

WISCONSIN ENDANGERED RESOURCES REPORT # 104

STATUS OF THE TIMBER WOLF IN WISCONSIN
PERFORMANCE REPORT, 1 JULY 1994 THROUGH 30 JUNE 1995

By: Adrian Wydeven and Rebecca A. Megown

SUMMARY

This report covers activities conducted from July 1, 1994 through June 30, 1995.

Eleven wolves from 6 packs and 2 loners were captured and radio-collared in 1994. Thirty-five radio-collared wolves were monitored during the period. The winter territory of 9 Wisconsin adult wolves averaged 58 square miles. Wolf density on 1660 square miles of wolf range averaged 1 wolf/21 square miles. The estimated wolf population of Wisconsin was about 83-86 wolves in 18 or more packs. Six radio-collared wolves died during the period including 2 from shootings, 2 vehicle collisions, 1 intra-specific strife, and 1 unknown. Wolf observations were reported from 26 Wisconsin counties. Wolf serum was tested for 5 canine diseases: 4 of 9 were positive for lyme disease, 1 of 10 were positive for distemper, and none were positive for parvovirus, hepatitis, and heartworm. One of 3 skin scrapings tested positive for mange. A review of the Wisconsin Wolf Recovery Plan was completed during the period.

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RECOVERY OF THE TIMBER WOLF
PERFORMANCE REPORT

JULY 1, 1994 TO JUNE 30, 1995

Prepared by Adrian P. Wydeven and Rebecca A. Megown

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
	106.7	Implement livestock damage control action
	106.8	Coordinate with other agencies
	106.9	Citizen participation
	106.10	Volunteer programs
	106.11	Develop reclassifying criteria (not active)
	106.12	Review translocation

Background: The Eastern timber wolf (Canis lupus lycaon) was listed as a Federal Endangered Species in 1967, and Wisconsin's population of wolves was listed as a State Endangered Species in 1975. The Wisconsin Department of Natural Resources (DNR) has conducted monitoring of wolf populations in the state since 1979. The Wisconsin Timber Wolf Recovery Plan was approved in 1989, and set a minimum population goal of 80 wolves for the state. Downlisting to Threatened Status would be considered if the state maintained a minimum of at least 80 wolves for three years. This report covers activities conducted from July 1, 1994, through June 30, 1995.

JOB 106.1 DIRECT EDUCATIONAL ACTIVITIES

The project biologist (Wydeven) and technician (Ronald N. Schultz) provided training for 45 people at Timber Wolf Alliance (TWA) Speakers Bureau and volunteer training on August 13, 1994. The project biologist attended four TWA board meetings during the period. Four quarterly reports were written to provide information on wolf monitoring activities and status of wolf packs. Reports were also written for Wisconsin Wildlife Surveys, International Wolf Magazine, Wisconsin Natural Resource Magazine, and Two Rivers Guide (National Park Service). The project biologist gave two presentations at the Wolves and Humans 2000 Symposium in Duluth, Minnesota on March 9, 1995; also five additional reports were given on Wisconsin wolf ecology by graduate students and other researchers.

An article on GIS analysis of wolf habitat in Wisconsin was published with other authors in Conservation Biology April 1995.

JOB 106.2 PROVIDE ADDED LEGAL PROTECTION FOR WOLVES

Areas closed to coyote hunting during the deer-gun season were expanded in 1994 to cover nearly the northern one-half of Wisconsin. News releases were published during fall and wolf information was presented on Wisconsin Public TV, Outdoors Wisconsin, "Deer Hunt 1994". Hunting activity was monitored and no known shootings of wolves did occur during the gun deer hunting season.

Project personnel assisted in four legal investigations during the period. No prosecutions have been made, but two investigations indicated lack of evidence for illegal activity.

JOB 106.3 COOPERATIVELY MANAGE HABITAT WITH LANDOWNERS

Comments were made on two Forest Service opportunity area analyses in the Nicolet National Forest. Work was done on the Chequamegon National Forest identifying a den site, potential rendezvous sites, and developing guidelines for road construction in wolf habitat.

A cooperative research project with Wisconsin Department of Transportation (DOT) on impact of highway development on wolf activity has been ongoing since 1992. Bruce E. Kohn directed this study on the impact of Highway 53 development on movements, mortality, and behavior of wolves in northwestern Wisconsin. Research is determining major travel corridors of wolves and characteristics of wolf road crossings.

JOB 106.4 MONITOR STATEWIDE WOLF POPULATION

Eleven wolves were captured and radio-collared in 1994 in Wisconsin and Pine County, Minnesota (Table 1). The collared wolves represented members of 1 Minnesota pack, 5 Wisconsin packs, and 2 loners. A total of 2250 trap nights were used to trap 11 wolves, and averaged 205 trap nights per wolf.

At least 21 wolf territories were identified in Wisconsin in 1994-1995 and at least 18 of these territories contained evidence of breeding packs. One pack from Minnesota was close to the Wisconsin border (Five Corners Pack), and 1 Michigan pack extended into Wisconsin (Little Girls Point Pack). Although attempts were made to monitor all wolf packs that occurred in Wisconsin, only those packs that had \geq one-half their territories in Wisconsin were tabulated as part of the state wolf population.

Thirty-five collared wolves were monitored during the study period (Table 2). The average winter territory of 16 wolves was 59 mi² (minimum convex polygon), and the average winter territory of 9 adults in Wisconsin was 58 mi².

Radio-collared wolves monitored during the study period included 16 adult males, 8 adult females, 6 yearling males, 3 yearling females, 1 pup male, and 1 pup female (age during

majority of the study period except wolves captured since May 1995 are listed by age at capture).

A summary of wolf activity and monitoring efforts within specific regions and specific packs are listed below.

