

WISCONSIN ENDANGERED RESOURCES REPORT # 97

STATUS OF THE TIMBER WOLF IN WISCONSIN  
PERFORMANCE REPORT, 1 JULY 1992 TO 30 JUNE 1993

by Adrian P. Wydeven

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SUMMARY

This report covers activities conducted from July 1, 1992 through June 30, 1993.

Eight wolves from 7 packs were captured and radio-collared in 1992. Nineteen radio-collared wolves were monitored during the period. The winter territory of 7 Wisconsin wolves averaged 41 square miles. The estimate of Wisconsin wolf population was about 40 wolves in 12 packs across the state. Two wolves made long movements from northwest Wisconsin to eastern Sawyer County. Three radio-collared wolves died during the period. Wolf observations were received from 18 counties. Wolves were tested for 6 canine diseases; nearly half (4 out of 9) tested positive for Lymes, and several tested positive for Canine Parvovirus, Canine Distemper and Infectious Canine Hepatitis. One wolf died from the effects of mange and several others appeared to be effected by the disease.

Project personnel were also involved in wolf education, legal investigations, cooperative habitat management, and other aspects of wolf recovery.

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES

BOX 7921

MADISON, WISCONSIN 53707

RECOVERY OF THE TIMBER WOLF

PERFORMANCE REPORT

JULY 1, 1992 TO JUNE 30, 1993

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  
              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 Eastern timber wolf was listed as a Federally Endangered Species in 1967, and Wisconsin's population of wolves (part of the original Eastern timber wolf population) 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. This report covers activities conducted from July 1, 1992 through June 30, 1993.

Job 106.1 DIRECT EDUCATIONAL ACTIVITIES

The project biologist (Wydeven) and technician (Ronald Schultz) provided training for 60 people at the Timber Wolf Alliance (TWA) Speakers Bureau on August 8, 1992 and January 30, 1993. 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. Reports were also written for International Wolf Magazine, Wisconsin Natural Resources, and Wisconsin Wildlife Surveys. The DNR Life Tracks report on timber wolves was updated during the study period. Wisconsin's population monitoring results were reported by the project biologist at the Second North American Wolf Conference in Edmonton, Alberta on August 27, 1992. The project biologist represented the Wisconsin DNR at the grand opening of the International Wolf Center in Ely, Minnesota June 25-27, 1993.

The DNR jointly with TWA, other agencies and organizations, sponsored Wolf Awareness Week October 11-17, 1992. DNR personnel also cooperated and participated in Wolf Weekend in Minocqua, Wisconsin which was attended by more than 1,300 people.

#### Job 106.2 PROVIDE ADDED LEGAL PROTECTION FOR WOLVES

Portions of northern Wisconsin has been closed to coyote hunting during the deer-gun season since 1987. Wolf project personnel again monitored wolves carefully during this period; all 14 radio-collared wolves survived the hunting season. A noncollared wolf was shot near Colfax, Dunn County, Wisconsin during the deer-gun hunting season. The shooting occurred south of the area closed to coyote hunting. The project biologist cooperated with DNR and the U.S. Fish & Wildlife Service investigations, and a person was charged with the illegal shooting (the case has not come to court yet).

The Wisconsin Wolf Advisory Committee met on November 17, 1992 to discuss the coyote closure zone and discuss wolf dog hybrid concerns. The Committee recommended enlargement of the coyote closure zone to better protect dispersing wolves, and developed general procedures for handling wolf-dog hybrids.

#### Job 106.3 COOPERATIVELY MANAGE HABITAT WITH LANDOWNERS

Comments were made on 2 opportunity area analysis in the Chequamegon National Forest, and 2 opportunity area analysis on the Nicolet National Forest. The project biologist met with officials of the Nicolet National Forest and Goodman Timber Company on November 9, 1992 to improve cooperative management for wolves and other wildlife between the 2 forest lands. A den/rendezvous site management policy was approved by the State Wolf Advisory Committee on November 17, 1992.

A cooperative DNR and DOT (Department of Transportation) Wolf Study occurred throughout the activity period under the directions of Bruce Kohn. The intent of this study was to determine impact of Highway 53 development on movements, mortality, and behavior of timber wolves in northwestern Wisconsin. Eleven radio-collared wolves were intensely monitored in the Highway 53 Study Area. Four meetings were held with DNR/DOT to discuss research findings and highway design.

A meeting was held with Consolidated Paper Company employees in Sawyer County on March 23, 1993 to discuss cooperative wolf management on company lands in northwest Wisconsin. Bill Meier (Wildlife Biologist, Merrill) developed a cooperative agreement with Wisconsin Public Service Corporation on November 4, 1993 for managing 3,000 acres for wolves and wildlife in Lincoln County.

## Job 106.4 MONITOR STATEWIDE WOLF POPULATION

Ten wolves were live-trapped in 1992 and eight of these were radio-collared. The collared wolves represented members of 7 different packs, 5 of which were completely or mostly in Wisconsin, and 2 were mainly in Minnesota. Two of the wolves captured in 1992 eventually dispersed from their pack territories (177F and 217F). Radio-collared wolves occurred in 7 of the 13 packs that occurred mostly in Wisconsin in winter 1992-1993, as well as in the Five-Corners Pack along the west border and the Tamarack River Pack in Minnesota west of the Truck Trail Pack (Figure 1).

Nineteen radio-collared wolves were monitored in Wisconsin and adjacent areas of Minnesota during the study period (Table 2). The average winter territory size for 10 collared wolves was 53 square miles using minimum area polygons. The mean of 7 territories that occurred completely or mostly in Wisconsin was 41 square miles.

Radio-collared wolves monitored during the study period included 9 adult males, 3 adult females, 2 yearling males, and 5 yearling females (wolf 133F was caught as a pup in 1991 but became a yearling during the study period). The 4 adult males caught in 1992 averaged 75.5 pounds (34.2 kg) and 4 adult/yearling females averaged 62.2 pounds (28.2 kg).

A summary of the events of monitored packs and lone wolves follows:

Douglas County:

Three radio-collared wolves were monitored in the Truck Trail Pack (131M, 133F, and 203F). Wolf 131M was apparently the alpha male of the pack. Wolf 133F was caught as a pup in 1991. Wolf 203F was a subordinate female. The alpha female of the pack (wolf 171F) had died in February 1992. Apparently 4-6 wolves were present in late winter 1992.

No pups were known to be produced in this pack in summer 1992, although wolf 203F was found to have had 4 distinct placental scars when she died later. Wolf 203F may have only recently joined the pack, or her 4 pups may have died soon after birth.

Wolf 131M and 203F occupied similar portions of the packs territory; occupying areas of 66 and 51 square miles respectively in winter 1992-1993. Wolf 203F died on February 14, 1993 from an embedded porcupine quill and was suffering from severe hair loss due to sarcoptic mange. Wolf 131M died on January 25, 1993, probably from exposure due to excessive hair loss from sarcoptic mange.

