the Log Creek Pack (Sawyer County), Meadman Meadow Pack (Polk County), and the Little Rice River Pack (Oneida County). During winter 1991-1992 radio-collared wolves occurred in 5 of the 13 wolf packs that existed across northern Wisconsin (Figure 1).

Fourteen radio-collared wolves were monitored during the study period (Table 2). The average territory size for 9 collared wolves was 42 square miles and ranged from 10 to 71 square miles. A summary of the events of monitored packs and lone wolves follows:

Douglas County:

Four wolves were captured in the Truck Trail Pack during the study period (131M, 133F, 171F, 169M). Wolf 131M was apparently the alpha male and 171F the alpha female. Wolf 133F was a female pup born to 171F in Spring 1991, and 169M was adult male member of the pack. Wolf 169M's status in the pack was never determined because he died from unknown causes shortly after capture (the wolf did have high titer ratio for Parvovirus, which may have been a factor in his death). The Truck Trail Pack occupied an area of about 71 square miles in western Douglas County and eastern Pine County (Minnesota). Although wolf 133F occupied a similar size territory as her parents, her home range extended further west than did her parents. Up to 7 wolves were present in the Truck Trail territory in early winter. Female 171F died in an unattended leg-hold trap near Kingsdale, Minnesota about February 20, 1992. By late winter 4-6 wolves were thought to be present in this pack.

It was unclear whether 131M found a new mate prior to the end of breeding season in winter 1992. Several concentrated locations of 131M in spring suggested possible denning, but no sign of pups were detected in early summer.

No collared wolves occurred in the Empire Pack during most of the study period. This pack located east of Wisconsin Highway 35 and north of the St. Croix River consisted of 2-4 wolves in winter 1991-1992.

Lone wolf 145F (adult female) who had dispersed from Polk County, seemed to have joined the Empire Pack in May and June 1992, but left the pack at the end of June. Adult male 183M was caught in the southern end of the Empire Pack on May 29, 1992, but soon moved to the north end of the territory, where it remained (apparently by itself) for the remainder of the study period.

No evidence of pup production was found in the Empire Pack in 1992.

The Moose Lake Pack had been one of the most productive packs in Wisconsin between 1979 and 1985. After the loss of the alpha male in this pack in late 1985 there appeared to be little or no pup production until 1990. In spring 1991 the breeding female of the Moose Lake Pack (081F) was shot and killed, eliminating the 1991 pup production. A yearling offspring of 081F, wolf 149F, was also shot, but recovered from her wound.

Wolf 149F dispersed from the Moose Lake Pack Territory in mid-July 1991 into Pine County Minnesota. Between mid-July and mid-September, wolf 149F made two more trips back into Douglas County, before she started moving southward in Pine County.

By October 15 wolf 149F had joined the Five-Corners Pack in St. Croix State Park, Minnesota (about 42 miles southwest of the Moose Lake Pack). Only 1 wolf occurred in the Moose Lake Pack territory in winter 1991-1992.

The 35 Pack consisting of wolves 063M (adult male), and 059F (adult female) had occupied much of the area in western Douglas County between Highway 35 and the Summit Trail. During winter 1991-1992 the Truck Trail Pack occupied most of the area of the former 35 Pack. Because the radios of 063M and 059F no

longer transmitted, the exact fate of the pack was not determined. Tracks of 2 dominant wolves were seen north and northeast of the 35 Pack Territory in February; these could have been the former 35 Pack alpha pair, but no wolves were captured from this group.

Bayfield County:

Adult male 107/141M of the Rainbow Lake Pack was recaptured and re-collared in Spring 1991. His movements were followed until August 1991 when he died of natural causes near Rainbow Lake on about August 21 or 22. The packs territory had consisted of about 48 square miles. Pups were produced in spring 1991 and at least some survived to late summer 1991. Two or 3 wolves were present in this territory during mid-winter, and apparently a new alpha male became established by January. Breeding activities again resumed and pups were again produced in spring 1992. Trapping attempts in spring and early summer 1992 were unsuccessful in capturing another wolf from this pack.

Sign of 2-3 wolves were found in southwest Bayfield County in May and June 1992. Sign of only 1 wolf was found in the area during winter 1991-1992. It appears a new pack may exist in this area.

