

WISCONSIN ENDANGERED RESOURCES REPORT # 102

Status of the Timber Wolf in Wisconsin
Performance Report.

1 July 1993 - 30 June 1994

By: Adrian Wydeven

SUMMARY

This report covers activities conducted from July 1, 1993 through June 30, 1994.

Nine wolves from 7 packs were captured and radio-collared in 1993. Twenty-four radio-collared wolves were monitored during the period. The winter territory of 7 Wisconsin wolves averaged 61 square miles. The estimated wolf population of Wisconsin was about 50-57 wolves in 14 packs. Two radio-collared wolves died during the period and 1 wolf lost its collar. Wolf observations were received from 18 northern Wisconsin territories and 3 central Wisconsin territories. Wolf serum was tested for 5 canine diseases: 3 of 6 were positive for Lyme disease, and one each was positive for canine parvovirus and canine distemper serum. Three of 4 wolf skin samples tested positive for mange and 7 wolf packs were thought to contain mange infected wolves.

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES

BOX 7921

MADISON, WISCONSIN 53707

RECOVERY OF THE TIMBER WOLF

PERFORMANCE REPORT

JULY 1, 1993 TO JUNE 30, 1994

Prepared by Adrian P. Wydeven, Mammalian Ecologist

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|------|--------|---|
| 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 (inactive) |
| | 106.12 | Review translocation |

Background: The Eastern timber wolf was listed as a Federal Endangered Species in 1967, and the 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 the wolf population in the state since 1979. The Wisconsin Timber Wolf Recovery was approved in 1989, and set a minimum population goal of 80 wolves for the state. This report covers activities conducted from July 1, 1993 through June 30, 1994.

Job 106.1 DIRECT EDUCATIONAL ACTIVITIES

The project biologist (Wydeven) and technician (Ronald Schultz) provided training for about 85 people at the Timber Wolf Alliance (TWA) Speakers Bureau and volunteers on August 15, 1993 and January 22, 1994. The project biologist attended 4 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 and International Wolf Magazine. A paper on GIS analysis for wolf habitat was prepared with other authors for Conservation Biology and a report on mange in Great Lakes wolves was prepared for submission to Journal of Wildlife Diseases.

JOB 106.2 PROVIDE ADDED LEGAL PROTECTION FOR WOLVES

About 1/3 of northern Wisconsin has been closed to coyote hunting during the deer-gun season since 1987. Wolf project personnel monitored wolves during the hunting season. Although no collared wolves were known to have died during the period, wolf 147F lost its collar at about the time of the gun-deer season, and may have been killed. A noncollared wolf was shot about one week before deer season in Lincoln County.

A jury trial was held on October 4-5, 1993 in Menomonie, Wisconsin on a wolf that had been shot in November 1992 near Colfax. The project biologist served as an expert witness for the state case. Unfortunately the suspect was acquitted by the jury.

The Wisconsin Wolf Advisory Committee recommended expansion of the coyote closure zone because of the above case, plus recent movements of wolves south of the existing closed area. The coyote closed area expansion was passed by persons attending spring conservation hearings, and was supported by the Wisconsin Conservation Congress. The expanded coyote closed zone will be in effect during the fall 1995 hunting season.

JOB 106.3 COOPERATIVELY MANAGE HABITAT WITH LANDOWNERS

Comments were made on Forest Service opportunity area analysis including 3 on the Chequamegon National Forest and 1 on the Nicolet National Forest. The project biologist and technician worked closely with the Forest Service in protecting den and rendezvous sites.

A cooperative research project with DOT (Department of Transportation) on impact of highways on wolf activity continued during the period. Bruce Kohn directed this study on the impact of Highway 53 development on movements, mortality and behavior of wolves in northwestern Wisconsin. The research will help reveal important travel corridors of wolves, and perhaps determine mitigation methods for protecting corridor habitat.

JOB 106.4 MONITOR STATEWIDE WOLF POPULATION

Nine wolves were captured and radio-collared in 1993 in Wisconsin and Pine County, Minnesota (Table 1). The collared wolves represented members of 2 Minnesota packs and 6 Wisconsin packs. A total of 2,213 trap nights were used to trap 9 wolves (mean 247/wolf).

Two wolves captured in 1993 eventually dispersed from their natal pack territories (188M and 229F), and a third wolf appeared ready to disperse (227F). Seventeen wolf territories occurred in Wisconsin during the period, but 3 previously active packs were occupied only by single dominant wolves (Augustine Lake, Little Rice River, and Ranger Island) (Figure 1). Of the 14 active Wisconsin packs, 8 contained collared wolves. Three packs from Michigan and Minnesota also overlapped into Wisconsin (Five-Corners Pack, Little Girls Point Pack, and Chaney Lake Pack), but because most of these territories occurred in the adjacent state, they were not considered part of the Wisconsin population.

Twenty-four collared wolves were monitored during the study period (Table 2). The average winter territory of 14 wolves was 70 mi² using minimum area polygons. The mean territory size of 7 Wisconsin adult wolves was 61 mi².