Wolf 133F seemed to stop associating with the alpha male (wolf 131M) after the death of her mother (wolf 171F) on February 20, 1992. Wolf 133F occupied a large summer home range (116 mi<sup>2</sup>) that extended east and west of the Truck Trail Territory. Most of the fall 1992 was spent in a 5 mi<sup>2</sup> area near Kerrick, Minnesota. She was again in the Truck Trail Territory on December 4, but dispersed to the east shortly thereafter. Her dispersal movements will be discussed below.

The Truck Trail Pack apparently had only 1 wolf left in it after the dispersal of 133F, and the deaths of wolves 131M and 203F. Therefore apparently no breeding occurred in 1993, and the territory was not considered an active pack in mid-and late winter 1993.

Two wolves were monitored in the Empire Pack during the study period (183M, 189M). Adult male 183M was caught on May 29, 1992 and was monitored until he was killed by a vehicle on September 2, 1992. This wolf occupied a summer home range of about 92 mi<sup>2</sup> across the northern portions of the Empire Pack Territory, and western portions of the former Moose Lake Pack. Wolf 183M was not known to associate with any other wolves. No pups were apparently produced in 1992.

Two uncollared wolves occupied the south portion of the Empire Pack Territory near the St. Croix River in summer 1992. Wolf 145F, who had dispersed from northwest Polk County in October 1991, was loosely associated with these two wolves from May 6 through August 3, 1992. Between August 3 and August 12, wolf 145F moved from the southern Empire Pack area near the St. Croix River, 38 miles to the southwest to join the Five-Corner Pack in Pine County, Minnesota.

During winter 1992-1993 at least two breeding wolves occurred in the original Empire Pack. In May 1993, 2 adult males were caught within the Empire Territory, but they both appeared to be alpha males (189M, 500M). These two wolves apparently had split the Empire Pack into 2 territories. Wolf 189M occupied the north end of the territory north of County M, and his territory will continue to be referred to as the Empire Pack. Wolf 500M occupied the area south of County M to the St. Croix River and will be referred to as the Crotte Creek Pack. The mates of both of these wolves produced pups in Spring 1993. Radio locations for both new wolves were too limited to estimate the size of the 2 territories.

Sign of 2 breeding wolves were found in the Moose Lake Territory in winter 1992-1993. Very limited wolf sign was found in the territory during spring. Perhaps wolf 189M of the north end of the Empire Territory used the Moose Lake Territory with his mate in winter. No radio-collared wolf has been present in the Moose Lake area since wolf 149F dispersed from the territory in mid-July 1991.

#### Pine (MN) / Burnett Counties

Two packs were monitored in adjacent Pine County, Minnesota during the study period. Three radio-collared wolves were monitored in the Five Corners Pack during the study period (177F, 145F, 188M).

Yearling female 177F was initially caught in this territory in May 3, 1992. Wolf 145F apparently joined the pack about August 12, 1992 to become the new breeding female, after the death of alpha female 149F on June 30, 1992. Yearling male 188M was caught in the Five-Corners territory on May 12, 1993.

The Five Corners Territory centered on the St. Croix State Park along the St. Croix River in Pine County, Minnesota. The territory extended south of the river into the Governor Knowles State Forest, and St. Croix National Riverway in Burnett County Wisconsin, as well as private lands west and north of the Park. Wolf 145F occupied a 76 mi<sup>2</sup> territory during winter 1992-1993. She did apparently breed in winter and produced pups in spring 1993. Five wolves were present in the territory during winter.

Wolf 177F spent much of the summer on the south edge of the packs territory, in the Governor Knowles State Forest. During late summer and fall, she made extensive movements into the Crex Meadow Wildlife Area to the south. She apparently dispersed south from her natal territory after December 4, 1992. The extent of her movements will be discussed further below.

Wolf 188M has thus far occurred mainly in areas where Wolf 145F was also located.

Two wolves (215M, 207F) were monitored in the Tamarack River Pack (formerly known as Tripod Pack) west of Kingsdale, Minnesota. Adult male 205M and yearling female 207F were both caught in August 1992. The winter territory of wolf 205M was about 82 mi<sup>2</sup>. The pack had 7 wolves in winter 1992-1993. Breeding activity apparently occurred in this pack last winter, but pup production has yet to be determined.

#### Bayfield County:

Wolf 223M, the alpha male of the Rainbow Lake Pack, was monitored throughout most of the study period since his capture on September 9, 1992. He occupied a winter territory northwest of Drummond of about 36 mi<sup>2</sup> with 3 other wolves. The pack had successfully raised pups in summer 1992. A 24-pound female pup was live-captured on August 4, 1992, but was not radio-collared due to her small size. Breeding again occurred in winter 1993 and pups were thought to have been born in the spring. The Rainbow Lake Territory occurred mainly within the Chequamegon National Forest.

A breeding pair of wolves apparently occupied the Smoky Hill Area of southwestern Bayfield County in winter 1992-1993. Wolf sign had been found in the area during the last year or two. Trapping was conducted on 173 trap-nights in May and June 1992, and howling was conducted on 3 nights in July without any success. Further attempts to live-trap and howl for wolves will be conducted in summer 1993.

Wolf observations have also been reported from northern Bayfield County, but winter track surveys were unable to verify establishment of any new packs. Sign of a single wolf was verified in winter 1991-1992, and it apparently continued to occur in the area northwest of Bayfield in winter 1992-1993.

#### Washburn County:

No pack activity was verified in Washburn County during study period, although wolf sign was detected in the northeast part of the county referred to as the Frog Creek area. Thirty-five trap-nights were conducted in the area in

September 1992. Wolf use in the area may have been activity of the Smoky Hill Pack, or perhaps activity from dispersing wolves. Wolf 133F and possibly wolf 177F may have passed through northeast Washburn County in Spring 1993.

Wolf 145F made several visits to northwest Washburn County in Summer 1992, prior to her joining the Five Corners Pack in Minnesota.

#### Sawyer-Ashland Counties:

Wolf 147F, the alpha female of the Thornapple River Pack, was monitored throughout the study period. She occupied a winter territory of 31 mi<sup>2</sup> west of the Flambeau River and south of Highway 70. Pups were apparently born in 1992, but probably only 1 survived to winter 1993; only 3 wolves including 147F and her uncollared mate, were found in the pack in winter 1992-1993. Breeding apparently again occurred, and a litter of pups was probably again born in this territory in Spring 1993.

Adult male 211M was monitored in the Log Creek Pack to the north. Wolf 211M was caught on May 18, 1992, and occupied a winter territory of 36 mi<sup>2</sup> in northeast Sawyer and southern Ashland County. No pups were detected in this pack in summer 1992, but the winter count of 3 wolves suggested that at least 1 pup had been born and survived to winter. Breeding again occurred in winter 1993 and pups were born in the spring time.