DOUGLAS COUNTY:

Two wolves were monitored in the Truck Trail Pack including adult male 191M and yearling female 187F. The pack occupied a winter territory of 108 mi² along the Wisconsin-Minnesota border. Eight or 9 wolves were observed in this territory during winter. Pups were apparently produced in 1994 and 4-5 pups were thought to be present in winter. During spring 1995, breeding and denning activity apparently again occurred.

Three collared wolves were monitored in the Empire Pack in western Douglas County including yearling male 230M (originally caught as a pup in 1993), adult male 189M, and adult male 186M (caught on June 8, 1995). During summer 1994, 189M was the alpha male and 230M was his yearling son. Wolf 189M was killed about July 2 from a vehicle collision on Wisconsin Hwy. 35 near Moose Junction. His uncollared mate, and 230M were able to raise pups produced by the pack, and apparently 3 pups survived the winter.

It was not clear when the new alpha male 186M joined this pack, but by February breeding was occurring and 6 or 7 wolves occurred in the pack. Since mid-winter, 230M has been using outer portions of the territory, and appeared to be preparing to disperse. Also the new alpha male may have displaced the young male.

The Crotte Creek Pack occupied an area of 49 mi² north of the St. Croix River in western Douglas County. Three wolves occupied the territory, including 2 adult males (194M and 500M). The third wolf apparently was a female, but it was not clear which male was the alpha.

Although pups were apparently produced in 1994, no pups survived by winter. Breeding again occurred in winter 1995 and denning activity seemed to occur in spring.

Despite extensive trapping in summer 1994 and spring 1995, no wolves were caught or radio-collared in the Moose Lake Pack. Although no responses were obtained on howling surveys, tracks of 4 wolves were found in the area during spring. Probably 2 of these wolves were pups. Breeding apparently occurred in winter 1994.

BURNETT COUNTY:

Five wolves were tracked in the Crex Meadow Pack of western Burnett County during winter 1995. Two or 3 of these were probably pups, and breeding again occurred during winter. Two wolves were caught and radio-collared in this pack in spring 1995 (adult male 184M and adult female 195F). The male wolf was probably the alpha, but the female appeared to be a subordinate. Denning activity apparently occurred in spring 1995.

Although radio locations were limited during the study the pack did seem to cover much of the Crex Meadow Wildlife Area and extended westward across the St. Croix River into Minnesota.

The Five Corner Pack centered on the St. Croix State Park in Pine County, Minnesota had previously also used portions of northwest Burnett County. During the study period no movements of this pack's members were detected into Wisconsin. Perhaps the development of the Crex Meadow Pack to the southeast has forced the Five Corners Pack to use areas further north.

Wolf 185F dispersed from areas of the St. Croix State Forest of eastern Minnesota into Wisconsin on January 20, 1995. This wolf was thought to have originated from the Five Corners Pack, but had remained mostly by herself northeast of the territory since her capture on June 23, 1994.

Wolf 185F spent most of winter and spring 1995 in northern Burnett County and southern Douglas County but also visited Pine and Washburn Counties. She covered an area of 250 mi². She was observed with another wolf in late March, but it was not clear if she had developed a mating bond.

In March 1995, wolf 185F and her companion apparently killed 3 newborn calves in northern Burnett County. The depredation occurred in a wooded pasture 1½ miles from the farmstead. Once the owner moved his cows and calves close to the farmstead depredation ended.

WASHBURN COUNTY

Wolf 207F dispersed from eastern Minnesota into the Stuntz Brook area of northwest Washburn County about February 13, 1995. She settled into the Brook area south of Minong along U.S. Highway 53. Since February the wolf occupied a small area of about 4 mi² along the highway, and remained on the west side of the road throughout the time. Soon after settling into the Stuntz Brook area 207F apparently found a mate. Her radio went off the air after April 28, but the male (199M) was captured and collared on June 11, 1995. It was not clear if denning occurred in spring 1995.

Wolf observations were also reported from northeast Washburn County in the Frog Creek area, but the clear presences of a pack was not detected. Possibly the Smoky Hill Pack from the northeast occasionally used this area.

BAYFIELD COUNTY:

Wolf 223M has been monitored in the Rainbow Lake Pack since 1992 and occupied a territory of about 79 mi². During winter, 4 wolves appeared to be present in the territory, including 1 or 2 pups. Breeding and denning activity apparently again occurred in 1995.

No collared wolves occurred in the Smoky Hill Pack area of southwest Bayfield County. Although pups were detected through howling surveys in summer, none were detected in winter. Only the breeding pair was present during winter.

Sign of at least 1 wolf was detected in northern portions of the Chequamegon National Forest in north Bayfield County during winter. During spring 2 or more wolves were detected in the northeast corner of Bayfield County, but it was not clear if these had been present earlier or were different from the wolf detected further west in the Chequamegon National Forest.

SAWYER-ASHLAND COUNTIES:

Wolf 147F (adult female) last transmitted in the Thornapple River Pack in November 1993. No collared wolves occurred in this pack in winter 1994-1995. Pups were produced in this pack in 1994, and 2 or 3 survived to midwinter when 5 wolves were present in this territory. Sign of breeding activity was again detected in February 1995.

The apparent alpha male of this pack (251M) was caught on May 23, 1995. His radio-locations thus far indicated use of the traditional Thornapple River territory in eastern Sawyer County, but also included use of areas in extreme southeast Sawyer County. His movements did indicate probable denning activity.

Two wolf pups were monitored in the Log Creek Pack during fall 1994 (235M and 236F). The pups were caught at a rendezvous site at the edge of a pasture in the northeast part of their territory. The small home range of the pups (18 mi²) was based on limited locations and probably represented a fraction of the territory. The territory was thought to cover 53 mi² in winter 1993-1994.