Radio-collared wolves monitored during the study period included 10 adult males, 5 adult females, 3 yearling females, 5 yearling males and 1 pup male. Mean weight of 3 adult males caught in 1993 was 80 pound (36.3 kg) and 2 yearling females was 60 pounds (27.2 kg).

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

DOUGLAS COUNTY:

One collared wolf was monitored in the Truck Trail Pack (adult male 191M). He occupied a winter territory of 102 mi² along the Wisconsin-Minnesota border. This wolf was thought to be by himself from winter to summer 1993, but by November it was apparent that at least 5 other wolves occurred in the pack.

The origin of these other wolves was not clear, but perhaps they had used remote portions of the territory from where they were previously not detected. In January a female wolf pup was killed in this pack, apparently by another wolf. The adult male of the adjacent Empire Pack may have been responsible. By March at least 4 wolves remained in this territory.

Apparently pups had been produced in this pack in 1993, although no pups were found during summer howling surveys. In spring 1994 denning activity seemed to have occurred in this pack.

Two collared wolves were monitored in the Empire Pack in western Douglas County (adult male 189M and pup male 230M). The wolves occupied a territory of about 58 mi² centered on the Empire Swamp. A third uncollared wolf (apparently the alpha female) occupied this territory with these 2 males. Although at least 2 pups were present in summer 1993, wolf 230M was apparently the only pup to survive to winter. Wolf 230M was suffering a severe case of mange when captured in September 1993. He was treated with Ivermectin and a flea collar was taped to the inside of his radio-collar. These measures may have enhanced his survival.

In spring 1994 the Empire Pack again showed signs of denning activity.

Wolf 500M (adult male, probably alpha) collared wolf in the Crotte Creek Pack in 1993 and maintained a winter territory of about 35 mi². He occupied the area in southwest Douglas County with 5 other wolves. Pups had been detected during summer howling surveys, and based on winter counts, survival had been good. Denning activity was again detected in spring 1994.

On June 16, 1994 a second adult male was caught in the Crotte Creek Pack (194M). His status in this pack is not clear at this time.

No collared wolves occurred in the Moose Lake Pack near Solon Springs. Sign of two wolves were found in this territory in winter and spring 1994. Trapping was conducted in the territory in 1993 and 1994, but was unsuccessful. Wolf 149F who dispersed from this territory in summer 1991 was the last collared wolf from the Moose Lake area.

PINE (MN):

Two packs were monitored in Pine County, Minnesota during the study period. The Five Corners Pack centered in St. Croix State Park overlaps across the St. Croix River into northwest Burnett County, Wisconsin.

Four collared wolves were monitored in this pack during portions of the study period (145F, 188M, 185F, 221F). Wolf 145F apparently was the alpha female of this pack since she joined it in August 1992. She apparently raised pups in spring 1993, but it appeared she was illegally killed about July 30, 1993 when her freshly cut collar was found laying in a stream next to Highway 48.

Wolf 188M, a yearling male caught in 1993, moved about extensively during winter time. His winter home range covered 117 mi², not including a 11 mile trip to Siren, Wisconsin. His home range probably extended well outside the normal boundaries of the Five-Corners Territory. Wolf 145F as alpha female occupied only 76 mi² in winter 1992-1993.

By spring 188M seemed to have established a new home range northwest of the Five-Corner Territory. He may have found a mate and perhaps formed a new pack.

Sometime after the death of 145F, wolf 221F of the Rainbow Lake Pack (65 miles to the northeast) joined the Five-Corners Pack, and became the new breeding female. Wolf 221F was ear-tagged as a pup on August 4, 1992, but was too small to radio-collar. She was caught as an lactating adult female in the Five Corners Pack on May 7, 1994.

Wolf 185F (yearling female) was caught on a farm north of the Five-Corners Pack Territory on June 23, 1994. It is not clear yet whether she is a member of the Five Corners Pack, a mate to wolf 188M, or a lone dispersing wolf.

Seven wolves were present in the Five Corners pack during winter (not including 188M). Evidently pups were produced in 1993 and again this spring.

The Five Corners Pack illustrates the interrelationship of packs such as this along the Minnesota border to various Wisconsin packs. This pack was initially discovered in fall 1991 when 149F (from Moose Lake Pack) joined 4 other wolves in St. Croix State Park. The last 3 breeding females in this pack were 149F from the Moose Lake Pack, Douglas County; 145F from the Meadman Meadow Pack, Polk County; and 221F from the Rainbow Lake Pack, Bayfield County. In turn, the Five Corners Pack was the original home of wolf 177F that eventually formed the Price Creek Pack in Price County.

Three collared wolves were monitored in the Tamarack River Pack (192M, 205M, 207F). Wolf 192M (adult male) was caught in summer 1993, but died within 1 day of capture from unknown causes. Wolf 205M and 207F were monitored in this pack since 1992. Wolf 205M

apparently was the alpha male of this pack. He occupied a winter territory of 114 mi² west of Kingsdale, Minnesota.

Wolf 207F was a subordinate female in this pack and during winter appeared to be preparing to disperse. Although her home range was similar in size (110 mi²) to 205M, 207F's area extended much further northward into the Nemadji State Forest. By spring 207F occupied a home range north of the Tamarack River Territory and west of the Truck Trail Territory.