Four wolves including a breeding pair occupied the McCarthy Lake Pack to the north of the Log Creek Pack. Pups had apparently been produced in this pack in 1992, but had not been detected during the summer. The pack occupied a territory east of Clam Lake, north and south of Highway 77. Pups were again produced in spring 1993. Wolf 227M, a yearling was caught in this pack on June 25, 1993, but radio-locations were still too sparse to estimate the extent of his territory. Both the Log Creek and McCarthy Lake Packs occurred mainly in the Chequamegon National Forest.

Tracks of a breeding pair of wolves was detected in eastern Ashland County in the area of Augustine Lake during winter 1992-1993. Wolf observations have been reported from this area over last few years, but this was the first time we could verify a breeding pair. Sign surveys were conducted in the Augustine Lake Area in June 1993 to locate potential trapping sights, but signs were too limited to consider trapping. Additional sign surveys and howling surveys will be conducted later in 1993.

#### Gogebic (MI)/Iron Counties:

Howling responses were obtained from 2 adult wolves in western Iron County in summer 1992. These may have been the animals from the Augustine Lake group. Several observations of wolves were reported from western Iron County in winter 1992-1993.

The Chaney Lake Pack along the Wisconsin/Michigan line consisted of 4 wolves in winter 1991-1992. No sign of the pack was detected in Wisconsin in winter 1992-1993. Michigan biologists believed the pack was down to only a single animal that remained mostly in southwest Gogebic County. The pack is not presently considered part of the Wisconsin wolf population.

#### Price-Oneida Counties:

Wolf 128M the alpha male of the Bootjack Lake Pack was monitored throughout the study period. Despite severe hair loss (probably mange) at the time of his capture in July 1991, he seems to have regained his health. Wolf 128M and his mate successfully bred in 1992, and at least 2 pups survived to winter 1992-1993. One of these pups was caught as a yearling female on May 25, 1993 (wolf 225F).

The Bootjack Lake Territory occupied about 29 mi<sup>2</sup> in winter 1992-1993, in northwest Oneida and eastern Price County. The western portion of the territory consisted mainly of the Chequamegon National Forest, while the eastern portion was mainly industrial forest land.

Breeding apparently occurred in the Bootjack Lake Pack in winter 1993, but pup production has not been detected yet.

Wolf 201M was monitored in the Little Rice River Pack during the study period. The wolf occupied a winter territory of about 36 miles in western Oneida County. Most of the land occupied was in industrial forest and county forest areas, but also included several smaller private lands. Although 201M and his mate apparently produced pups in 1992, none apparently survived to winter. Only 2 wolves were found in the territory in winter 1992-1993. Breeding apparently again occurred in winter 1993 and it appeared that pups were again born.

#### Lincoln County:

Yearling female 217F was caught in the Averill Creek Pack on July 2, 1992. She occupied an area of about 59 mi<sup>2</sup> in western Lincoln County during the winter period. Her home range probably extended beyond the territory boundary of the pack because she did seem to associate with other pack members during winter, and her locations included sites not traditionally used by the Averill Creek Pack. Between March 4 and March 12, 1993 wolf 217F dispersed from the Averill Creek Pack, 22 miles northwest into Price County. She was last located northwest of Prentice before her radio signal was lost on March 17, 1993.

Pups were produced in the Averill Creek Pack in 1992, but because only 3 wolves occurred in the pack in late March 1993, pup survival was apparently low. Breeding apparently occurred in this pack in winter 1993, but pup production in this pack has yet to be determined.

No radio-collared wolf has occurred in the Ranger Island Pack southwest of Tomahawk since December 1990, when the radio signal of yearling male 104M was lost from the territory. A 20 pound (9 kg) male wolf pup was caught in this



territory on July 26, 1992, but he was too small to radio-collar. Pups, therefore were produced in this pack in 1992. Breeding apparently was again occurring in winter 1993, but it was not determined if pups were produced. Three wolves occupied the Ranger Island Territory in winter 1992-1993.

#### Northeast Wisconsin:

Despite 580 miles of winter track surveys across portions of the Nicolet National Forest in Florence, Forest and Vilas Counties, no wolf sign was found in this region. Eight observations of wolves or wolf sign were received from Florence and Forest Counties during the study period. Possibly 1 or 2 loners roamed the area, but we were unable to verify their existence.

#### Dispersing Wolves:

Wolf 145F dispersed from a 10 square mile territory in northwest Polk County sometime after October 15, 1991. She roamed over an extensive area in northwestern Wisconsin and eastern Minnesota, and concentrated her movements along the St. Croix River watershed. The areas of her movements extended from northwest Polk County to northern Douglas County (78 miles). Movements occurred through Polk, Burnett, Douglas, Washburn and Pine Counties. The wolf apparently joined the Five-Corner's Pack in Pine County on about August 12, 1993, after about 300 days of searching.

Wolf 217F dispersed from the Averill Creek territory in western Lincoln County between March 4 and March 12, 1993. Her movements were 22 miles to the northwest into southern Price County. Unfortunately her signal disappeared after March 17, 1993, when she was located near Prentice, about 25 miles northwest of her last location in the Averill Creek Pack.

Wolf 133F had spent most of the fall west of the Truck Trail Pack, but in late November and early December was again located in the pack. After December 4, wolf 133F made extensive movements to the east and southeast (Figure 2). The wolf spent most of the winter in southeast Bayfield and western Ashland Counties, but by early April she was located in southeast Sawyer County about 90 southeast of her natal territory. Her movements probably passed through portions of the Empire Pack Territory, Moose Lake Territory, Rainbow Lake Territory, McCarthy Lake Territory, Log Creek Territory, and Thornapple River Territory.

Wolf 133F followed a similar route back north and west in April (Figure 4). The wolf moved within 2.8 miles of U.S. Highway 53 on April 23, but she moved back east again after April 26. Wolf 133F was last located in southwest Bayfield County on April 30 in the vicinity of the Smoky Hill Pack. Her signal was lost after that date; perhaps she had moved too far out of range of radio reception, or her transmitter quit. Her movements from December through April had taken wolf 133F through all the wolf territories in Wisconsin west of State Highway 13.

Wolf 177F apparently dispersed from her natal territory in the Five-Corners Pack after December 4, 1992. Although wolf 177F had previously made several sorties to the Crex Meadows Wildlife Area, these movements had been of short duration.

Wolf 177F spent the winter along an 18 mile stretch of the St. Croix River north of St. Croix Falls, Wisconsin and Taylor Falls, Minnesota (Figure 4). In early spring wolf 177F moved south and west of Taylor Falls into Chisago County, Minnesota. Her location on March 30, 1993 was about 2 miles east of the Carlos Avery Wildlife Area. Wolf 177F was located in a small bog area in Washington County next to a beef farm from April 13 to April 18; this location was only about 20 miles from downtown St. Paul!