The male pup's radio-collar began transmitting a mortality signal on November 22, but the wolf was found not to be dead when we attempted to retrieve him. Reduced activity suggested that he probably was sick or injured. This was the third day of gun deer hunting season. A second attempt to retrieve the wolf was made on December 19, but unfortunately only his skull and collar were found. He probably had been dead for 1 or 2 weeks from unknown causes. On the same day the collar of female pup 236F was also found, but she apparently slipped her collar.

During fall, 7-8 wolves were present in the Log Creek Pack, but winter track surveys indicated evidence of only 3 wolves in the territory. Breeding activity again occurred in the pack, but probably only 1 pup survived from 1994. The pack continued to occupy the northeast corner of Sawyer, and southern Ashland County.

Wolf 234M and 227M (adult males) were monitored in the Torch River Pack east of Clam Lake. Wolf 227 died in September 1994 from an infected bite inflicted by another wolf. The wolf (a two year old male) had been roaming outside and on the edge of his natal territory during much of the summer.

Wolf 234M occupied a winter territory of 89 mi² with 2 other wolves. The territory included areas north of Hwy. 77, and apparently covered portions of the Brush Creek which seemed to be a separate territory last year. In general, the Torch River Territory probably covered much of the area of the McCarthy Lake Pack of three years ago. No pups were thought to be present in winter 1995.

Breeding apparently did occur in the Torch River Pack, but there was no evidence of denning activity in spring. Wolf 234M's movements became somewhat erratic in spring and were mainly east of the winter territory.

Wolf 229F who had dispersed from the Log Creek Pack in February 1994 had become the alpha female of the Augustine Lake Pack. During winter, 229F covered a territory of 32 mi² in eastern Ashland and western Iron Counties. The pack consisted of just the breeding pair. Denning activity was detected in the spring, apparently the first litter for 229F.

IRON COUNTY:

A new pack of 5 wolves was detected in the O'Brien Lake area of central Iron County during the study period. Breeding activity was detected and 2-3 pups were thought to be present. The pack probably had been present in the area for at least 1 year, or perhaps split off from the Chaney Lake Pack in Gogebic County (Michigan) to the east.

An adult male (252M) and a subordinate adult female (253F) were caught in the O'Brien Lake territory in June 1995. The female remained in a fairly localized area but the male roamed widely. Wolf 252M may be about to disperse or perhaps was caught while dispersing through this area.

The Little Girls Point Pack overlapped into Wisconsin along the Lake Superior shoreline of northern Iron County. Four wolves apparently occurred in this Michigan wolf pack in winter 1994-1995. The Chaney Lake Pack along eastern Iron County also included 4 wolves, but it was not known whether the pack spent any time in Wisconsin.

PRICE-ONEIDA COUNTIES:

Wolf 177F (adult female) and her mate formed the Price Creek Pack in fall 1993. The female wolf produced her first litter in spring 1994. Her signal was lost after September 1994, but was thought due to radio failure. Six wolves were present in the territory during winter and breeding activity was again detected. Probably 4 pups had survived from last summer.

On May 4, 1995, a yearling female (237F) was caught in this territory; probably a daughter of wolf 177F. The wolf roamed over much the same area that had been occupied by her mother, although 237F used areas further west and southwest.

A small farm on the northwest side of the Price Creek territory lost 6 calves in May 1994. Circumstantial evidence suggested that wolf predation may have been involved. Wolf 237F did spend time near the farm area in May. Cows were apparently dropping calves in a

wooded pasture, but were moved to an improved fenced pasture near the farm after the losses.

Wolf 128M (adult male) had been monitored in the Bootjack Lake Pack of eastern Price County and western Oneida County since July 1991. He and his mate had last produced pups in 1992. In May 1993 his daughter, yearling female 225F, was captured in this territory. The 2 wolves were probably the only wolves present in this territory during much of 1993 and 1994; no pups were apparently produced either year. In winter 1995 a black male started to associate with this pack. Breeding apparently occurred with wolf 225F and the new male. Denning activity appeared to occur in spring.

After the new male joined the pack, 128M stopped associating with his daughter, and began to frequent the edge of the Bootjack Lake territory.

Wolf 201M had been monitored in the Little Rice River Pack of western Oneida County since October 1991. His original territory was west of U.S. Hwy. 51 and southeast of the Willow Flowage. He shifted his home range eastward in spring 1994, after spending the winter in his territory by himself. In summer 1994 and winter 1995, wolf 201M occupied a home range along Hwy. 51. The wolf's radio stopped transmitting after March 13, but shortly before that he had found himself a new mate. Denning activity did occur, but wolf 201M died soon afterwards (May 6, 1995) from a gunshot wound.

LINCOLN-TAYLOR COUNTIES:

Three yearling males were radio-collared in the Averill Creek Pack on May 13, 1994 (231M, 232M, 233M). Soon after capture, the wolves began to roam widely. Wolf 233M was lost after June 27, 1994, in northern Taylor County and wolf 232M was lost in eastern Taylor County after August 23, 1994. Wolf 233M was killed by a vehicle collision on Hwy. I-90 near Camp Douglas, Juneau County, on November 19, 1994, about 95 miles south of his last location.

Wolf 231M did not roam as widely as the other two wolves, but did travel extensively through western Lincoln, eastern Taylor, and extreme northern Marathon Counties. His winter home range covered an area of about 150 mi². He made frequent returns to the traditional Averill Creek territory, but traveled extensively outside the territory. Along with 231M, the Averill Creek territory had a breeding pair that apparently produced pups in Spring 1995. Only the 3 wolves were present during winter, with no pups surviving from the previous year.