During winter 1993-1994, 7 wolves occupied the Tamarack River Territory. Pup production had apparently occurred in 1993, and denning activity was again evident in Spring 1994.

BURNETT COUNTY:

A group of three wolves were detected in eastern portions of the Crex Meadow Wildlife Area during winter 1993-1994. No members of the pack were radio-collared, therefore the extent of their home range could not be determined. Initial live-trapping was attempted in spring 1994, but no wolves were caught. Breeding activity appeared to have occurred in winter, but production of pups has yet to be determined.

The Five Corner Pack along the Minnesota border seemed to spend little time in Burnett County. Wolf 188M did travel to Siren in southcentral Burnett County on January 5, 1994, but it apparently was a short visit, and within 5 days was back 18 miles northwest in the Five Corner Pack Territory.

BAYFIELD COUNTY:

Wolf 223M, the alpha male of the Rainbow Lake Pack was monitored throughout the study period. His territory in winter 1993-1994 was the largest of adult wolves monitored in Wisconsin (108 mi²). The pack covered a much larger area than used in previous years, extending from the West Eight Mile Lake area near Highway A, 16 miles east to the western edge of the Bibon Swamp. At least 8 wolves were present in the pack in late fall, but only 7 were observed in January and only 5 were seen in March. These declines in wolf numbers may have been due to dispersal, reduced cohesiveness of the pack, or mortality. Wolf 221F, ear-tagged as a pup in August 1992 probably, dispersed from this pack sometime prior to February 1994. She moved 65 miles southwest to the Five-Corners Pack.

Of the 8 wolves present in late fall, at least 4 appeared to be pups. Therefore pup survival was fairly high in this pack. Denning activity again seemed to occur in Spring 1994.

A breeding pair of wolves was apparently present in the Smoky Hill area of southwest Bayfield County during the last two winters. Trapping attempts in this pack in summer 1993 was unsuccessful. Sign by late winter 1994 indicated that a wolf pair showing breeding activity was still present. Attempts will be made in summer 1994 to determine pup production and live-capture a wolf.

WASHBURN COUNTY:

No pack activity was found in Washburn County during the study period. Five wolf observations were reported from the county during the period. Wolves of the Smoky Hill Pack may occasionally travel through northeast Washburn County.

SAWYER-ASHLAND COUNTIES:

Wolf 147F (alpha female) was monitored in the Thornapple River Pack until about November 17, 1993, when she apparently lost her collar. Because the collar was not fitted with a mortality mode, the loss was not detected until December 19, 1993. It was suspected that 147F may have died before losing her collar, because it seemed unusual that a collar would fall off after being on a wolf for 2 1/2 years.

Wolf 147F had occupied a summer home range of 24 mi² in eastern Sawyer County. She had produced pups during spring and at least 3 pups were alive in mid-summer. During winter 3-5 wolves occurred in the Thornapple River Pack. Breeding activity occurred in winter and denning apparently occurred in spring.

Adult 234M was caught in the Thornapple River Pack Territory on May 21, 1994, but moved 16 miles north to the Torch River Territory shortly after being caught. This wolf was probably not a member of the Thornapple River Pack, and only happened to get caught while trespassing through this territory.

Yearling female 229F was monitored in the Log Creek Pack during much of the winter, before dispersing to the northeast. Wolf 229F occupied a winter territory of 53 mi² in the Log Creek area. The wolf made 2 extraterritorial sorties in January, and after February 21 made a major move out of the Log Creek Territory. After mid-April it appeared that 229F may have joined a lone wolf in the Augustine Lake area.

In late fall 5 wolves apparently occurred in the Log Creek Pack, including 2 or 3 pups. During January a female pup was killed in a vehicle collision. By late winter with the dispersal of 229F, 3 wolves were left in the pack. Although breeding activity was apparent during winter, denning activity was not detected in spring.

Wolf 227M (yearling male) spent most of the winter in the Torch River Pack Territory (formerly McCarthy Lake Pack). He occupied a territory of 58 mi² during winter southeast of Clam Lake. Two other wolves, apparently the breeding pair of the pack, also occupied the territory. Although pups were detected in the pack in summer 1993, none probably survived to late winter. Breeding apparently occurred again in February 1994.

After late April, wolf 227M spent most of his time north of the Torch River Territory. It appeared that he was ready to disperse from the Torch River area.

Wolf 234M, the adult male caught in the Thornapple River Pack to the south moved to the Torch River pack soon after his capture. He spent most of the remainder of the May and June in the Torch River Pack Territory. It appears 234M may be the alpha male of this pack.

Sign of 2 non-collared wolves were found northeast of Clam Lake and north of Highway 77 in the Brush Creek Area. This area was previously thought to be the northern portion of the McCarthy Lake Pack, but it appeared that the Torch Creek wolves were a distinct breeding group. Howl surveys will be conducted in summer to determine if pups were produced.

One noncollared wolf was detected in the Augustine Lake area of eastern Ashland County and western Iron County during winter. Two wolves had been detected in the area last year. After mid-April wolf 229F from the Log Creek pack apparently joined this lone wolf.