Sign of at least 1 lone wolf was found in northeastern Bayfield County during winter. The wolf seemed to occur on County Forest land west and north of Bayfield.

Burnett - Polk Counties:

Wolf 145F (adult female) was captured and collared in northwest Polk County in May 1991. She occupied an area of about 10 square miles in a sandy outwash plain of northwest Polk and southwest Burnett Counties between May 9, 1991 and October 15. Wolf 145F was accompanied by at least 1 other wolf and the pair was referred to as the Meadman Meadow Pack. Wolf 145F dispersed from the Meadman Meadow area in late October and moved north and northeast through the St. Croix River watershed. Between early November 1991 and May 6, 1992, wolf 145F travelled over an extensive area from northern Douglas County to northwest Polk County (74 miles), and also including portions of Burnett, Washburn and Pine Counties. During this period 145F twice returned to the Meadman Meadow area (January 31, 1992 and April 1 - April 6, 1992). Wolf 145F seemed to settle into the southern part of the Empire Pack between May 6 and June 24, 1992, but moved south of the territory by June 26, 1992.

The newly discovered Five-Corner Pack occurred along the St. Croix River in Pine County, Minnesota and northern Burnett County, Wisconsin. During winter 1991-1992 the pack consisted of 5 wolves and occupied an area of about 21 square miles. Wolf 149F was apparently accepted as the breeding female in this pack. She produced 6 or 7 pups in St. Croix State Park in April 1992. On June 29, 1992 after returning from a hunting-foray, wolf 149F was killed along Minnesota Highway 48 just north of St. Croix State Park. At least 3 pups were still alive at the same time of her death.

Yearling female 177F was caught in the Five-Corners Pack on May 3, 1992. Wolf 177F spent most of May and June in the Governor Knowles State Forest in Burnett County, south of the St. Croix River.

Washburn County:

Several track surveys were conducted in northeast Washburn County, but no wolf sign was found. Wolf 145F apparently travelled through portions of northwest Washburn County. The recently found pack in southwest Bayfield County may extend into northeast Washburn County. Wolf 127F (adult female) was trapped from a farm east of Spooner and moved 141 miles to the east in the Nicolet National Forest after killing about 100 domestic turkeys.

Sawyer-Ashland Counties:

Wolf 147F initially caught in the Log Creek Pack area on May 17, 1991, dispersed shortly thereafter. She roamed an area of about 900 square miles from southeast Sawyer County north to central Ashland and eastward to eastern Iron County, as well as portions of Bayfield and Price Counties. After September 29, 1991, 147F apparently located a mate and settled into an area along the Thornapple River in eastern Sawyer County. The Thornapple River Pack occupied a winter territory covering about 25 square miles. The pair successfully produced pups in the spring within the new territory.

Wolf 211M (adult male) was caught in the Log Creek Pack on May 18, 1992. His locations have occurred in northeast Sawyer, southern Ashland, and northwest Price Counties. The Log Creek Pack consisted of 5-7 wolves in winter 1991-1992. Breeding activity seemed to have occurred in winter, but pup production was not verified in spring.

A breeding pair of wolves (McCarthy Lake Pack) occurred in the Chequamegon National Forest east of Clam Lake in winter 1991-1992. Neither animals were caught during trapping efforts in spring.

Price-Oneida Counties:

Wolf 128M was caught on July 23, 1991 in the Bootjack Lake Pack in western Oneida and eastern Price Counties. At the time of his capture, 128M seemed to be suffering from a severe case of mange infection. Wolf 128M seemed to be the only wolf present in the Bootjack Lake area from mid-summer 1991 until mid-winter 1992. His previous mate disappeared sometime in summer 1991, and no pups survived into fall. Wolf 128M found a new mate by early February 1992, and they produced at least 2 pups in spring. the pack occupied a winter territory of about 30 square miles.

Wolf 201M (adult male) was caught by a coyote trapper in western Oneida County on October 23, 1991. Wolf 201M and his mate, known as the Little Rice River Pack, occupied 28 square miles near the Tomahawk River and Swamp Lake. The pair apparently produced at least one pup in spring 1992.

