

**PROGRESS REPORT OF
WOLF POPULATION MONITORING
IN WISCONSIN
FOR THE PERIOD
April-September 2000**

**By: Adrian Wydeven, Jane E. Wiedenhoef, Bruce K.
Kohn, Paul W. Keenlance, and Wayne H. Hall Jr.**

**Wisconsin Department of Natural Resources
Park Falls, Wisconsin**

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ABSTRACT

Fifteen wolves (including 1 recapture) were caught in spring and summer 2000, and 13 were fitted with radio collars in Wisconsin. Forty radio-collared wolves were monitored during the period, 2 wolves died during the period and no signals were lost, thus 38 remained on the air by early fall. Howl surveys were conducted in 45 of the 66 packs in the state, and pups were detected in at least 26 packs. Reports of wolf observations were received from 14 Wisconsin counties during the summer. Two wolves were livetrapped in depredation situations in May, were relocated to northeast Wisconsin, and were monitored throughout the remainder of the period.

INTRODUCTION

Wolves re-colonized Wisconsin in the mid-1970's and the Wisconsin Department of Natural Resources began formal monitoring of the population in 1979 (Wydeven et al. 1995). Population monitoring of wolves has been an ongoing activity since 1979 and was reinforced in the 1989 recovery plan (Wisconsin DNR 1989), and the 1999 wolf management plan (Wisconsin DNR 1999). Spring and summer monitoring included live trapping, radio collaring, howl surveys, and radio monitoring of collared wolves, while winter monitoring included snow tracking of wolves, monitoring of collared wolves, and estimation of state wolf population (Wisconsin DNR 1999). The surveys from last winter determined a state wolf population of 248-259 wolves, in 66 packs, and 13 loners (Wydeven et al 2000). A state de-listing goal set in the 1999 plan was a population of 250 wolves outside of Indian Reservations (Wisconsin DNR 1999). Last winter 239 to 249 wolves occurred outside of Indian Reservations, and if the population again increases at 21%, the average increase observed since 1985, then the delisting process may begin in 2001. The late winter count of wolves is used as the level to set population goals. The current report covers monitoring activity from April through September 2000.

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Sheri Buller, Linda Winn, Rich Wissink, Michelle Kastler, Ken Jonas and others. Bruce Kohn assisted on wolf live trapping in northwest and northeast Wisconsin. Paul Keenlance conducted live trapping and howl surveys in NW Wisconsin as part of his Ph.D. research with help from Dave Unger. Dick Thiel and Wayne Hall coordinated wolf surveys in central Wisconsin. Sarah Boles did howl surveys across northern Wisconsin. Adrian Wydeven trapped wolves in northern Wisconsin and conducted howl surveys. USDA-Wildlife Services personnel investigated and verified wolf depredations, and conducted live trapping on depredating wolves under direction of Bob Willging (northern district) and Scott Becker (southern district) and included Kelly Thiel, Jim Rollman, Buck Follis, Chad Alberg, Ed Zyzdik, Dewayne Snobl and Barry Benson. DNR pilots who tracked radio-collared wolves included Paul Anderson, Phil Miller, Joe Sprenger, John Bronson, John Jorgenson, and Mike Weinfurter. Kerry Beheler coordinated disease testing of wolves, and dead wolves were necropsied at the National Wildlife Health Center by Dr. Nancy Thomas and coordinated through Dr. Kim Miller. Randy Jurewicz assisted with coordinating the transportation of dead wolves and assisted on other surveys. Jane Wiedenhoef coordinated data entry and summarized survey information. Other DNR assisting on wolf surveys included Todd Naas, Laine Stowell, John Schmidt, Chuck McCullough, Jack Koch, John Olson, Aaron Yaeger, Chris Niehaus, Mary Singsime and Bruce Bacon. Others who assisted on surveys included Chris Giese, Mike Pecynski, Tom Matthiae, Cindy Mueller, Nancy Warren, Pam Troxell, Norm Poulton, Ben Wydeven, Chris Schultz, Abby Mathewson, Aaron Wunderlin, Kelly Opie, Lisa Skuldt, Adrian Treves, Lisa Naughton, Rob Rose, Karen Archibald, Carla Zimmerman, Rachel Tilseth, and Mike Tyrrell. Tom Dolittle conducted wolf surveys on the Bad River Indian Reservation. Dr. Dave Mech shared two satellite collars with WDNR to monitor dispersing/relocated wolves.