IRON-GOGEBIC (MI) COUNTIES:

Michigan biologists detected only 1 wolf in the Chaney Lake Territory in winter, and the wolf seemed to spend most of its time in Michigan. As many as 4 wolves occurred in this territory 2 years ago.

Four wolves were detected by Michigan biologists in the Little Girl Point Pack along the Lake Superior shoreline. Most of the pack's territory occurred in Michigan, but the wolves also crossed over into northern Iron County, perhaps traveling along frozen Lake Superior.

PRICE-ONEIDA COUNTIES:

Wolf 177F was monitored in the Price Creek Pack of western Price County after fall 1993. She originated from the Five Corners Pack in Pine County, Minnesota and had moved into western Price County and eastern Sawyer County in June 1993. The winter territory occupied by wolf 177F covered 53 mi².

Wolf 177F found a mate by late November, and breeding occurred during winter. By late spring 1994 it was apparent that at least 2 pups were present in the Price Creek Pack.

Adult male 128M and yearling female 225F were monitored in the Bootjack Lake Pack during the period. The pack occupied an area of 36 mi² in eastern Price and western Oneida County. A third uncollared wolf apparently also occurred in the pack during winter. No pups were apparently produced in this pack last summer, and it seemed that no breeding occurred in winter.

Wolf 201M roamed the Little Rice River Pack area of southwest Oneida County during most of the period. He occupied a winter territory of 34 mi² southeast of Willow Flowage. Although wolf 201M was accompanied by another wolf in summer 1993, no pups were apparently produced. By late fall 201M apparently lost his mate, and he remained in the territory by himself during winter.

During spring 201M expanded his home range eastward, and spent most of the time east of Highway 51 near Harshaw.

LINCOLN-TAYLOR COUNTIES:

No collared wolves occurred in the Averill Creek Pack of western Lincoln County during winter. The pack apparently spent a lot of time in the western and southern portions of its

territory in summer and fall. The alpha female of this pack was apparently shot in mid-November 1993. Despite the loss, 6-7 wolves were still present in the pack in late winter. This high number suggested high pup survival. Breeding activity again occurred in winter 1994.

On May 13, 1994 three yearling males were caught in the Averill Creek Pack (231M, 232M, and 233M). Wolves 232M and 233M remained mainly in western Lincoln County and eastern Taylor County. Wolf 231M had started to disperse westward into Taylor County and was located in the Medford District of the Chequamegon National Forest by the end of the period.

Although 3 wolves occurred in the Ranger Island Pack in winter 1992-1993, only 1 wolf remained by winter 1993-1994. The lone wolf, apparently a male, continued to mark the Ranger Island Area. Attempts were made in spring 1994 to capture and collar the remaining wolf in this territory, but was unsuccessful.

NORTHEAST WISCONSIN:

Although several wolves were reported in northeast Wisconsin by the general public, no wolf sign was found along 501 miles of track surveys in Vilas, Forest, Florence, and Oconto Counties.

A pack of 3 wolves occurred south of Watersmeet, Michigan and north of Lac Vieux Desert, Wisconsin. These wolves may have occasionally traveled south into Wisconsin. With the increase of wolf activity occurring in the Michigan Upper Peninsula, wolves should be moving into northeast Wisconsin with the next year or two.

WINTER WOLF POPULATION:

The minimum population of wolves in Wisconsin during winter 1993-1994 was 50-57 wolves (Table 3). Fourteen packs consisting of 2 to 7 wolves ($x = 3.5$) occurred within Wisconsin. Wolf territories along the border that occurred mostly in adjacent states were not included in the Wisconsin wolf count. The wolf population in 1992-1993 was estimated at 40 wolves, therefore the population in 1994 represented an increase of at least 25%. Five lone wolves were present in the Wisconsin wolf population in late winter, but loners were probably underestimated.

WOLF MORTALITY:

Only 2 radio-collared wolves were known to have died during the study period (Table 4). Wolf 145F's body was not found, but her freshly cut collar was found only 2 days after she had been observed alive; she had probably been killed by humans shortly before the collar was found. Wolf 192M died from unknown causes shortly after being captured. The low rate of death of collared wolves (2 of 24 collared wolves) suggested that survival was relatively high during the study period. This high survival probably was a major factor in the population increase observed during the study period.

The death of 36 radio-collared wolves from Wisconsin and Minnesota since 1979 are listed in Table 5. Human caused mortality had been the most important cause of death, but seemed to have declined in recent years.

Carcasses of 4 noncollared dead wolves were also found during the study period, but 1 of these was apparently a domestic animal and it may have been a wolf-dog hybrid. Cause of deaths included 2 shootings, 1 vehicle collision, and 1 killed by another wolf. The breeding female of the Averill Creek Pack was shot in November 1993. A female pup was killed by a vehicle collision in the Log Creek Pack on January 22, 1994. A female wolf pup was killed in the Truck Trail Pack by another wolf on January 24, 1994.

A female wolf-like animal was found shot dead on February 14, 1994 near Clam Lake in Sawyer County. The wolf had dog food in its lower intestines, thus it probably was recently in captivity. It appeared that the animal may have been a wolf-dog hybrid; additional analysis is planned.