A single noncollared wolf continued to occupy the Ranger Island territory, northeast of the Averill Creek Pack. No collared wolves have existed in the Ranger Island territory since 1990, and no successful breeding has occurred since 1992.

Single wolves apparently occurred in the Harrison Hills area of northeast Lincoln County, and the Chequamegon National Forest of north central Taylor County.

NE WISCONSIN:

A single lone wolf was detected in western Florence County from 326 miles of track survey. This was only the third time a wolf was detected in the area by DNR surveys in the last 5 years.

CLARK/JACKSON COUNTIES:

Track surveys last winter indicated a breeding pack of 3 or 4 wolves in the Wildcat Mound area of eastern Jackson County. The pack probably had occurred in the area for 1 or 2 years, but previously was not verified.

On May 21, 1995, two wolves were caught in the Wildcat Mound pack (yearling male 238M, and adult male "Bruce"). The adult male inadvertently injured itself after being trapped and was rushed down to University of Wisconsin Veterinary Hospital in Madison for surgery and treatment. The wolf was returned north to a holding pen on the Sandhill Wildlife Area the next day. Unfortunately, the wolf escaped from the holding pen and roamed the fenced 13 mi² Sandhill Wildlife Area for the remainder of the period. A radio collar had not been placed on the wolf.

Wolf 238M roamed mainly near the vicinity of the probable den site of this pack. Toward late June he began to make more extensive movements.

One or two wolves were tracked in the Bear Bluff area of eastern Jackson County during winter. Limited trapping was attempted in May, but no wolves were caught.

A single wolf apparently roamed portions of county forest land in southwest Clark County last winter. Tracks and observations continued to be reported from the area in spring.

DISPERSING WOLVES

Five radio-collared wolves dispersed during the period and 3 collared wolves showed tendencies of preparing to disperse. Wolves 232M and 233M (both yearling males) apparently dispersed from the Averill Creek Pack in western Lincoln County. Wolf 233M was last detected by radio in north central Taylor County, 22 miles west of the Averill Creek territory on June 27, 1994. He was found dead along I-90 in Juneau County on November 19, 1995, 100 miles south of his home territory. Wolf 232M was last detected 7 miles east of Medford in Taylor County and 14 miles southwest of the Averill Creek Pack. It was assumed he also dispersed after that date, but the extent of his travels were not known.

Wolf 182F (adult female) was caught on August 22, 1994, in the Net Lake area of Pine County, Minnesota, and northwest of the Truck Trail Pack. It was not known if she had been a member of the Truck Trail Pack or other pack. Wolf 133F that dispersed from the Truck Trail Pack in 1992 had also used areas northwest of the territory prior to dispersing eastward into northwest Wisconsin. After September 1994, wolf 182F moved into northern Douglas County, traveling throughout much of the county, and crossing U.S. Hwy. 53 at least 6 times. Her movement increased in winter, ranging from northeast Bayfield County

on the east to near Dickenson, Minnesota on the west (about 90 miles), roaming over an area of about 1300 mi². The last location for 182F was north of Brule, Wisconsin on March 17, 45 miles from her capture site. It was not clear if she continued to disperse or was killed. Wolf 182F was feeding on a cow carcass that had been dragged into the wood before she went off the air.

Wolf 185F (yearling female) was initially caught on June 23, 1994, north of the Five Corners Pack in eastern Pine County, Minnesota. She spent most of the summer and fall north of St. Croix State Park, Minnesota. In January 20, 1995, 185F moved into northern Burnett County. During winter and spring the wolf roamed an area of about 250 mi² in portions of Burnett, Douglas, Pine and Washburn Counties. By late March she was accompanied by another wolf, but it was not clear whether they had bred and if they had settled down to a definite home range. Movements in spring 1995 were not as extensive, and concentrated activity occurred in southern Douglas County about 23 miles northeast of her original capture site in Minnesota. As indicated earlier, 185F and her companion apparently killed at least 3 calves in March, but no further depredation occurred.

Wolf 207F had been monitored in the Tamarack River Pack of eastern Minnesota since caught as a yearling female in August 1992. She apparently was a subordinate female throughout her stay in that pack. Since winter 1993-1994, 207F began traveling outside the pack territory and only loosely associated with the pack. In early winter 1994, 207F moved south of the Tamarack River Pack to the St. Croix State Forest near Markville. Between February 6 and February 13, 1995, she moved 28 miles eastward to the Stuntz Brook area of NW Washburn County. She appeared to have settled into the Stuntz Brook area by April 28, 1995, when her radio signal was lost. The Stuntz Brook area was 32 miles southwest of the Tamarack River territory.

Other wolves also showed movement patterns indicating preparations for dispersal. Wolf 230M (yearling male) started traveling further outside the Empire territory in Winter. Wolf 231M (yearling male) made several moves south and southwest of Averill Creek territory but continued to revisit the center of the territory. Wolf 227M (two year old male) traveled north and east of the Torch River territory in summer 1994, and died to the northeast of the territory in September 1994.

WINTER WOLF POPULATION:

The minimum estimation of Wisconsin's timber wolf population in winter 1994-1995 was 83-86 wolves. Eighteen breeding packs consisted of an average of 3.8 wolves (range 2-8 wolves). Areas occupied by wolf territories and adjacent interstitial areas included about 1660 mi². About 78-81 wolves were associated with this occupied wolf range, thus occurring at a density of 1 wolf per 21 square miles. Five additional lone wolves were found in isolated locations away from known territories.

The 1994-1995 wolf population was 66% above the wolf population present in 1993-1994 (50-57 wolves). This increase probably represents more than just natural reproduction. Some wolves were probably missed in 1993-1994 surveys, such as the O'Brien Lake and Wildcat Mound Pack. Dispersal from Minnesota may also have increased (see evidence below).