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Note: *This report is a preliminary progress report should not be construed as a finalized publication. Some of the numbers of pack size, composition, population figures, and other information may change, as more data becomes available. Persons wishing to cite figures within the report should consult the author. Persons wishing to cite figures on the Highway 53 Wolf Study should contact Bruce Kohn directly.*

METHODS

Wolves were live trapped and radio collared following procedures of Mech (1994). Trapping was generally conducted from 1 May through 12 September, the day before the start of bear hunting with hounds. Exceptions to the trapping schedule were wolves involved in depredation situations and in isolated gated areas. Radio collared wolves were located weekly by DNR pilots with fixed-wing airplanes.

Satellite radio collars were placed on a relocated adult female wolf (289F) and on a yearling female (311F). The satellite collars generally provide about 3-4 useable radio locations per week. Although the satellite collars provide more frequent locations, battery length and precision are much lower than conventional VHF collars (Ballard et al 1995).

Home range area for the summer period (15 April-14 September) was determined with the minimum convex polygon (Mohr 1947). Radio locations over 5 km from other points were considered extraterritorial moves (Fuller 1989). Home range areas were calculated only for wolves that occupied stable areas, and did not include dispersing wolves.

Howl surveys (Harrington and Mech 1982) were used to determine pup production, location of rendezvous sites, summer locations of non-collared packs, and to determine presence of new packs. Howl surveys are useful for determining occurrence of wolves and presence of pups, but not reliable for accurate counts of wolves beyond 2-3 wolves (Harrington and Mech 1982).

RESULTS AND DISCUSSION

DNR and USDA-Wildlife Services live trapped fifteen wolves during the spring and summer 2000, and 13 were radio collared (Table 1). Two wolves were captured by USDA-Wildlife Services on a deer farm in western Oneida County in April and May and were released into western Florence County in May (289F, 332F). Captured wolves included 4 adult males (avg. wt. 88 lbs), 2 adult females (avg. wt. 74.5 lbs), 3 yearling females (avg. wt. of 2 wolves 67.5 lbs), 2 female pups (avg. wt. 37 lbs) and 4 male pups (range 10 to 41 pounds). An adult male (334M) caught on 23 May 2000 in eastern Price County at 108 pounds, was the largest wolf caught in the state out of 193 wolves captured since 1979. A total of 1554 trap nights were used to capture 10 wolves in northern Wisconsin, for an average capture rate of 155 trap nights per wolf.

Figure 1 illustrates the 66 wolf packs located in Wisconsin in late winter 2000. Since the winter survey, at least one new pack was verified in eastern Bayfield County (Sioux River Pack). Also it appeared that the Pray area occupied by wolf 002 may have joined up with the Noch-Hanai Pack, and possibly wolf 286F of the Brunet River Pack may have joined the Log Creek Pack. Two dispersing wolves may have started new packs including 229F north of the Augustine Lake pack, and 309F south of the Rock Dam Pack. It appeared that at least 66 packs continued to exist across the state in late summer.

During the study period, 40 radio-collared wolves were monitored. Wolf 280M seemed to have joined up with a pack in Minnesota, but is continuing to be monitored by Wisconsin wolf program. Wolves were monitored in 30 state packs, and 5 appeared to be mostly dispersers, including 2 relocated wolves. Only 2 wolves went off the air during the period, wolves 315F and

333F, both of whom died. This suggests very high levels of survival during the period. At the end of the period, 37 wolves appeared to occur in 29 Wisconsin packs, 1 Minnesota pack, and 4 were mainly loners although 1 or more of these loners may have joined or formed new packs. Mean summer home range for wolves located 20 or more times was 32 square miles for all wolves, and 28 square miles for adult wolves. Adult wolves had similar sized territories last year during summer, but average 39 square miles last winter. The smallest home range area was 9 square miles for adult females 285F of the Ranger Island Pack, and adult female 724F of the Chase Brook Pack. The largest area occupied by an adult was 53 square mile area covered by wolf 002F that occupied portions of the Noch Hanai Pack, but may have included dispersal movements.

WOLF PACK AND LONE WOLF SUMMARIES

Listed below are summaries of surveys and observations of packs and individual wolves across Wisconsin (nicknames used for wolves in the field are listed in the appendix). See Figure 1 for approximate pack locations.

Crex Meadows Pack - Burnett County:

2 wolves detected last winter; no surveys in spring and summer.

Chase Brook Pack - Burnett & Douglas Counties:

3 wolves last winter; adult female 724F collared and occupied summer home range of 9 square miles; 3 pups heard in howl survey; 221 trap nights conducted in spring; but no additional captures.