After April 18 wolf 177F began an extensive movement to the north and east. Between April 22 and June 1 she moved through 9 or 10 counties and 7 or 8 wolf territories. Wolf 177F was located 113 miles northeast from her location at the beef farm by June 1. This last location was about 17 miles southwest of Park Falls, Wisconsin. The wolf remained in eastern Sawyer County and southern Ashland County for the remainder of June.

Both wolves 133F and 177F followed similar routes through northwest Wisconsin. Both had also apparently visited most of the same packs. This suggests that the general route followed by both wolves across the northwest part of the state may be an important corridor for wolf movements. It also suggests that the wolf movements may have been orientated by the location of packs along the way. Neither wolf traveled east of Highway 13 in central Ashland and Price Counties.

#### Winter Wolf Population:

The minimum population of wolves in Wisconsin during winter 1992-1993 was 40 wolves (Table 3). Twelve packs consists of 2 to 4 wolves ( $x = 2.9$ ) occurred completely within Wisconsin. The Chaney Lake and Five Corners Pack were not included in the population estimation because they occurred mostly outside of Wisconsin. The Truck Trail Territory was not an active wolf pack in late winter 1993. The winter wolf population in 1991-1992 was estimated at about 45, therefore the population in 1993 had declined about 12% since last year. Five loners were identified in the Wisconsin wolf population in 1992-1993. Because of the difficulty in detecting loners, this is probably a minimum count.

#### Wolf Mortality:

Three radio-collared wolves were known to have died during the study period (Table 4). Wolf 183M died from a vehicle collision. Both wolves 131M and 203F had severe hair loss due to mange mite and lice, but the ultimate cause of death for wolf 203F was the abscessing of an embedded porcupine quill into her lungs. Wolf 131M apparently died from exposure due to hair loss.

The death of 34 radio-collared wolves from Wisconsin and adjacent areas of Minnesota are listed in Table 5. Human caused mortality was the most important cause of death, but seems to have declined in recent years.

The first shooting of a wolf during the deer-gun season since 1986 was recorded in fall 1992. A male wolf was shot about November 21, 1992 near Colfax in Dunn County. The location was an area of mixed farm/woodlands and about 72 miles from the nearest wolf pack. A suspect has been charged, but the case has not come to court yet.

A skeleton of a possible wolf was found in eastern Sawyer County in the Thornapple River Pack on April 27, 1993. The skeleton will be taken to UW-Madison later this year.

#### Statewide Wolf Distribution:

Wolf observations were obtained from natural resource agency personnel and private citizens from July 1, 1992 through June 30, 1993. All observations were classified as "Probable", "Possible", or "Not Likely". A total of 105 probable and possible wolf observations were received (Table 6).

Wolf observations were received from 18 northern Wisconsin counties; most fell within the area illustrated as probable wolf range on Figure 1. Wolf observations in Shawano and Oconto Counties were somewhat outside of probable wolf range, and could represent incorrect identifications. On the other hand movement patterns of wolf 177F, and the shooting of the wolf near Colfax, indicated that wolves did sometimes occur in unlikely locations.

The highest rate of wolf observations were reported from Bayfield, Washburn, Ashland and Sawyer Counties. All but Washburn had breeding packs present. The high rate in Washburn may indicate that portions of the county serve as important travel corridors for wolves.

#### Job 106.5 INITIATE DISEASE ABATEMENT

Wolves captured in 1992 were tested for 6 different diseases (Table 7). Two of 10 wolves tested positive for Canine Parvovirus, 1 of 10 wolves tested positive for Canine Distemper, 4 of 9 were positive for Infectious Canine Hepatitis, 0 of 9 were positive for Blastomycosis, 4 of 9 were positive for Lyme Disease, and 0 of 8 tested positive for Heartworm. The prevalence of Canine Parvovirus seems to continue to decline from 1980's when 75% of wolves tested positive.

All captured wolves were vaccinated with a modified live virus/multiple antigen vaccine for dogs. The vaccine included modified viral antigens for Canine Distemper Virus, Canine Parvovirus, Infectious Canine Hepatitis, and Corona Virus. Also wolves with hair loss that appeared due to mange mites, were given Ivermectin.

Hair loss due to mange mites or other ectoparasites seemed to be a problem for several wolves captured in 1992. Five of the 10 wolves caught in 1992 had noticeable hair loss. Skin scrapings were taken from 4 wolves and tested for presence of mange mites, but none were found. Obtaining good specimens of mange mites is sometimes difficult to verify with skin scrapings. Two of the 3 radio-collared wolves that died during the study period had severe cases of mange and had mange mites present. The only wolf radio-collared in the Upper Peninsula of Michigan died in winter 1993 of mange related conditions. Mange was apparently having an impact on wolf populations in Wisconsin and Michigan and may have contributed to the population decline observed this winter.

Wolves 183M, 203F, 131M, and the Colfax wolf were necropsied by Dr. Nancy Thomas at the U.S. Fish and Wildlife Service, Wildlife Health Lab in Madison.

A meeting to coordinate wolf health monitoring in Wisconsin and Michigan was held on April 28, 1993 in Woodruff. Wisconsin DNR and Michigan DNR personnel involved in the wolf health monitoring program discussed protocol for tranquilizing, biological specimen collection, disease testing, vaccinations, and other aspects of health monitoring.

All Wisconsin DNR personnel involved in wolf trapping, as well as UW-Stevens Point graduate students, and USDA - Animal Damage Control trappers, received updated training in chemical immobilization techniques from Dr. Keith Amass on January 27-29, 1993. This course will probably again be used in the future to train new personnel working on wolves, and as a refresher for existing wolf trappers.

#### Job 106.6 EVALUATE PROGRESS

A Wisconsin Wolf Advisory Committee was formed during the period and held meetings on November 17, 1992, January 27, 1993, and March 2, 1993. The committee reviewed progress of the recovery efforts and began planning public meetings for 1994 to report status, discuss concerns, and recommend modifications in the plan.

#### Job 106.7 IMPLEMENT LIVESTOCK DAMAGE CONTROL ACTIVITIES

One sheep was killed on a farm in Douglas County in July 1992; 9 sheep and 1 calf had been killed on the same land in July 1991-June 1992. The farmer was reimbursed for his losses and he sold off the remainder of his sheep in the fall. A young cow from this same farm was apparently killed by wolves in May 1993, after the cow had escaped from the farm and moved through wolf territory 8 miles to the north. Because the cow was not under the owners control, claims payments were not provided, but DNR personnel did assist in locating 9 other cows that had escaped from the farm.

One hunting dog was killed in Douglas County in August 23, and the owner was compensated for the loss. The offending wolf died from a vehicle collision 2 weeks later.