WOLF MORTALITY:

Six radio-collared wolves were found dead during the study period (Table 4). Five of these were actively monitored wolves, but wolf 233M was found dead nearly 5 months after his radio-signal was lost. Gross annual survival rates for 33 monitored adults and yearlings was 85%, indicating high levels of survival for this population. Cause of deaths included 2 shootings, 2 vehicle collisions, 1 killed by other wolf, and 1 unknown.

Carcasses were also found on wolves not collared by the Wisconsin DNR. These included the following: a pup carcass found near the den site of the Empire Pack that died from unknown causes in July 1994; a female yearling wolf (486F) collared by National Biological Service in northeast Minnesota killed by vehicle collision in Columbia County, Wisconsin on August 30, 1994; a yearling female was killed by vehicle collision southwest of Neilsville in Clark County on November 11, 1994; a yearling female was injured by vehicle collision and euthanized by shooting south of Durand, in Buffalo County on March 21, 1995; and a yearling female was killed by vehicle collision near Tilden in Chippewa County on March 24, 1995. A wolf-like animal was also killed by vehicle collision near Chippewa Falls on May 5, 1995, but after further analysis this animal appeared to be a wolf-dog hybrid. Four canid pups were reported killed in the Crex Meadow Pack in June 1995, although initially thought to be wolf, further analysis indicated probably coyote.

During the study period, 6 cases of known mortality on 9 yearlings and adults was caused by vehicle collisions (Figure 2). Although human caused mortality, especially road kills, are over-represented in non-collared wolves, these figures do indicate that vehicle collisions may be a major mortality factor. The high road kill figures may also indicate higher levels of dispersal into the state, and possibly increased rate of highway mortality as wolves venture south of the Northwoods.

About 23 wolf pups were thought to be alive during winter 1994. This represented an average survival rate of about 32%. (23 pups/[14 breeding females in spring x 5.32 pups - average litter size]). This is close to the 16 year average of about 30% pup survival by midwinter, but low compared to most wolf populations.

A summary of mortality to radio-collared wolves in Wisconsin and adjacent areas of Minnesota since 1979 are shown in Table 5. Overall human-caused mortality accounted for 2/3 of all losses. Shooting was the number 1 cause of mortality, but has declined since the mid-1980's. Recently it appears that vehicle collisions are becoming more important, but perhaps also reflects the increase in the wolf population.

STATEWIDE WOLF DISTRIBUTION:

Wolf observations were obtained from natural resource agency personnel and private citizens from July 1, 1994 through June 30, 1995. All observations were classified as "probable", "possible", and "not likely". A total of 190 probable and possible observations were received (Table 6); this represented an increase of 51% above last year's wolf observations. Observation rates were generally highest in the 11 counties where breeding packs were known to occur. Wolf observations were reported from 26 counties. Although

some observations may represent mis-identification, recent records of road kills in west-central Wisconsin (Figure 2) indicate dispersing wolves can occur in many places.

JOB 106.5 INITIATE DISEASE ABATEMENT

Wolves captured in 1994 were tested for 5 different diseases, and wolves with hair loss had skin samples collected and examined for presence of mange mites (Table 7). None of 9 wolf serum tests were positive for canine parvovirus, and none of 6 fecal samples were positive. Other serum tests included: 0 of 10 positive for infectious canine hepatitis; 1 of 10 tested positive for canine distemper, 0 of 10 tested positive for heartworm, and 4 of 9 were positive for Lyme disease. Three skin scrapings were obtained from wolves and one was positive for mange mites. Parvovirus and mange seemed to have declined in Wisconsin wolves, but similar numbers continue to test positive for Lyme disease compared to previous years.

All wolves captured in 1994 were vaccinated with a modified live virus/multiple antigen vaccine for canine distemper virus, canine parvovirus, infectious canine hepatitis, and corona virus. Wolves suspected of having mange were injected with Ivermectin.

JOB 106.6 EVALUATE PROGRESS

A 5-year citizen review was conducted of the Wisconsin Wolf Recovery Plan during the period. A report called "Wisconsin Wolf Recovery Plan: 5 Year Review" was sent to about 1000 individuals and organizations. Also, notification of the report availability and the review process was published in most Wisconsin newspapers. Comments on the recovery review were collected in October and November. The Wisconsin Wolf Advisory Committee met in January 1995 to evaluate comments and make recommendations. A report summarizing comments and listing recommendations was sent to respondents and all those initially receiving the review report.

A total of 158 people and agencies commented on the review report, and 8 people commented on the summary report of comments. Based on this review, guidelines for protecting den and rendezvous sites will be added to the Recovery Plan, live-captured depredating wolves would be translocated to remote areas of Wisconsin national forests or Wisconsin Indian Reservations would be included with the plan, and continued emphasis would be made to address concerns for wolf-dog hybrids in proposed Captive Wildlife Legislation.

JOB 106.7 IMPLEMENT LIVESTOCK DAMAGE CONTROL ACTIVITIES

Two cases of wolf depredation occurred during the period. In March 1995 3 newborn calves were killed by wolves in northern Burnett County; wolf 185F probably was involved in at least 2 of these depredations. USDA-ADC conducted 200 trap nights at the site from March 14-April 7, but the wolves did not return to the farm during this time.

A landowner in western Price County lost 6 newborn calves in May 1995; and wolf depredation was probable. Wolf 237F and other members of the Price Creek Pack were probably involved.

Both depredations occurred when cows were left calving in wooded pastures. The producers in both cases have improved animal husbandry practices and both will receive reimbursement payments.

Twelve additional complaints were received during the period, but all turned out to be coyote or did not include verified losses.