Totagatic River Pack - Burnett & Douglas Counties

2 wolves last winter; collared adult male 294M (37 square miles) and adult female 295F (39 square miles) occupied similar areas; pups possibly born but none seemed to survive; none heard on howl surveys.

Moose Road Pack - Douglas & Pine Counties:

2 wolves last winter; adult male 155M occupied 32 square miles home range; 3+ pups heard on howl survey.

Truck Trail Pack - Douglas & Pine Counties:

3 wolves last winter; adult male 268M occupied 44 square miles home range in summer; no howl survey but pup production suspected.

North Empire Pack - Douglas County:

2 wolves last winter; 267M adult male occupied 33 square mile home range and adult male 298M covered 28 square miles; howl survey found 3+ pups.

South Empire Pack - Douglas County:

5 wolves last winter; adult male 297M occupied 34 square miles; no pups detected in pack.

Moose Lake Pack - Douglas County:

4 wolves last winter; no collared wolves; 2+ pups detected in howl survey.

Bird Sanctuary Pack - Douglas County:

6 wolves in winter; adult female 266F occupied 27 square miles; 4+ pups heard in howl survey.

Crotte Creek Pack - Douglas County:

4 wolves last winter; adult male 296M occupied 15 square mile home range; 3 pups heard in howl survey.

Buckley Creek Pack - Douglas & Washburn Counties:

3-4 wolves detected last winter, but may have been Crotte Creek Pack; 385 trap nights conducted in area, but no wolves caught; this pack may have been displaced.

Chain Lake Pack - Douglas County:

5-6 wolves last winter; adult male 291M occupied 31 square miles; 2+ pups heard in howl survey; the pack apparently killed a bear hound on 25 August 2000.

Shoberg Lake Pack - Douglas County:

3 wolves last winter; no collared wolves; 187 trap nights of live trapping done in area, but no capture; 3 pups heard on howl survey.

Frog Creek Pack - Washburn County:

10 wolves in pack last winter; adult female occupied home range of 31 square miles; 2+ pups heard in pack.

Tranus Lake Pack - Washburn County:

3 wolves last winter; adult female 292M occupied 13 square mile area; 3 pups heard in pack area; some limited trapping done in pack, but none caught.

Stuntz Brook Pack - Washburn County

4 wolves in territory last winter; no collared wolf; live trapped a total of 187 trap nights, but no capture; 3 pups heard during howl survey.

Spring Brook Pack - Washburn County:

2-3 wolves in area last winter; limited sign in summer; no howl surveys.

Oriente Falls Pack - Douglas & Bayfield County:

2 wolves last winter; scouting and live trapping initiated, but unsuccessful; no response on 1 howl survey.

Flagg River Pack - Bayfield County:

2 wolves last winter; limited sign on scouting survey and no live trapping attempted; no response on single howl survey.

Sioux River Pack - Bayfield County:

new pack not previously detected but to south of area previously known as Eco Valley Pack; 10 wolves were observed by Al and Jake Phelan on 6 September 2000 southwest of Bayfield; 6+ wolves with at least 3 pups were verified by tracks, scats, and howl survey on 21 September 2000; this pack was apparently overlooked last winter.

Iron River Area - Bayfield County:

2 wolves were detected west of Iron River near Highway 2 in the spring, and may have occupied a territory in the area during winter; a young adult male (90 pounds) was killed along the highway on 16 May 2000; no wolf sign was found in the adjacent areas during scouting surveys.

Rainbow Lake Pack - Bayfield County:

4 wolves detected last winter; no collared wolves; limited live trapping attempted, but no captures; 2 pups were heard in 3 howl surveys.

Smoky Hill Pack - Bayfield & Sawyer Counties:

5 wolves last winter; no collared wolves and no trapping attempted; 1 or more pups heard on one of 6 howl surveys.

Porcupine Lake Pack - Bayfield County:

3 wolves last winter; no surveys conducted during summer.

Ghost Lake Pack - Bayfield & Sawyer Counties:

2 wolves detected last winter; adult female 241F occupied 32 square miles during summer; no response on single howl survey.

Hellhole Creek Pack - Bayfield & Ashland Counties:

4 wolves found last winter; livetrapping attempts on 35 trap nights, but no wolves caught; no pups detected on howl survey, but pup production suspected.

Chippewa Flowage Area - Sawyer County:

1 or more wolves south of flowage last winter; no summer surveys conducted in area.

Tupper Creek Pack - Sawyer County:

2 wolves last winter; no collared wolves; no summer surveys in area.

Hay Stack Corner Pack - Sawyer & Rusk Counties:

3 wolves in area last winter; no collared wolves; no summer surveys in area.