Complaints were received on 4 wolf-dog hybrids between July 1992 through June 1993. Two wolf-dog hybrid pups were destroyed by town officials near Cable, Wisconsin. A wolf-dog hybrid from near Phillips, Wisconsin was live-captured by USDA-Animal Damage Control and placed in captivity. The fourth wolf-dog hybrid disappeared after the above listed pups died.

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

Adrian Wydeven, Randy Jurewicz, and Charles Pils attended the Great Lakes Interagency Wolf Group Meeting in Duluth, Minnesota on January 20-21, 1993. Wydeven attended the Michigan Wolf Recovery Team on August 11, 1992. Wydeven and Schultz attended the Second North American Wolf Conference in Edmonton, Alberta August 23-27, 1992. Wisconsin DNR and DOT officials met with U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency on December 15, 1992 to discuss design and research for U.S. Highway 53. Wydeven attended 4 DNR staff meetings to discuss wolf management activity with other DNR functions. A presentation on wolf activities was given to the northern Wisconsin Governors Council on September 23, 1993. Wolf management was discussed at the St. Croix River Managers Meeting on February 11 consisting of personnel from Wisconsin DNR, Minnesota DNR, and U.S. National Park Service. Wisconsin and Michigan DNR personnel involved with wolf monitoring jointly met on April 6 and April 28 to discuss population and health monitoring on wolves.

Job 106.9 CONTINUE CITIZEN PARTICIPATION ACTIVITIES

Presentations were given on 23 occasions to 984 people by Wydeven. Additional wolf talks were also given by Ron Schultz, Bill Meier, Pat Rominski, Gary Dunsmoor, and other DNR personnel. The project biologist was on 2 radio talk programs, and was interviewed by several radio and newspaper reporters.

The Wisconsin Wolf Advisory Committee initiated planning for public meetings in 1994 to get public input on the status and possible modifications needed in the recovery plan.

Job 106.10 VOLUNTEER PROGRAM ACTIVITIES

Twenty-nine volunteers were used during the period for assistance on wolf trapping, howling surveys, and winter track surveys. The project biologist met with TWA volunteers on 10 occasions and with volunteers in the Timber Wolf Information Network on 1 occasion. Numerous TWA volunteers gave wolf talks throughout the state. Seventy-eight private citizens provided information on wolf observations in Wisconsin.

## Job 106.12 REVIEW TRANSLOCATION

The Wisconsin Wolf Advisory Committee met on 3 occasions to discuss aspects of the recovery effort including translocation. The committee plans to discuss translocations at public meetings on the recovery effort in 1994. No specific plans or policies for translocations will be developed until the citizen participation process is completed. For the time being, translocations will only be used when depredating wolves need to be moved.

Table 1. Capture data on wolves caught in Wisconsin and adjacent areas of Minnesota in 1992.

<u>Study Area</u> <u>County / Pack</u>	<u>Wolf #</u>	<u>Sex</u>	<u>Age<sup>1</sup></u>	<u>Weight</u>	<u>Date</u>
Pine (MN)/Five Corners	177	F	Y	70 lbs.	05/03/92
Douglas/Empire	183	M	A	81 lbs.	05/29/92
Sawyer / Log Creek	211	M	A	74 lbs.	05/18/92
Lincoln / Averill Creek	217	F	Y	58 lbs.	07/02/92
Pine (MN) / Truck Trail	203	F	A	68 lbs.	07/29/92
Pine (MN) / Tamarack River	205	M	A	77 lbs.	08/06/92
Pine (MN) / Tamarack River	207	F	Y	53 lbs.	08/07/92
Bayfield / Rainbow Lake	223	M	A	70 lbs.	09/09/92
<sup>2</sup> Lincoln / Ranger Island	219	M	P	20 lbs.	07/26/92
<sup>2</sup> Bayfield / Rainbow Lake	221	F	P	24 lbs.	08/04/92

<sup>1</sup>Age :       P = Pup (< 1 year old)  
               Y = Yearling (1+ and < 2 years old)  
               A = Adult (≥ 2 years old)

<sup>2</sup>Not radio-collared due to small size

Table 2. Capture and telemetry data on wolves monitored from July 1, 1992 - June 30, 1993 in Wisconsin and eastern Minnesota.

<u>Wolf # &amp; Sex</u>	<u>Age</u>	<u>Pack</u>	<u>Date Captured</u>	<u>Last Date Located</u>	<u>No. of Locations</u>	<u>Winter Territory Size (mi<sup>2</sup>)</u>	<u>Wolf No. In Territory</u>
128 M	A	Bootjack Lake	07/23/91	MC*	142	29 mi <sup>2</sup>	4
131 M	A	Truck Trail	08/21/91	01/25/93	134	66 mi <sup>2</sup>	1-4
133 F	P	Truck Trail	08/22/91	04/30/93	159	No Est.**	-
145 F	A	Five Corners	05/09/91	MC	200	76 mi <sup>2</sup>	5
147 F	A	Thornapple River	05/17/91	MC	113	31 mi <sup>2</sup>	3
201 M	A	Little Rice River	10/23/91	MC	104	36 mi <sup>2</sup>	2
177 F	Y	Five Corners	05/03/92	MC	136	No Est.**	-
183 M	A	Empire	05/29/92	09/02/92	34	No Est.	2-3
203 F	A	Truck Trail	07/29/92	01/14/93	56	51 mi <sup>2</sup>	1-4
205 M	A	Tamarack River	08/06/92	MC	107	82 mi <sup>2</sup>	6
207 F	Y	Tamarack River	08/07/92	MC	104	89 mi <sup>2</sup>	3
211 M	A	Log Creek	05/18/92	04/01/93	53	36 mi <sup>2</sup>	3
217 F	Y	Averill Creek	07/02/92	03/17/93	42	No Est.**	3-4
223 M	A	Rainbow Lake	09/09/92	MC	64	36 mi <sup>2</sup>	4
188 M	Y	Five Corners	05/12/93	MC	16	No Est.	5
189 M	A	Empire	05/21/93	MC	13	No Est.	2-3
225 F	Y	Bootjack Lake	05/25/93	MC	5	No Est.	4
227 M	Y	McCarthy Lake	06/25/93	MC	4	No Est.	4
500 M	A	Crotte Creek	05/14/93	MC	12	No Est.	2

\* MC = Monitoring Continuing

\*\* Wolf dispersed from pack



Table 3. 1992-1993 Midwinter estimation of Wisconsin's timber wolf population.