JOB 106.8 COORDINATE WOLF MANAGEMENT WITH OTHER AGENCIES

The project biologist (Wydeven) attended the Great Lakes Interagency Wolf Group Meeting in Duluth, Minnesota on March 9, 1995. Wydeven was also involved in developing "Guidelines for Gray Wolf Management in the Northern Great Lakes Region" by Todd Fuller.

Three meetings were held with staff of the Chequamegon National Forest during summer 1994 to discuss road management in wolf habitat.

The Wisconsin DNR continued cooperating with Wisconsin Department of Transportation (WDOT) to evaluate development on Hwy. 53 in northwest Wisconsin, and recommended mitigation methods to protect wolf habitat.

Comments were made on County Forest 10 Year Plans that were developed during the study period.

JOB 106.9 CITIZEN PARTICIPATION

Presentations were given in 26 talks to 1660 people by Wydeven. Additional wolf talks were given by Ron Schultz, Sheri Buller, Pat Rominski, Dick Thiel, and other DNR personnel. A total of 158 people commented on the 5 Year Review of the Recovery Plan, and 8 people commented on the summary of the recovery review.

JOB 106.10 VOLUNTEER PROGRAM ACTIVITIES

Forty different volunteers assisted on wolf population monitoring activity. The project biologist met with volunteers of the Timber Wolf Alliance on 5 occasions. One hundred and forty-one private citizens provided reports of wolf observations in Wisconsin.

JOB 106.12 REVIEW TRANSLOCATION

The concept of translocation of depredating wolves was discussed in the 5 Year Review of the Wolf Recovery Plan. Thirty-two people commented on translocation of wolves, with 26 in favor of translocating depredating wolves and 6 were against translocating these wolves. The Wisconsin Wolf Advisory Committee determined that with recent population growth, wolf translocations were not necessary to supplement the populations. Translocations would only be used to move depredating wolves from damage sites to remote wild areas. The concept of translocating depredating wolves to national forests and Indian reservations was recommended as an addendum to the Wolf Recovery Plan.

Table 1. Capture data on wolves caught in Wisconsin and adjacent areas of Minnesota in 1994.

County	Study Area / Pack	Wolf # & Sex	Age ^a	Weight	Date
Pine (MN)	Loner	182F	A	~ 70 lbs.	08/28/94
Pine (MN)	Loner	185F	Y	~ 70 lbs.	06/23/94
Pine (MN)	Truck Trail	187F	Y	62 lbs.	07/30/94
Douglas	Crotte Creek	194M	A	80 lbs.	06/16/94
Pine (MN)	Five Corners	221F	A	70 lbs.	05/07/94
Lincoln	Averill Creek	231M	Y	81 lbs.	05/13/94
Lincoln	Averill Creek	232M	Y	70 lbs.	05/13/94
Lincoln	Averill Creek	233M	Y	80 lbs.	05/13/94
Sawyer	Torch River	234M	A	72 lbs.	05/21/94
Ashland	Log Creek	235M	P	32 lbs.	09/05/94
Ashland	Log Creek	236F	P	26 lbs.	09/05/94

^aAge: P = Pup (< 1 yr)

Y = Yearling (> 1 yr & < 2 yr)

A = Adult (≥ 2 yrs)

Table 2. Capture and telemetry data on wolves monitored from July 1, 1994 - June 30, 1995 in Wisconsin and eastern Minnesota.

Wolf # & Sex	Age ^a	Pack ^b	Date Captured	Last Date Located	No. of Locations	Winter Territory Size	Wolf No. in Territory ^c
128M	A	Bootjack Lake	07/23/91	MC ^d	236	48 mi ²	3
201M	A	Little Rice River	10/23/91	05/06/95	191	39 mi ²	2?
177F	Y	Price Creek	05/03/92	09/28/94	219	-	6
205M	A	Tamarack	08/06/92	12/12/94	290	38 mi ²	3
207F	Y	Stuntz Brook	08/07/92	04/28/95	320	-	2
223M	A	Rainbow Lake	07/09/92	MC	243	79 mi ²	4
188M	Y	Sand Creek	05/12/93	MC	246	36 mi ²	4-5
189M	A	Empire	05/21/93	07/02/94	144	-	6-7
191M	A	Truck Trail	07/29/93	MC	225	108 mi ²	8-9
225F	Y	Bootjack Lake	05/02/93	MC	95	41 mi ²	3
227M	Y	Torch River	06/25/93	09/20/94	79	-	5
229F	Y	Augustine Lake	07/09/93	MC	123	32 mi ²	3
230M	P	Empire	09/05/93	MC	209	71 mi ²	6-7
500M	A	Crotte Creek	05/14/93	MC	239	40 mi ²	3
182F	A	Loner	08/28/94	03/17/95	33	-	1
185F	Y	Disperser	06/23/94	MC	106	-	2
187F	Y	Truck Trail	07/30/94	MC	92	102 mi ²	8-9
194M	A	Crotte Creek	06/16/94	MC	111	49 mi ²	3
221F	A	Five Corners	05/07/94	MC	122	72 mi ²	4-5
231M	Y	Averill Creek	05/13/94	MC	58	-	3
232M	Y	Averill Creek	05/13/94	08/23/94	19	-	3
233M	Y	Averill Creek	05/13/94	11/19/94	13	-	3
234M	A	Torch River	05/21/94	MC	68	89 mi ²	5
235M	P	Log Creek	09/05/94	12/19/94	19	18 mi ²	3
236F	P	Log Creek	09/05/94	12/19/94	19	18 mi ²	3
184M	A	Crex Meadows	05/04/95	MC	18	-	5
186M	A	Empire	06/08/95	MC	8	-	6-7
195F	A	Crex Meadows	05/11/95	MC	15	-	5
196M	Y	Five Corners	05/09/95	MC	17	-	4-5
199M	A	Stuntz Brook	06/11/95	MC	10	-	2
237F	Y	Price Creek	05/04/95	MC	16	-	6
238M	Y	Wildcat Mound	05/21/95	MC	12	-	3
251M	A	Thornapple River	05/23/95	MC	11	-	5
252M	A	O'Brien Lake	06/11/95	MC	6	-	5
253F	A	O'Brien Lake	06/12/95	MC	5	-	5

^aAge at the time of capture

^bPack during winter of the study period

^cMidwinter wolf number

^dMC = Monitoring Continuing

Table 3. Minimum estimation of Wisconsin's timber wolf population in winter 1994-1995.