Lincoln County:

Tracks of 3-5 wolves occurred in the Averill Creek Pack in western Lincoln County in winter 1991-1992. No new wolves were caught and collared in the pack during the study period. Breeding occurred in the pack and pups were apparently produced in spring 1992.

The Ranger Island Pack consisted of a breeding pair during winter 1991-1992. The pack seemingly produced pups during the spring. No wolves were caught in this pack during spring and early summer trapping.

Iron-Vilas-Gogebic (MI):

Michigan biologists tracked a pack of 4 wolves along the Michigan-Wisconsin boundary near Chaney Lake in winter 1991-1992. It appears that about half the pack's territory occurred in Wisconsin. A breeding pair seemed to occur in the pack, but pup production has yet been verified.

Northeast Wisconsin:

Wolf 127F (adult female) was caught after depredating on domestic turkeys on a farm east of Spooner on July 19, 1992. She was released near the Headwaters Wilderness Area in northern Forest County on July 20, 1991. Wolf 127F was fitted with a capture collar prior to release so that she should be recaptured if further depredation occurred. Between July 20 to October 8, 1991 Wolf 127F roamed an area across northern Forest, eastern Vilas, and western Florence Counties. The wolf ranged from 11 miles east of Eagle River to 4 miles west of Florence (about 35 miles east to west), and travelled mainly along a broad corridor following Wisconsin Highway 70. Wolf 127F approached within 1/4 mile of livestock operations on at least 3 occasions, but caused no further depredation.

Wolf 127F was recaptured near Florence, Wisconsin on October 8, 1991 to replace tranquilizers and batteries in her capture collar. Although the capture went very well, the wolf died about 3 hours later from unknown causes.

During winter and spring 1992 tracks of single wolves were observed from northeast Wisconsin, but no breeding wolves were found.

Winter Wolf Population:

The minimum population of wolves in Wisconsin in winter 1991-1992 was about 45 wolves (Table 3). Thirteen packs ranging in size from 2-7 wolves ($x = 3.0$) occurred across northern Wisconsin. Three of the packs occurred partially in adjacent states of Michigan and Minnesota, therefore the lower value of the overall population was used as the most reasonable estimate of Wisconsin's minimum wolf population. This represents an increase of 12.5% over last years wolf population.

Six loners were identified in Wisconsin, thus composing about 13% of the statewide wolf population. Because of the difficulty of detecting loners, this value is probably a minimum value. The actual wolf population may be somewhere in the range of 45 to 50 wolves.

Wolf Mortality:

Six radio-collared wolves died in Wisconsin and adjacent areas of Minnesota during the study period (Table 4). One wolf died from human caused mortality, 2 died from natural causes, and 2 died from unknown causes, and 1 wolf is still under investigation.

The death of 31 radio-collared wolves trapped in Wisconsin and adjacent areas of Minnesota were detected between October 1979 and June 1992 (Table 5). Human caused mortality was nearly twice as prevalent as natural causes of mortality. Shooting was the number one cause of death, but may have declined during the last few years.

Statewide Wolf Distribution:

Wolf observations were obtained from natural resource agency personnel and private citizens from July 1, 1991 through June 30, 1992. All observations were classified as probable, possible, or not likely. A total of 138 probable and possible wolf sightings were received (Table 6).

Wolf observations were received from 18 northern Wisconsin counties. Counties with highest observation rates were Lincoln, Bayfield, Price, and Oneida Counties; these counties all had 1 or more breeding packs. The largest number of wolves actually seen was from Douglas County. Douglas County has traditionally had some of the highest wolf numbers in the state. Although some of the wolf observations may have been misidentifications, the observation data does suggest broad distribution of wolves across northern Wisconsin. Data collected this study period on single wolves 145F, 147F, 149F and 127F indicated the broad areas over which these wolves may roam.