<u>County</u>	<u>Pack Name</u>	<u>Wolf #</u>	<u>Evidence*</u>
Douglas	Moose Lake	2	T
Douglas	Empire	2	T
Douglas/Pine	Truck Trail	1	R & T
Bayfield	Rainbow Lake	4	R
Bayfield	Smoky Hill	2 (3?)	T
Ashland	McCarthy Lake	4	T
Sawyer/Ashland	Log Creek	3	R
Sawyer	Thornapple River	3	R
Ashland/Iron	Augustine Lake	2 (3?)	T
Oneida/Price	Bootjack Lake	4	R
Oneida	Little Rice River	2	R
Lincoln	Ranger Island	3	T
Lincoln	Averill Creek	3	R & T
NW Wisconsin	Wolf 133	1	R
NW WI & E MN	Wolf 177	1	R
NC Wisconsin	Wolf 217	1	R
Price	Loner	1	T
Bayfield	Loner	1	T
Forest/Florence	Loner(s)	?	T
Total		40	

\* R = Radio-collared wolf (wolves) in pack  
T = Track & Sign Survey

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

<u>Wolf # &amp; Sex</u>	<u>Age</u>	<u>Date Captured</u>	<u>Date Died</u>	<u>Cause of Death</u>
183M	A	05/29/92	09/02/92	Road kill
203F	A	07/29/92	01/14/93	Embedded Porcupine Quill
131M	A	08/21/91	01/25/93	Probably exposure due to mange

Table 5. Mortality summary of radio-collared wolves from Wisconsin and adjacent areas of Minnesota October 1979-June 1993.

	No.	% Known Mortality
Shooting	12	40%
Trapping	3	10%
Road kills	2	7%
Unknown-Human caused	<u>1</u>	<u>3%</u>
Total Human Caused	18	60%
Killed by other wolves	3	10%
Disease and Accidents	6	20%
Unknown-Natural	<u>3</u>	<u>10%</u>
Total Natural Mortality	12	40%
Total Known Mortality	30	100%
Unknown Mortality	4	
Total Mortality	34	

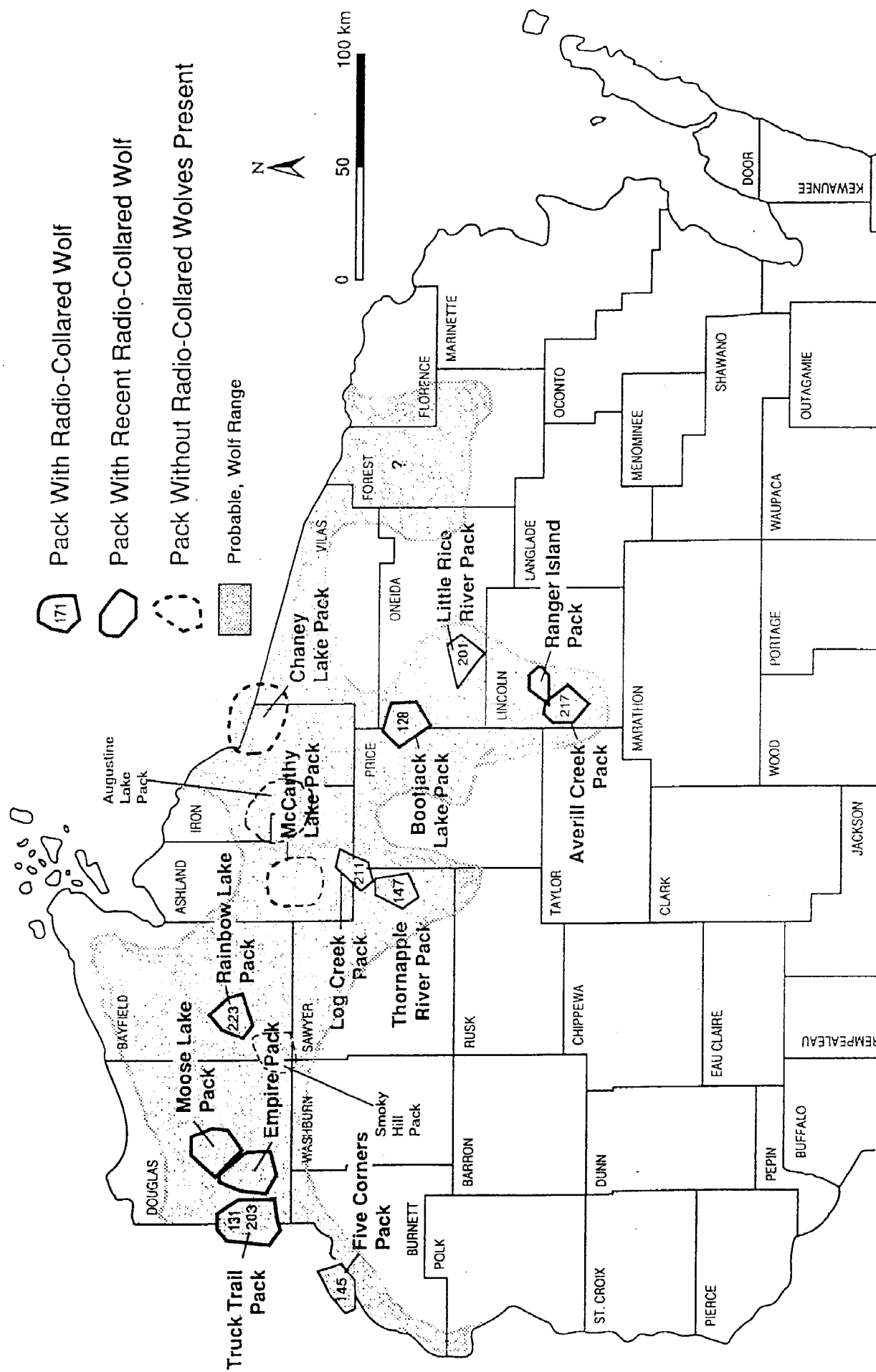
Table 6. Wolf observations reported by natural resource agency personnel and private citizens in Northern Wisconsin July 1992 - June 1993.

<u>County</u>	<u>Sightings</u>	<u>Seen</u>	<u>Observation</u>	<u>Observations</u>
Ashland	6	10	5	11
Bayfield	9	12	4	13
Burnett	5	5	1	6
Douglas	8	8	0	8
Florence	4	4	1	5
Forest	2	3	1	3
Iron	2	2	4	6
Langlade	2	2	1	3
Lincoln	2	2	2	4
Mrinette	3	3	0	3
Oconto	0	0	1	1
Oneida	7	9	0	7
Price	8	8	1	9
Sawyer	8	14	2	10
Shawano	1	2	0	1
Taylor	1	7	0	1
Vilas	1	1	0	1
Washburn	6	11	7	13
<hr/>				
Totals	75	97	30	105

Table 7. Serological Test of wolves caught in Wisconsin and adjacent areas of Minnesota in 1992.