STATEWIDE WOLF DISTRIBUTION:

Wolf observations were obtained from natural resource agency personnel and private citizens from July 1, 1993 through June 30, 1994. All observations were classified as "Probable", "Possible", or "Not Likely". A total of 126 probable and possible wolf observations were received (Table 6).

Wolf observations were received from 18 northern Wisconsin counties and 3 central Wisconsin counties. Observations in the central counties is somewhat of a curiosity and may represent an expansion of wolf range in Wisconsin. Most wolf observations occurred within probable wolf range shown on Figure 1.

The highest wolf observation rates occurred in the 9 counties known to contain wolf packs; all counties with wolf packs had 4 or more wolf reports, and only 1 had less than 8 reports. Counties without wolf packs had less than 5 wolf reports and most had only 1 or 2 observations; wolf reports in these counties were probably dispersing wolves, misidentifications, or possibly free-roaming wolf-dog hybrids. Wolf observation reports seemed to provide a good index to wolf abundance and distribution in Wisconsin.

JOB 106.5 INITIATE DISEASE ABATEMENT

Wolves captured in 1993 were tested for 4 different diseases, and wolves with hair loss had skin samples collected and examined for presence of mange mites (Table 7). One of 6 wolves tested positive for canine parvovirus for serum samples, 2 of 4 wolves tested positive for canine parvovirus from fecal samples, 0 of 7 wolves were positive for heartworm, 3 of 6 wolves were positive for Lyme disease, 0 of 6 wolves were positive for infectious canine hepatitis, and 3 of 4 wolf skin samples were positive for mange mites.

Mange was first identified in Wisconsin wolves in 1991, and appeared to affect several wolves. Mange was verified or suspected in 6 Wisconsin wolf packs (Truck Trail Pack, Empire Pack, Smoky Hill Pack, Rainbow Lake Pack, Log Creek Pack, and Bootjack Lake Pack). Also wolf

201M of the former Little Rice River Pack and the lone wolf in the Ranger Island Area were thought to have mange. The 2 wolf pups that had died in January 1994 both had fairly severe mange.

All wolves captured in 1993 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.

Mange continued to affect many wolves in Wisconsin in 1993, although no deaths occurred that could be directly related to mange. The low pup numbers and lack of production in some packs may have been due to mange infection. Two pups killed in January 1994 may have been weakened by mange and therefore less able to escape predation or avoid a vehicle collision. Overall the Wisconsin population increased by 25% from last year, therefore mange was apparently not holding the population down.

JOB 106.6 EVALUATE PROGRESS

The Wisconsin Wolf Advisory Committee met on July 28, 1993, January 13, 1994, March 15, 1994, and June 14, 1994. The committee examined the progress of wolf recovery efforts and recommended wolf management policies. Major efforts were made during the period to plan citizen participation for review of the first five years of the recovery plan during fall 1994.

JOB 106.7 IMPLEMENT LIVESTOCK DAMAGE CONTROL ACTIVITIES

Four instances of depredation by wolves on pets or livestock occurred during the quarter. One of the wolves in the Little Rice River Pack of Oneida County apparently killed a few chickens in early summer 1993. In August 1993 a wolf was reported to attack a calf in Taylor County and 25 turkeys were killed by a wolf near Spooner in Washburn County. Two hunting dogs were killed by a possible wolf in Forest County on February 18, 1994. Reimbursements for loss were provided in 3 of these instances; the landowner with chicken losses did not seek reimbursement.

Trapping was conducted at the depredation site in Spooner from August 21-26, 1993, but no wolves were caught. The same farm had lost about 100 turkeys to a wolf in 1991.

Complaints were received on 3 wolf-dog hybrids roaming in the Cable-Drummond area in March 1994. The wolf-dog hybrids were live-trapped by the DNR and placed in captivity.

JOB 106.8 COORDINATE WOLF MANAGEMENT ACTIVITIES WITH FEDERAL

Adrian Wydeven attended the Great Lakes Interagency Wolf Group Meeting in Ely, Minnesota on January 26-27, 1994. Wydeven also attended a meeting for developing a wolf cumulative effects model in St. Paul on May 23-24, 1994; the meeting was a cooperative effort to develop a model for predicting wolf habitat and guiding management in cooperation with U.S. Fish and Wildlife Service, U.S. Biological Survey, National Park Service, National Forests, Great

Lakes Indian Fish and Wildlife Commission, Minnesota DNR, Michigan DNR, and Wisconsin DNR.

The Wisconsin DNR continued cooperating with Wisconsin Department of Transportation (WDOT) on the evaluation of Highway development on wolves in northwest Wisconsin. A meeting was held on December 15 with WDNR, WDOT, Federal Highway Commission, EPA, and U.S. Fish and Wildlife Service to evaluate and plan further research.

A meeting was held with the Douglas County Trails Committee on September 22 to discuss trail routing through wolf habitat.

Cooperative research was done with the University of Minnesota-Duluth, U.S. Forest Service and WDNR on a GIS analysis of wolf habitat.

A meeting was held on December 15, 1993 with Minnesota DNR, U.S. Fish and Wildlife Service, U.S. Dep. of Agr.-Animal Damage Control, and Wisconsin DNR to resolve of concerns over wolf depredation control along the Wisconsin-Minnesota border.