Job 106.5 INITIATE DISEASE ABATEMENT

Wolves captured in 1991 were tested for 5 or 6 different diseases (Table 7) Wolf 127F was tested twice because she was recaptured during the period. Four of 11 wolves tested positive for Canine Parvovirus, 5 of 12 wolves tested positive for Infectious Canine Hepatitis, 12 wolves were negative for Blastomycosis, 8 of 12 wolves tested positive for Lyme disease, 1 of 11 wolves tested positive for Heartworm, and 1 of 1 wolf tested negative for Canine Distemper Virus. Canine Parvovirus seems to be declining in Wisconsin's wolf population from the mid-1980's when 75% tested positive. The highest Parvovirus titers was for wolf 169M that died shortly after being trapped in summer 1991. It appears that a large percentage of Wisconsin wolves test positive for Lyme Disease. Wolf 107/141M who had the highest titers for Lyme Disease, was a very old wolf that died 4 months after its capture. Wolf 127F was negative for Lyme when initially captured in July but had high titers for the disease on her second capture.

All 11 wolves captured during 1991 were vaccinated for Canine Parvovirus, Distemper, and Corona Virus. Wolves 127F, 149F, and 154F and 171F were necropsied by Dr. Nancy Thomas at the U.S. Fish and Wildlife Service, Wildlife Health Lab in Madison. Wolf 154F was the first specimen with mange that Dr. Thomas had examined for Wisconsin and Minnesota wolves. Several wolves caught in 1991 and 1992 were suspected of having mange, especially wolf 128M in the Bootjack Lake Pack. During 1992 we began obtaining skin sample from wolves that we suspected of having mange.

Wolf 171F died from malnutrition and stress after having been left in a trap for probably a week or more. Wolf 127F died from unknown causes after recapture with the capture collar; she was a very healthy wolf, but may have died from some unusual reaction to tranquilizer drugs. Investigations on the death of 149F are still ongoing.

Wolves 107/141M and 169M were not necropsied because they had mostly decomposed by the time the carcasses were found.

Job. 106.7 IMPLEMENT LIVESTOCK DAMAGE CONTROL ACTIVITIES

Wolf depredation on livestock during the period included loss of 9 sheep and 1 calf on a farm in Douglas County, and loss of 100 turkeys on a farm in Washburn County. Both landowners were reimbursed for the estimated value of their livestock. The turkey damage was caused by wolf 127F who was trapped and relocated 142 miles east into the Nicolet National Forest. No further depredation occurred after 127F was released into northeast Wisconsin.

One depredation also occurred on a hunting dog in Lincoln County during the study period. The dog owner was reimbursed for the loss of his dog.

Job 106.8 COORDINATE WOLF MANAGEMENT ACTIVITIES WITH FEDERAL, STATE AND COUNTY AGENCIES

Adrian Wydeven and Randy Jurewicz attended the Great Lakes Interagency Wolf Group Meeting in Duluth, Minnesota on January 22 and 23. Both also attended the Eastern Timber Wolf Recovery Team meeting in Duluth on January 22. Planning for research and management considerations for wolves were held with the Wisconsin Department of Transportation on January 9, 1992, and March 3, 1992. Meetings with research to coordinate study of impact of highway development on wolves were held on the following: July 17, 1991; September 10, 1991; October 9, 1991; December 18, 1991; and June 29, 1991. A wolf habitat coordination meeting was held with Douglas County officials on July 16, 1991. Numerous contacts were made with wolf biologists in Minnesota, Michigan, Montana, Massachusetts, and other areas.

106.9 CONTINUE CITIZEN PARTICIPATION ACTIVITIES

Presentations were given on 27 occasions to 1,348 people by Wydeven during the period. Additional talks were also given by Ron Schultz, Bill Meier, Pat Rominski, Gary Dunsmoor, and other DNR personnel. The project biologist was on 3 television interviews (Eau Claire, Wausau and Rhinelander) and 4 radio talk shows. Numerous other contacts were made with radio and newspaper reporters.

106.10 VOLUNTEER PROGRAM ACTIVITIES

Thirty-four volunteers were used during the period for assistance on wolf trapping, howling surveys and winter track surveys. The project biologist met with volunteers from the Timber Wolf Alliance on 5 occasions and with the Timber Information Network on 2 occasions. Timber Wolf Alliance volunteers gave wolf talks throughout the state. Wolf observation data were contributed by numerous private citizens and governmental personnel.