Thornapple River Pack - Price & Sawyer Counties:

2+ wolves last winter; no collared wolves; no live trapping attempted; no response on single howl survey.

Price Creek Pack - Price County

7 wolves in pack last winter; no collared wolves; live trapping with 39 trap nights attempted, but no wolves caught; pups probably born due to presence of active den site, but no howl surveys completed.

Brunet River Pack - Sawyer & Ashland Counties:

2 wolves last winter; adult female 286F occupied a summer home range of 34 square miles, but much of this area included portions of the Log Creek Pack; the female wolf may have rejoined the Log Creek Pack, her natal territory; no responses were received in 3 howl surveys in the Brunet River/Log Creek area.

Log Creek Pack - Sawyer, Ashland & Price Counties:

4 wolves detected last winter; no collared wolves except that 286F seemed to reoccupy portions of this territory; no trapping attempted; no response on 3 howl surveys.

Torch River Pack - Ashland County:

4-5 wolves detected last winter; adult male 248M caught after 8 trap nights in pack on 28 June 2000; the preliminary summer home range (12 locations) was at least 18 square miles; 2+ pups detected in pack with howl survey on 23 August 2000, but a male pup was killed by vehicle collision on Highway 77 on 15 August.

Shanagolden Pack - Ashland County:

2 wolves in area last winter; no collared wolves in pack; limited scouting surveys in early summer and some wolf sign found; no trapping or howl surveys conducted; possibly pups produced.

Black Creek Pack - Ashland & Sawyer Counties

2 wolves detected in this pack last winter; 78 trap nights of live trapping were conducted in early and late summer; female pup 247F was caught on 4 September and male pup 250M was caught on 9 September; 2 pups had been detected with a howl survey in August; this pack occurred in the area of the reintroduced elk herd, and these two collared wolves are the first collared wolves in this pack.

Dingdong Creek Pack - Ashland County:

3 wolves were detected last winter in this area northeast of Clam Lake; wolf 248M of the Torch River Pack occupied portion of this area during the summer; no howl surveys were conducted in the area, and the pack area may have been absorbed by other packs.

West Firelane Pack - Ashland County:

2 wolves were detected in this pack in the Bad River Indian Reservation last winter; no surveys were reported for this area in summer.

Brush Creek Pack - Ashland County:

4 wolves were detected in this area last winter; adult wolf 310M occupied a 30 square mile home range in this pack over summer; 2+ pups were heard in this pack on a howl survey.

Morrison Creek Area - Iron & Ashland County:

1 wolf was detected in this area last winter; no surveys were reported for this area in summer; an adult male and yearling female collared by Michigan DNR overlapped into northern Iron County and perhaps occupied part of the area of this former pack.

Penokee Ridge Area - Ashland County:

Wolf 229F settled into an area east of Mellen and occupied a summer home range of 19 square miles; she was initially thought to be alone, but a wolf pup was killed by vehicle in her home range on 8 July 2000; no wolves responded to a howl survey. Wolf 229F had left the Augustine Lake pack last winter and joined the West Firelane pack in February. Although she left the West Firelane pack in March, she may have been impregnated, and perhaps raised pups by herself during the summer.

Augustine Lake Pack - Ashland & Iron Counties:

5-6 wolves in this pack during winter; no collared wolves; no surveys conducted in summer, but pup production suspected.

O'Brien Lake Pack - Iron County:

2 wolves in area last winter; 56 trap nights of live trapping in the area during summer, but no captures; no howl surveys.

Pine Lake Pack - Iron County:

3 wolves were detected last winter; no collared wolves; no surveys in summer, but several observations of wolves along Highway 51 near Mercer; depredation on calf outside Mercer probably caused by this pack in May.

Chippewa River Pack - Iron & Ashland Counties:

4 wolves detected last winter; wolf 351M (adult male) was caught in this territory on 17 June 2000 after 35 trap nights; his initial home range covered 38 square miles; no howl surveys conducted, but pups suspected.

Eastside Firelane Pack - Ashland County:

2 wolves detected last winter; no surveys in summer, but reports received of wolf observations in the area; possibly pups produced.

Hoffman Lake Pack - Price & Ashland Counties:

5 wolves in pack last winter; adult female 245F occupied summer home range of 21 square miles; 2+ pups heard on howl survey.

Miles Lake Pack - Price, Ashland & Iron Counties:

2 wolves found last winter; no collared wolves; no response to single howl survey.