<u>Pack/Area/Wolf</u>	<u>County(ies)</u>	<u>No. of Wolves</u>	<u>Evidence^a</u>
Crex Meadows	Burnett	5*	T
Truck Trail	Douglas	8-9*	R
Crotte Creek	Douglas	3*	R & T
Empire	Douglas	6-7*	R & T
Moose Lake	Douglas	4*	T
Stuntz Brook (207F)	Washburn	2*	R
185F and other	Burnett, Pine	2	R
182F-loner	Douglas, Bayfield	1	R
Smoky Hill	Bayfield	2*	T
Rainbow Lake	Bayfield	4*	R & T
Hellhole Creek	Bayfield/Ashland	2*	T
Namekagon Lake-loner	Bayfield	1	T
Clam Lake-loner	Ashland	1	T
Torch River	Ashland	3*	R & T
Log Creek	Ashland/Sawyer	3*	T
N. Bayfield-loner	Bayfield	1	T
Thornapple River	Sawyer	5*	T
Price Creek	Price	6*	T
Augustine Lake	Ashland/Iron	2*	R & T
O'Brien Lake	Iron	5*	T & O
Bootjack Lake	Oneida/Price	3*	R & T
Little Rice River	Oneida	2?	R & T
Ranger Island	Lincoln	1	T
Averill Creek	Lincoln	3*	R & T
Harrison Hills-loner	Lincoln	1	T & O
N. Taylor Co.-loner	Taylor	1	T
Morgan Lake-loner	Florence	1	T
Wildcat Mound	Jackson	3*	T & O
Bear Bluff	Jackson	1-2	T
Clark Co.-loner	Clark	1	T & O
TOTAL		83-86 wolves	

* Pack with breeding activity

^a Evidence:

R = radio-telemetry surveys

T = track & sign surveys

O = observations by public

\bar{x} group size = 3.65 (20 groups)

\bar{x} pack size of breeding pack = 3.83 (18 packs)

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Table 4. Mortality during July 1, 1994 - June 31, 1995 of radio-collared wolves

Wolf # & Sex	Age¹	Date Captured	Date Died	Cause of Death
189M	A	21 May 93	2 Jul 94	Vehicle Collision
227M	Y	25 Jun 93	20 Sep 94	Bite by Other Wolf
205M	A	6 Aug 92	12 Dec 94	Gunshot Wound
233M	Y	13 May 94	19 Nov 94	Vehicle Collision
235M	P	5 Sep 94	6 Dec 94	Unknown Cause
201M	A	23 Oct 91	6 May 95	Gunshot wound

¹Age of wolf at time of capture

Table 5. Mortality summary of radio-collared wolves from Wisconsin and adjacent areas of Minnesota, October 1979 - June 1995.

Cause of Death	Number	% Known Mortality
Shot^a	14	38%
Trapped	3	8%
Vehicle Collision	4	11%
Unknown-Human Causes	3	8%
Total Human Causes	24	65%
Killed by other Wolves	4	11%
Disease	6	16%
Unknown Natural Causes	3	8%
Total Natural Causes	13	35%
Total Known Mortality	37	100%
Unknown Mortality	5	
Total Mortality	42	

^a13 wolves shot by firearm; 1 wolf shot by bow and arrow

Table 6. Wolf observations reported by natural resource agency personnel and private citizens in Wisconsin in July 1994 - June 1995.

County	Sightings	Wolves Seen	Track or Sign Observations	Total Observations
Ashland ¹	7	19-20	4	11
Barron	3	3	-	3
Bayfield ¹	10	18	6	16
Burnett ¹	3	6	4	7
Chippewa	1	1	-	1
Clark	5	5	5	10
Columbia	2	3	-	2
Douglas ¹	6	13	1	7
Florence	2	2	-	2
Forest	2	2	1	3
Iron ¹	9	22	6	15
Jackson ¹	1	1	3	4
Langlade	3	3	3	6
Lincoln ¹	15	17	10	25
Marathon	7	7	-	7
Marinette	-	-	1	1
Marquette	1	1	-	1
Monroe	1	2	-	1
Oneida ¹	10	12	3	13
Polk	1	1	-	1
Price ¹	16	22	2	18
Rusk	1	1	-	1
Sauk	2	3	-	2
Sawyer ¹	20	43-44	5	25
Taylor	1	1	2	3
Washburn ¹	4	4	1	5
Totals	133	212-214	57	190

¹County with known wolf pack during portions of this study period

Table 7. Disease tests of wolves in Wisconsin and adjacent areas of Minnesota in 1994.