JOB 106.9 CITIZEN PARTICIPATION

Presentations were given on 30 talks to 1,985 people by Wydeven. Additional wolf talks were also given by Ron Schultz, Pat Rominski, Gary Dunsmoor and other DNR personnel. The project biologist was on a radio talk program and Cable TV educational program.

The Wisconsin Wolf Advisory Committee planned for citizen participation in the 5-year review of the wolf recovery plan. Mass mailings and news releases will be used in fall 1994 to solicit public input on the review of the recovery plan.

JOB 106.10 VOLUNTEER PROGRAM ACTIVITIES

Twelve different volunteers assisted on wolf population monitoring activity. The project biologist met with volunteers of the Timber Wolf Alliance on 6 occasions and with the Timber Wolf Information Network once. Eighty-eight private citizens provided information on wolf observations in Wisconsin.

JOB 106.12 REVIEW TRANSLOCATION

Translocation of wolves to supplement the wolf population was discussed by the Wisconsin Wolf Advisory Committee.

At present it does not appear that translocations will be necessary for the Wisconsin population to achieve a goal of 80 wolves by 1998. Translocations are anticipated to be needed mainly for relocating depredating wolves. Public input will be solicited on translocations during public review of the recovery plan in fall 1994.

Table 1. Capture data on wolves caught in Wisconsin and adjacent areas of Minnesota in 1993.

| Study Area County / Pack | | Wolf # & Sex | Age ¹ | Weight | Date |
|-----------------------------|--------------------------|-----------------|------------------|----------|----------|
| Pine (MN) | Five Corners | 188M | Y | ≈70 lbs. | 05/12/93 |
| Douglas | Empire | 189M | A | 81 lbs. | 05/21/93 |
| Pine (MN) | Truck Trail | 191M | A | 82 lbs. | 07/29/93 |
| Pine (MN) | Tamarack River | 192M | A | 78 lbs. | 08/18/93 |
| Oneida | Bootjack Lake | 225F | Y | 52 lbs. | 05/25/93 |
| Ashland | Torch River ² | 227M | Y | ≈80 lbs. | 06/25/93 |
| Sawyer | Log Creek | 229F | Y | 68 lbs. | 07/09/93 |
| Douglas | Empire | 230M | P | 30 lbs. | 09/05/93 |
| Douglas | Crotte Creek | 500M | A | ≈80 lbs. | 05/14/93 |

¹Age: P = Pup (< 1 yr)

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

A = Adult (≥ 2 yrs)

²Torch River was formerly part of McCarthy Lake Pack

Table 2. Capture and telemetry data on wolves monitored from July 1, 1993 - June 30, 1994 in Wisconsin and eastern Minnesota.

| Wolf # & Sex | Age ¹ | Pack ² | Date Captured | Last Date Located | No. of Locations | Winter Territory Size | Wolf No. in Territory ³ |
|-----------------|------------------|----------------------------|------------------|----------------------|---------------------|-----------------------------|---------------------------------------|
| 128M | A | Bootjack Lake | 07/23/91 | MC ⁴ | 193 | 36 mi ² | 3 |
| 145F | A | Five Corners | 05/09/91 | 07/30/93 | 212 | - | 7 |
| 147F | A | Thornapple River | 05/17/91 | 11/17/93 | 144 | - | 3-5 |
| 201M | A | Loner | 10/23/91 | MC | 154 | 34 mi ² | 1 |
| 177F | Y | Price Creek | 05/17/92 | MC | 203 | 53 mi ² | 2 |
| 205M | A | Tamarack River | 08/06/92 | MC | 241 | 114 mi ² | 7 |
| 207F | Y | Tamarack River | 08/07/92 | MC | 234 | 110 mi ² | 7 |
| 223M | A | Rainbow Lake | 07/09/92 | MC | 172 | 108 mi ² | 5-7 |
| 188M | Y | Five Corners? ⁵ | 05/12/93 | MC | 142 | 117 mi ² | 7 |
| 189M | A | Empire | 05/21/93 | MC | 144 | 58 mi ² | 3 |
| 191M | A | Truck Trail | 07/29/93 | MC | 121 | 102 mi ² | 4 |
| 192M | A | Tamarack River | 08/18/93 | 08/19/93 | 1 | - | 7 |
| 225F | Y | Bootjack Lake | 05/02/93 | MC | 53 | 36 mi ² | 3 |
| 227M | Y | Torch River | 06/25/93 | MC | 63 | 58 mi ² | 3 |
| 229F | Y | Log Creek ⁵ | 07/09/93 | MC | 61 | 53 mi ² | 3 |
| 230M | P | Empire | 09/05/93 | MC | 102 | 59 mi ² | 3 |
| 500M | A | Crotte Creek | 05/14/93 | MC | 143 | 35 mi ² | 5-6 |
| 185F | Y | Five Corners? | 06/23/94 | MC | 2 | - | 7 |
| 194M | A | Crotte Creek | 06/16/94 | MC | 5 | - | 5 |
| 221F | A | Five Corners | 05/07/94 | MC | 22 | - | 7 |
| 231M | Y | Averill Creek | 05/13/94 | MC | 11 | - | 6-7 |
| 232M | Y | Averill Creek | 05/13/94 | MC | 11 | - | 6-7 |
| 233M | Y | Averill Creek | 05/13/94 | MC | 11 | - | 6-7 |
| 234M | A | Torch River? | 05/21/94 | MC | 6 | - | 3 |

¹Age at the time of capture

²Pack during winter of the study period

³Midwinter Wolf No.