<u>Wolf # &amp; Sex</u>	<u>Age</u>	<u>Capture</u>	<u>CPV</u>	<u>CDV</u>	<u>ICH</u>	<u>Blasto</u>	<u>Lyme</u>	<u>HW</u>
177 A	Y	05/03/92	<1:10	1:100	<1:8	Neg.	IFA 256 EIA 0.27	Neg.
183 M	A	05/29/92	<1:10	<1:10	1:16	Neg.	IFA 128 EIA 0.17	-
211 M	A	05/18/92	<1:10	<1:10	1:64	Neg.	IFA 512 EIA 0.89	Neg.
217 F	Y	07/02/92	1:10	1:10	<1:8	Neg.	IFA 128 EIA 0.20	Neg.
203F	A	07/29/92	1:10	<1:10	-	Neg.	-	-
205M	A	08/06/92	<1:10	1:10	1:16	Neg.	IFA 256 EIA 0.23	Neg.
207 F	Y	08/07/92	1:1000	1:10	1:32	Neg.	IFA 256 EIA 0.39	Neg.
223 M	A	09/09/92	1:1000	<1:10	<1:8	Neg.	IFA 256 EIA 0.51	Neg.
219 M	P	07/26/92	1:10	1:10	<1:8	Neg.	IFA <64 EIA 0.02	Neg.
221 F	P	08/04/92	<1:10	<1:10	<1:8	-	IFA <64 EIA 0.06	Neg.

Disease Tests: CPV = Canine Parvovirus;  $\geq 1:100$  probable disease  
 CDV = Canine Distemper Virus;  $\geq 1:100$  probable disease  
 ICH = Infectious Canine Hepatitis;  $< 1:8$  lack of exposure  
 Blasto = Blastomycosis; Neg - Negative, Pos. = Positive  
 Lyme = Lyme Disease; IFA  $\geq 512$  or EIA  $\geq 0.26$   
 HW = Heart Worm; Neg. = Negative, Pos. = Positive



**Figure 1. Gray Wolf Distribution in Northern Wisconsin: Winter 1992 - 1993.**

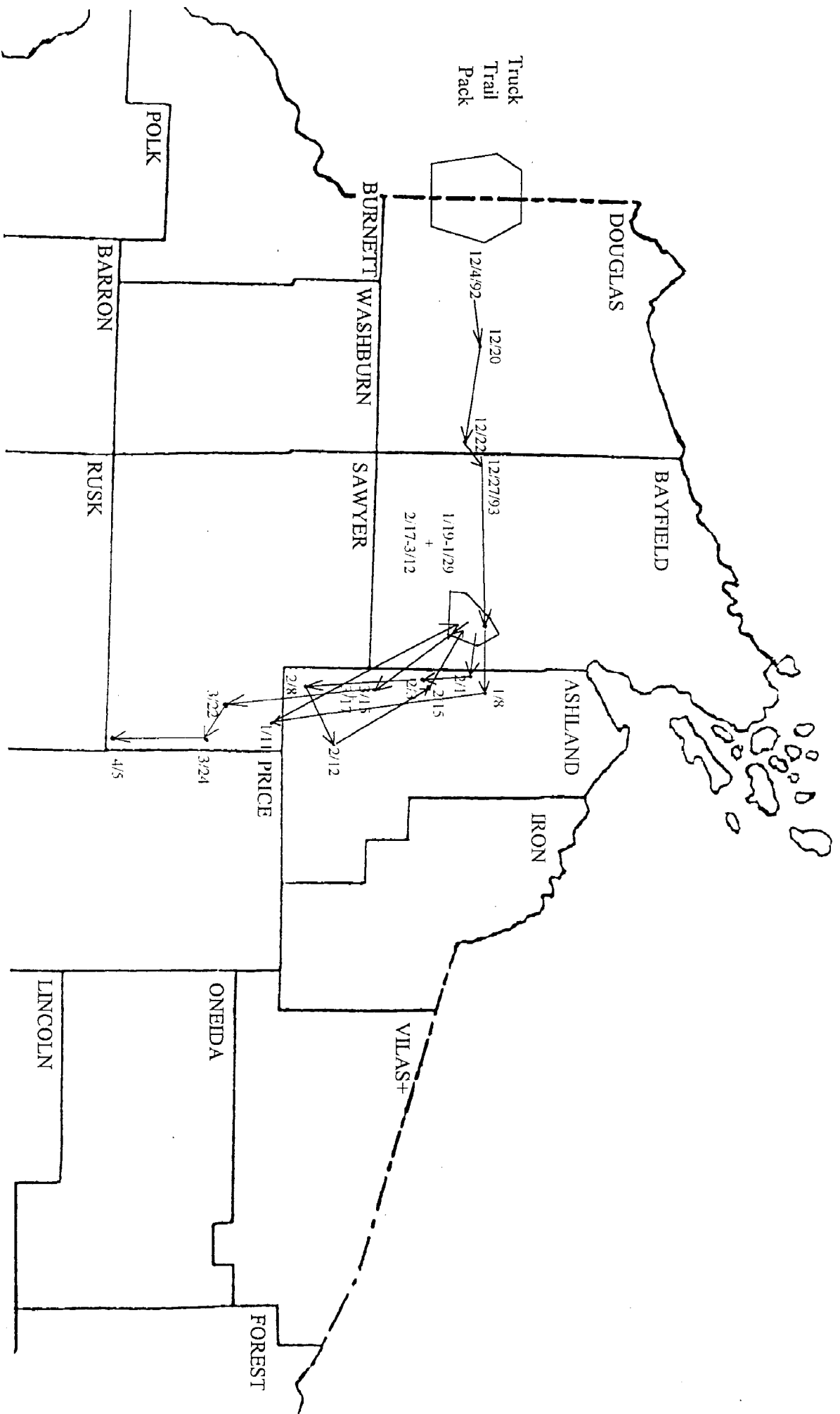


Figure 2. Dispersal movements of Wolf 133F from 4 December 1992 to 5 April 1993.