106.12 REVIEW TRANSLOCATION

Adrian Wydeven and Randy Jurewicz met with Wildlife Management Administrators and the Animal Damage Control Administrator on October 11, 1991 to discuss the relocation of wolf 127F. The need to develop better guidelines for relocation of depredating wolves were discussed. Additional meetings will be held in the future to further develop such guidelines.

Table 1. Capture data on wolves caught in Wisconsin and adjacent area of Minnesota in 1991.

<u>Study Area</u> <u>County / Pack</u>	<u>Wolf #</u>	<u>Sex</u>	<u>Age</u>	<u>Weight</u>	<u>Date</u>
Bayfield / Rainbow Lake	107/141M	M	A	74 lbs.	04/30/91
Polk / Meadman Meadow	145F	F	A	62 lbs.	05/09/91
Sawyer / Log Creek	147F	F	A	74 lbs.	05/17/91
Douglas / Moose Lake	149F	F	Y	68 lbs.	06/07/91
Douglas / Truck Trail	169M	M	A	75 lbs.	07/14/91
Pine / Truck Trail	171F	F	A	69 lbs.	07/15/91
Washburn / Loner	127F	F	A	75 lbs.	07/19/91
Oneida / Bootjack Lake	128M	M	A	67 lbs.	07/23/91
Douglas / Truck Trail	131M	M	A	99 lbs.	08/21/91
Douglas / Truck Trail	133F	F	P	27 lbs.	08/22/91
Oneida / Little Rice River	201M	M	A	84 lbs.	10/23/91

Table 2. Capture and telemetry data on wolves monitored from July 1, 1991 through June 30, 1992.

<u>Wolf #</u>	<u>Sex</u>	<u>Age</u>	<u>Pack</u>	<u>Date Captured</u>	<u>Last Date Located</u>	<u>Number of Locations</u>	<u>Territory Size (mi²)</u>	<u>Wolf Numbers</u>
107/141	M	A	Rainbow Lake	05/22/87	08/27/91	191 +21*	48	3-5
127	F	A	Loner	07/19/91	10/08/91	42	No Est.	1
128	M	A	Bootjack Lake	07/23/91	MC**	87	30	2
131	M	A	Truck Trail	08/21/91	MC	64	71	4-8
133	F	P	Truck Trail	08/22/91	MC	67	71	4-8
145	F	A	Meadman Meadow	05/09/91	MC	80	10	2
147	F	A	Thornapple River	05/17/91	MC	59	25	2
149	F	Y	Five-Corners	06/07/91	06/30/92	74	21	5
169	M	A	Truck Trail	07/14/91	07/20/91	4	No Est.	4-8
171	F	A	Truck Trail	07/15/91	02/28/92	35	71	4-8
201	M	A	Little Rice River	10/23/91	MC	52	28	2
177	F	Y	Five Corners	05/03/92	MC	22	No Est.	5
183	M	A	Empire	05/29/92	MC	11	No Est.	2-4
211	M	A	Log Creek	05/18/92	MC	9	No Est.	5-7

*Captured twice--numbers include locations after 1st and 2nd captures.

**MC - Monitoring Continuing

Table 3. 1991-1992 Midwinter estimation of Wisconsin's timber wolf population

<u>County</u>	<u>Pack Name</u>	<u>Wolf #</u>	<u>Evidence*</u>
Douglas	Moose Lake	1	T
Douglas	Empire	2-4	T
Douglas / Pine (MN)	Truck Trail	4-6	R
Douglas	Chaffey Pair	2	T
Burnett/Pine (MN)	Five-Corners	2	R
Bayfield	Rainbow Lake	2-3	T
Ashland	McCarthy Lake	2	T
Ashland/Sawyer	Log Creek	5-7	T
Sawyer	Thornapple River	2	R
Iron, Vilas, Gogebic (MI)	Chaney Lake	4	T
Oneida/Price	Bootjack Lake	2	R
Oneida	Little Rice River	2	R
Lincoln	Ranger Island	2	T
Lincoln	Averill Creek	3-5	T
Forest	Loner	1	T
Bayfield	Smokey Hill?	1+	T
Oneida/Price	Willow Lake Loner	1	T
Bayfield	Bayfield Area Loner	1	T
Polk, Burnett, Washburn, Douglas, Pine (MN)	145 F Loner	1	R
Total		45-52	

*R = Radio-collared wolf (wolves) in pack

T = Track & sign survey

Table 4. Mortality during July 1, 1991 - June 31, 1992 of radio-collared wolves in Wisconsin.