⁴MC = Monitoring Continuing

⁵Wolves dispersed from these packs later in winter

Table 3. 1993-1994 Midwinter estimation of Wisconsin's timber wolf population.

| County | Pack Name or General Area | Wolf # | Evidence ¹ |
|----------------|-------------------------------|--------|-----------------------|
| Douglas | Truck Trail Pack | 4 | R |
| Douglas | Moose Lake Pack | 2 | T & O |
| Douglas | Empire Pack | 3 | R |
| Douglas | Crotte Creek Pack | 5-6 | R |
| Burnett | Crex Meadows Pack | 3 | T |
| Bayfield | Smoky Hill Pack | 2 | T |
| Bayfield | Rainbow Lake Pack | 5-7 | R |
| Ashland | Brush Creek Pack | 2 | T |
| Ashland | Torch River Pack ² | 3 | R & T |
| Ashland/Sawyer | Log Creek Pack | 3 | R & T |
| Sawyer | Thornapple River Pack | 3-5 | T |
| Price/Sawyer | Price Creek Pack | 2 | R |
| Ashland/Iron | Augustine Lake Area | 1 | T |
| Oneida/Price | Bootjack Lake Pack | 2-3 | R & T |
| Oneida | Little Rice River Area | 1 | R & T |
| Lincoln | Ranger Island Area | 1 | T |
| Lincoln | Averill Creek Pack | 6-7 | T |
| Sawyer/Ashland | Loner 229F | 1 | R |
| Bayfield | N. Bayfield Loner | 1 | T |
| TOTAL | | 50-57 | |

¹Evidence R = Radio-telemetry
 T = Track & Sign Survey
 O = Observations by Public

²Previously part of McCarthy Lake Pack

Table 4. Mortality during July 1, 1993 - June 31, 1994 of radio-collared wolves

| Wolf # & Sex | Age | Date Captured | Date Died | Cause of Death |
|-----------------|-----|---------------|-----------|--------------------------|
| 145F | A | 05/09/91 | 07/30/93 | Unknown-Human Caused |
| 192M | A | 08/18/93 | 08/19/93 | Unknown-Captured Related |

Table 5. Mortality summary of radio-collared wolves from Wisconsin and adjacent areas of Minnesota, October 1979 - June 1994.

| Cause of Death | No. | % Known Mortality |
|-------------------------|-----|-------------------|
| Shooting | 12 | 38% |
| Trapping | 3 | 9% |
| Road Kills | 2 | 6% |
| Unknown-Human Caused | 3 | 9% |
| Total Human Caused | 20 | 62% |
| Killed by other Wolves | 3 | 9% |
| Disease | 6 | 19% |
| Unknown Natural | 3 | 9% |
| Total Natural Mortality | 12 | 38% |
| Total Known Mortality | 32 | 100% |
| Unknown Mortality | 4 | |
| Total Mortality | 36 | |

Table 6. Wolf observations reported by natural resource agency personnel and private citizens in Wisconsin in July 1993 - June 1994.

| County | Sightings | Wolves Seen | Track or Sign Observations | Total Observations |
|-----------|-----------|-------------|----------------------------|--------------------|
| Ashland* | 9 | 13 | 4 | 13 |
| Bayfield* | 5 | 7 | 3 | 8 |
| Burnett* | 3 | 7 | 1 | 4 |
| Douglas* | 10 | 12 | 3 | 13 |
| Florence | 1 | 1 | 0 | 1 |
| Forest | 0 | 0 | 3 | 3 |
| Iron* | 7 | 8 | 3 | 10 |
| Jackson | 2 | 2 | 1 | 3 |
| Juneau | 1 | 1 | 0 | 1 |
| Lincoln* | 11 | 15 | 6 | 17 |
| Marinette | 2 | 2 | 0 | 2 |
| Marathon | 1 | 2 | 0 | 1 |
| Oconto | 1 | 1 | 0 | 1 |
| Oneida* | 7 | 7 | 4 | 11 |
| Price* | 13 | 18 | 5 | 18 |
| Rusk | 2 | 2 | 0 | 2 |
| Sawyer* | 6 | 9 | 3 | 9 |
| Taylor | 1 | 1 | 1 | 2 |
| Vilas | 0 | 0 | 1 | 1 |
| Washburn | 4 | 5 | 1 | 5 |
| Wood | 0 | 0 | 1 | 1 |
| Totals | 87 | 113 | 39 | 126 |

*County with known wolf pack during portions of this study period.