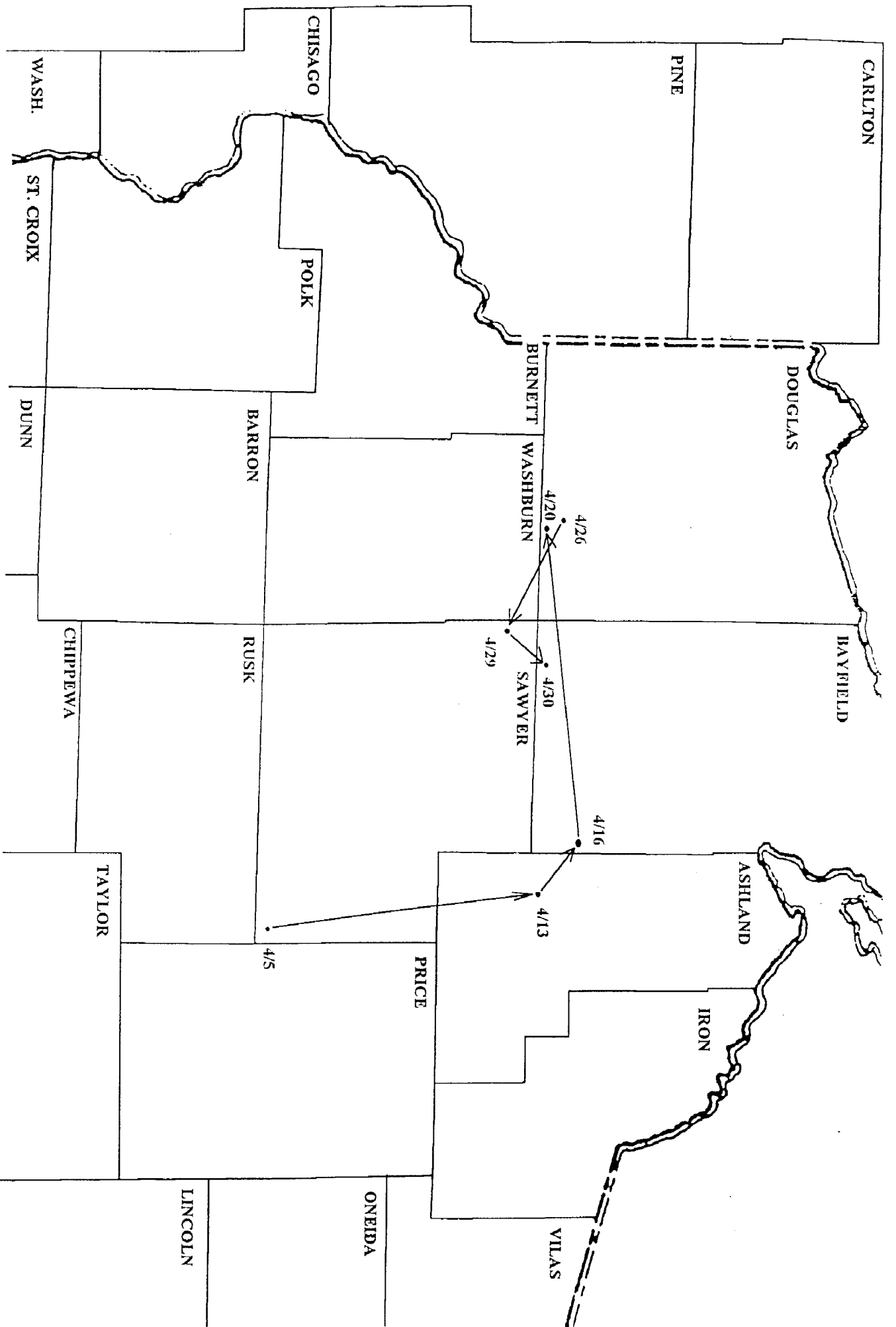


Figure 3. Movements of Wolf 133F: 5 April - 30 April 1993.



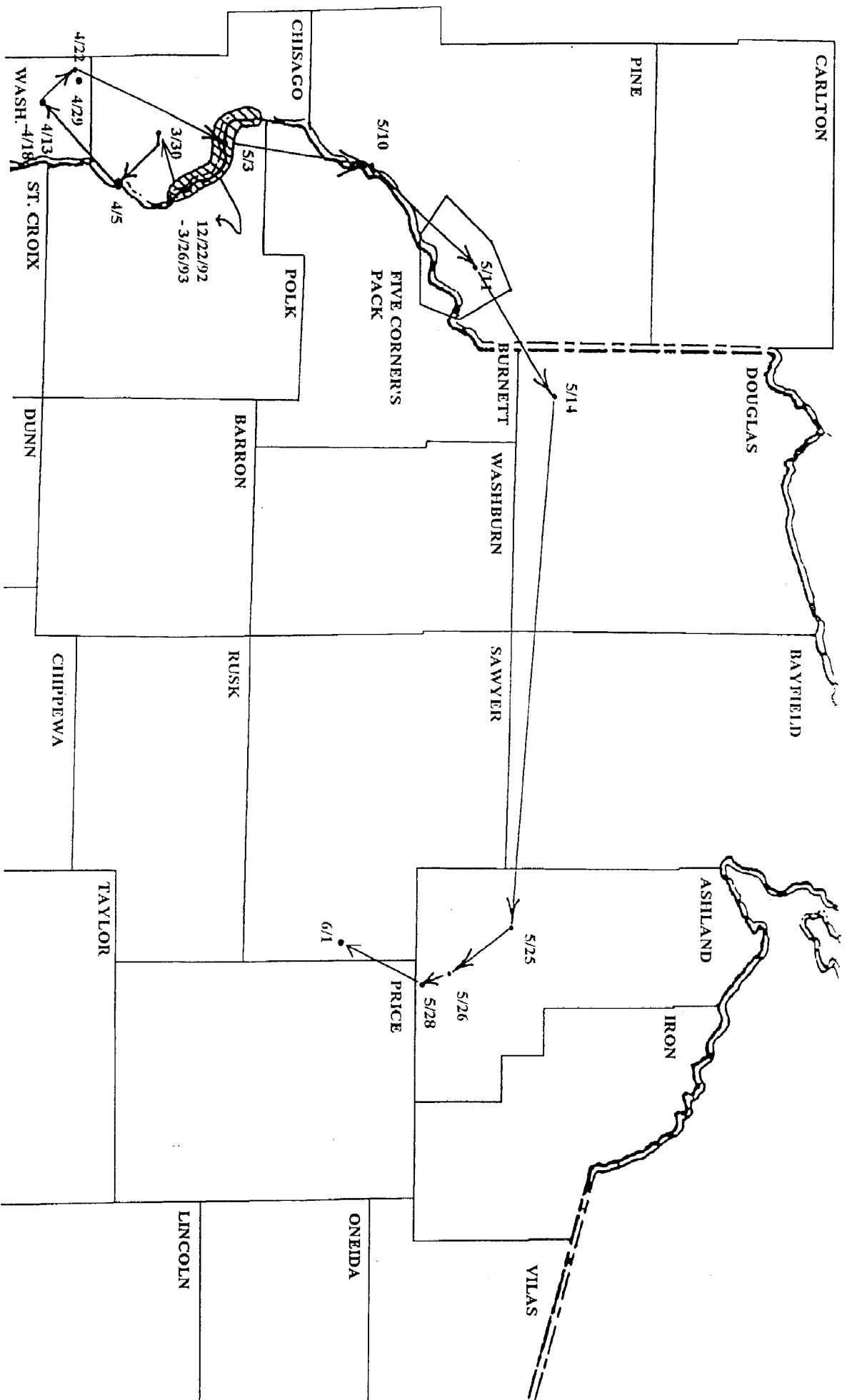


Figure 4. Movements of Wolf 177F: 30 March - 1 June 1993.