<u>Wolf #</u>	<u>Sex</u>	<u>Age</u>	<u>Date Captured</u>	<u>Date Died</u>	<u>Cause of Death</u>
169	M	A	07/15/91	07/20/91	Unknown
107/141	M	A	05/22/87	08/22/91	Unknown-Natural
*127	F	A	07/19/91	10/08/91	Unknown
*154	F	A	07/20/90	12/10/91	Unknown Natural Sarcoptic Mange
*171	F	A	07/15/91	02/20/92	Trapped
*149	F	Y	06/07/91	06/29/92	Investigation Ongoing

*Complete necropsies performed by Dr. Nancy Thomas, U.S. Fish & Wildlife Service

Table 5. Mortality summary of radio-collared wolves from Wisconsin and adjacent areas of Minnesota October 1979 - June 1992.

	<u>No.</u>	<u>% Known Mortality</u>
Shooting	12	44%
Trapping	3	11%
Road kills	1	4%
Unknown-human caused	<u>1</u>	<u>4%</u>
Total Human Caused	17	63%
Killed by other wolves	3	11%
Disease	4	15%
Unknown-natural	<u>3</u>	<u>11%</u>
Total Natural Mortality	10	37%
Total Known Mortality	27	100%
Unknown Mortality	4	
Total Mortality	31	

Table 6. Wolf observations by natural resource agency personnel and private citizens in northern Wisconsin July 1991 - June 1992.

<u>County</u>	<u>Number of Sightings</u>	<u>Wolves Seen</u>	<u>Track or Sign Observations</u>	<u>Total Wolf Observations</u>
Ashland	5	5	5	10
Barron	1	1	0	1
Bayfield	11	15	8	19
Burnett	4	4	2	6
Douglas	9	18	1	10
Florence	0	0	1	1
Forest	3	3	6	9
Iron	4	6	3	7
Langlade	1	2	0	1
Lincoln	13	17	7	20
Marinette	4	4	0	4
Oneida	11	13	5	16
Polk	4	4	1	5
Price	12	16	5	17
Sawyer	3	5	2	5
Taylor	1	1	0	1
Vilas	3	3	1	4
Washburn	2	2	1	3
Totals	91	119	47	138

Table 7. Disease titers of wolves caught in Wisconsin and adjacent areas of Minnesota in 1991.

<u>Wolf #</u>	<u>Capture Date</u>	<u>Age</u>	<u>Sex</u>	<u>CPV</u>	<u>CDV</u>	<u>ICH</u>	<u>Blasto</u>	<u>Lyme</u>	<u>HW</u>
107/141	04/30/91	A	M	<10	-	<8	Neg.	>2048	Neg.
145	05/09/91	A	F	<10	-	<8	Neg.	<64	Neg.
147	05/17/91	A	F	100	-	<8	Neg.	1024	Pos.
149	06/07/91	Y	F	10	-	64	Neg.	512	Neg.
169	07/14/91	A	M	1000	-	16	Neg.	64	Neg.
171	07/15/91	A	F	100	-	32	Neg.	1024	Neg.
127	07/19/91	A	F	100	-	<8	Neg.	<64	Neg.
127	10/08/91	A	F	-	-	<8	Neg.	512	-
128	07/23/91	A	M	10	-	16	Neg.	256	Neg.
131	08/21/91	A	M	10	-	<8	Neg.	512	Neg.
133	08/22/91	P	F	<10	-	<8	Neg.	512	Neg.
201	10-23-91	A	M	10	10	8	Neg.	512	Neg.