Table 7. Disease tests of wolves in Wisconsin and adjacent areas of Minnesota in 1993.

| Wolf # & Sex | Age | Date Captured | Serum CPV | Fecal CPV | ICH | CDV | HW | Lyme | Mange |
|-----------------|-----|------------------|--------------|--------------|------|------|------|------|-------|
| 188M | Y | 05/12/93 | 1:160 | - | 1:5 | 1:80 | Neg. | Pos. | - |
| 189M | A | 05/21/93 | 1:640 | 1:128 | 1:5 | <1:5 | Neg. | Pos. | Yes |
| 191M | A | 07/21/93 | 1:320 | 1:32 | 1:20 | <1:5 | Neg. | Pos. | Yes |
| 192M | A | 08/18/93 | - | 1:2048 | - | - | Neg. | - | No |
| 225F | Y | 05/23/93 | 1:40 | - | 1:5 | <1:5 | Neg. | Neg. | - |
| 227M | Y | 06/25/93 | 1:160 | - | 1:40 | 1:10 | Neg. | Neg. | - |
| 229F | Y | 07/09/93 | - | - | - | - | - | - | - |
| 230M | P | 09/05/93 | <1:20 | 1:4096 | <1:5 | <1:5 | Neg. | Neg. | Yes |
| 500M | A | 05/14/93 | - | - | - | - | - | - | - |

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. Bauer, DNR Wildlife Health Program)

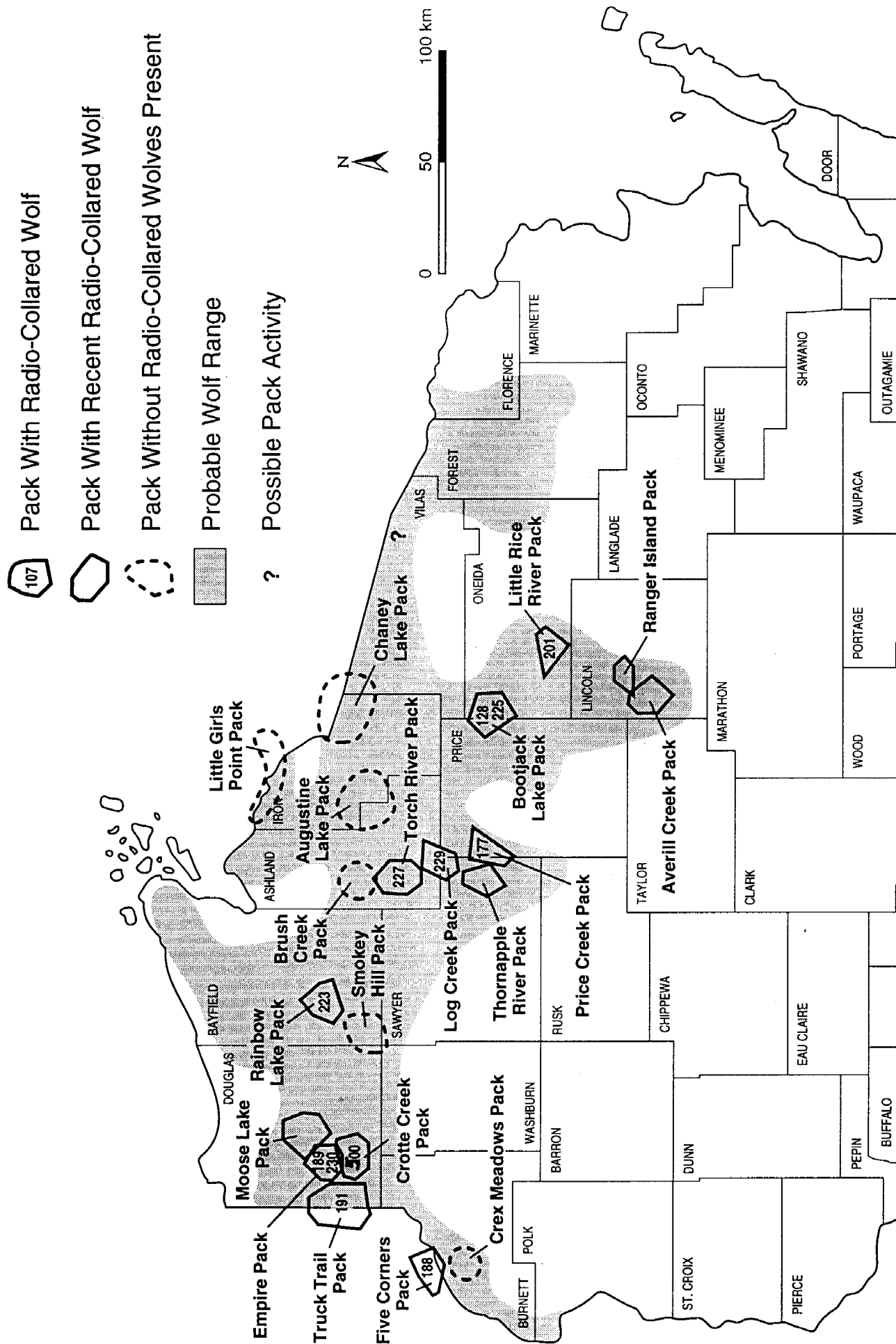


Figure 1. Gray Wolf Distribution in Northern Wisconsin: Winter 1993-1994.