Wolf # & Sex	Age ^a	Date	Serum CPV	Fecal CPV	ICH	CDV	HW	Lyme	Mange
182F	A	08/28/94	1:80	1:32	1:20	<1:5	Neg.	Pos.	-
185F	Y	06/23/94	-	-	-	-	-	-	-
187F	Y	07/30/94	1:160	1:128	<1:5	<1:5	Neg.	Neg.	-
194M	A	06/16/94	1:320	1:32	<1:5	<1:5	Neg.	-	-
221F	A	05/07/94	-	-	<1:8	<1:10	Neg.	Neg.	No
231M	Y	05/13/94	1:80	1:32	1:40	1:40	Neg.	Pos.	-
232M	Y	05/13/94	1:80	-	<1:5	<1:5	Neg.	Neg.	-
233M	Y	05/13/94	1:80	1:256	1:40	1:5	Neg.	Pos.	-
234M	A	05/21/94	1:80	1:32	1:5	1:10	Neg.	Neg.	-
235M	P	09/05/94	1:80	-	1:5	1:5	Neg.	Pos.	Yes
236F	P	09/05/94	1:320	-	1:5	<1:5	Neg.	Neg.	No

^aAge: P = Pup (< 1 yr)
 Y = Yearling (> 1 yr & < 2 yr)
 A = Adult (≥ 2 yrs)

Disease Tests:

ICH = Infectious Canine Hepatitis: <1:20 Negative
 1:20 - 1:40 Suspicious
 >1:40 Positive

CPV = Canine Parvovirus Serum: ≤1:40 Negative
 80-320 Suspicious
 >320 Positive

= Canine Parvovirus Fecal: >256 Positive

CDV = Canine Distemper Virus ≥1:40 Positive

HW = Heartworm: Neg. = Negative; Pos. = Positive

Lyme = Lyme Disease: Neg. = Negative; Pos. = Positive

Mange = Scarpotic mange mites found on skin sample

(Health Testing conducted by Kerry A. Beheler Amass, DNR Wildlife Health Program)

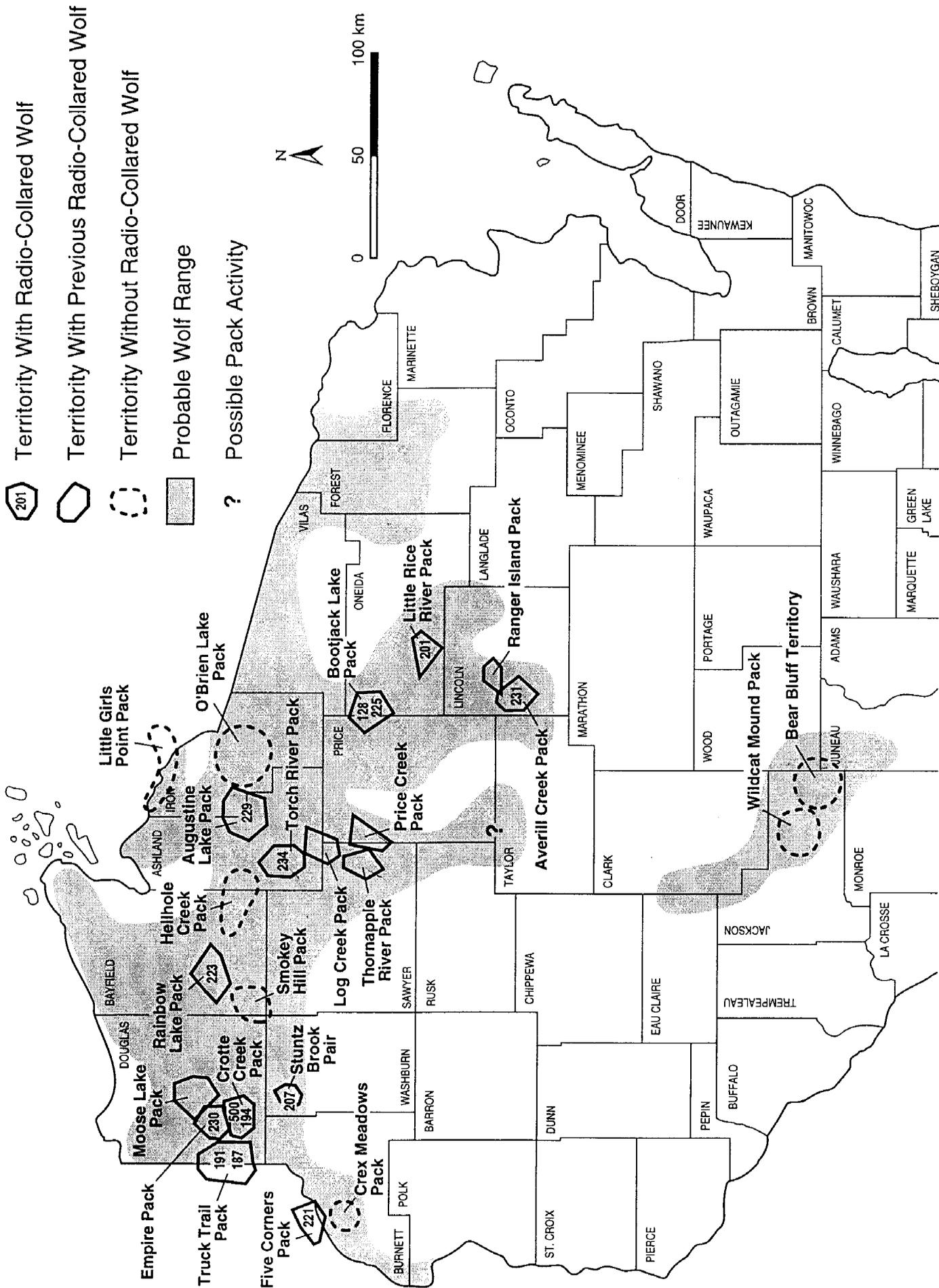


Figure 1: Gray Wolf Distribution in Central and Northern Wisconsin: Winter 1994-1995