¹Disease Test - CPV = Canine Parvovirus; ≥ 100 probable disease
 CDV = Canine Distemper Virus; ≥ 100 probable disease
 ICH = Infectious Canine Hepatitis; <8 is lack of exposure
 Blasto = Blastomycosis; Neg = Negative, Pos = Positive
 Lyme = Lyme Disease; ≥ 512 clinical diagnosis of disease
 HW = Heartworm; Neg = Negative, Pos = Positive

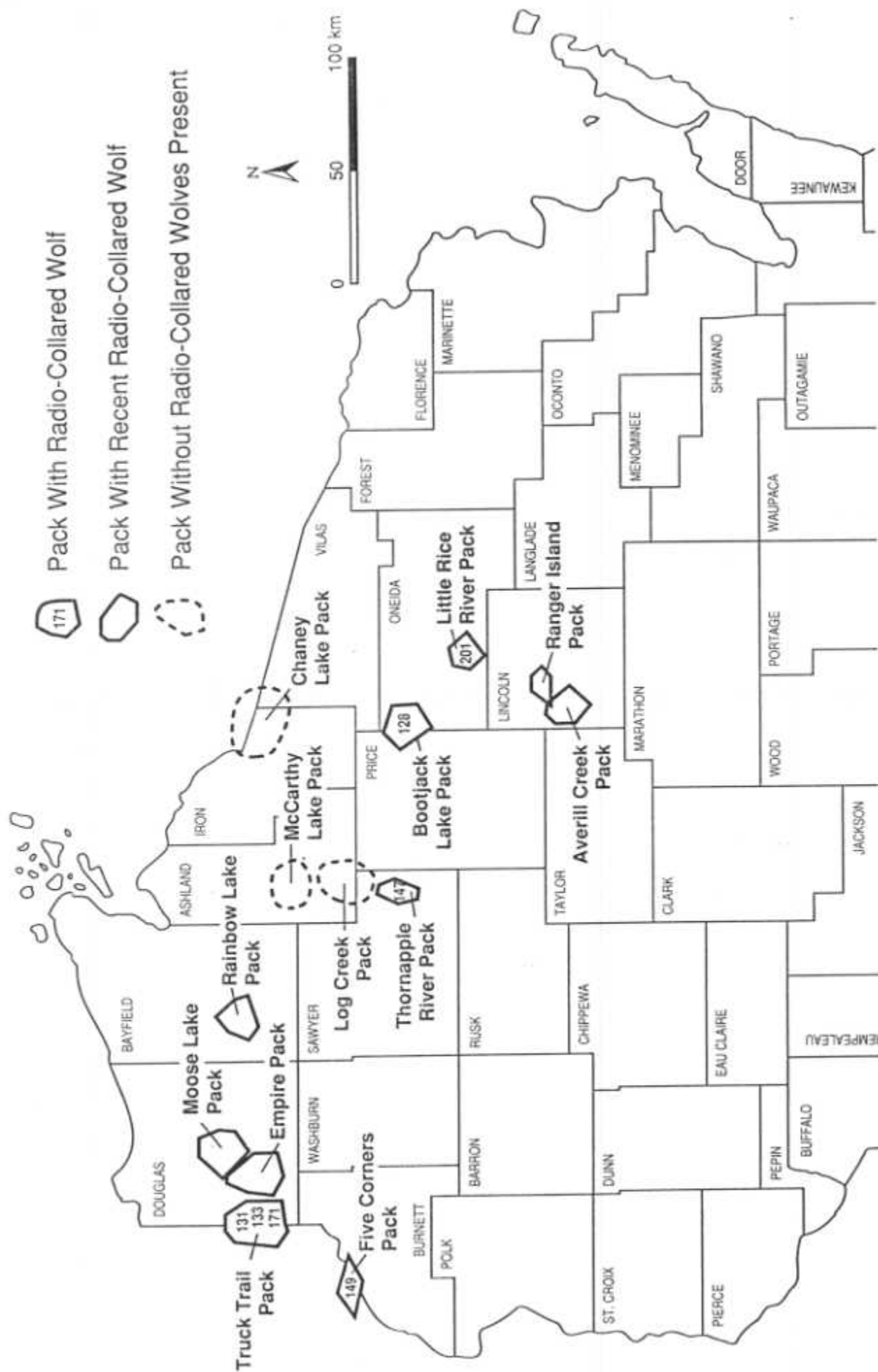


FIGURE 1. Gray Wolf Distribution in Northern Wisconsin: Winter 1991-1992.