Wintergreen Lake Pack - Price County:

2 wolves in area last winter; adult female 316F occupied a summer home range of 42 square miles; no response received at howl survey; pup production is not suspected.

Wilson Flowage Pack - Price County:

5 wolves were detected in this territory last winter; adult male 334M and yearling female 333F were caught in this territory on 23 May after 42 trap nights; 334M occupied an area of at least 27 square miles, but 333F dispersed; no pups were heard in 5 howl surveys.

Bootjack Lake Pack - Price & Oneida County:

6 wolves were detected in the territory last winter; 3 wolf pups were live trapped and one adult male escaped after capture; 164 trap nights were conducted in this territory; male wolf pup 353M was collared and was the first black wolf collared and caught in Wisconsin; no wolves were heard on howl survey, but live capture indicates at least 3 pups produced.

Scotchman Lake Pair - Oneida County:

2 wolves detected last winter; no surveys conducted in summer.

North Willow Pack - Oneida County:

11 wolves in this pack last winter; adult female 244F occupied a small home range of 14 square miles during summer; no response by pups were heard during 3 howl surveys, but pup production was suspected.

Little Rice River Pack - Oneida County:

5 wolves found last winter; adult female 282F occupied a summer home range of 31 square miles; wolf 333F joined the pack during part of the summer and occupied a similar home range of 33 square miles; 2+ pups were heard during 1 of 2 howl surveys.

Clifford Pack - Oneida County:

2 wolves detected last winter; no wolves detected on 1 extensive howl survey.

Kidrick Swamp Pack - Taylor County:

2 wolves detected last winter; a wolf that died from accident over winter was found on 10 April, sex and age were not determined; no wolves were heard on a single howl survey.

Somo River Pack - Lincoln County:

2 wolves found in this area last winter; no surveys during summer, but several reports of wolf sightings in area; possibly pups were produced.

Ranger Island Pack - Lincoln County:

3 wolves detected last winter; adult female 285F held home range of 9 square miles during summer; 4-5 pups heard in single howl survey.

Averill Creek Pack - Lincoln County:

3 wolves found last winter; collared yearling 315F (caught as pup in 1999) was found dead in late April due to intraspecific strife and obstructions from radio collar; limited trapping was conducted in summer, but wolf sign was limited; no howl surveys conducted.

Nineweb Lake Pack - Vilas County:

3 wolves detected last winter; yearling female 318F was caught on 11 May after 2 trap nights; the wolf occupied a home range of 96 square miles, but may have included pre-dispersal and extraterritorial moves; 3 pups were heard in the pack in 1 of 2 howl surveys.

Giant Pine Pack - Forest County:

2 wolves detected last winter; 86 trap nights were unsuccessful in a wolf capture; a howl survey by Chris Giese on 4 August 2000 received responses of 3 pups, the first pups heard in the Nicolet National Forest since wolves recolonized Wisconsin.

Rock Dam Pack - Eau Claire & Clark Counties:

2-3 wolves detected in area last winter; no surveys were conducted during summer; wolf 309F, who dispersed out of Juneau County, settled just south of the Rock Dam area.

Tioga Area - Clark County:

Yearling female 309F, originally from the Beaver Creek Pack in Juneau County, settled into the Tioga area of western Clark County in June and occupied a 50 square mile home range. It was not known if she occupied the home range by herself; no howl surveys were conducted.

Noch Hanai Pack - Juneau County:

3-4 wolves were detected in this pack last winter, although no wolf was caught and collared in this pack, adult female 002F of the Wildcat Mound pack occupied much of this area throughout summer. Wolf 002F occupied a 53 square mile home range, but moved north into Clark County in late August. 2 pups were heard on the east side of wolf 002F's home range near Saddle Mound/Pray; it was not clear if these pups were members of the Noch Hanai or Two Korner Pack.

Pray/Saddle Mound Area - Jackson County:

3 wolves including wolf 002F occupied this area last winter, but now appears these were probably members of an adjacent pack. Wolf 002F occupied the Pray and Noch Hanai area during much of summer, but dispersed to the north in late August.

Two Korner Pack - Jackson & Clark Counties:

1 or 2 wolves occurred in the area during winter; no collared wolves occurred in this pack; a howl survey in the pack was unsuccessful, but response of 2 pups near Saddle Mound from another survey may have been members of the Two Korner Pack.

Wildcat Mound Pack - Jackson County:

6 wolves last winter; adult male 337M caught on 17 July 2000; the wolf occupied at least 27 square miles; at least 2 pups were heard in this territory during 3 howl surveys. An adult male 238M from this pack was killed by a vehicle collision east of the territory on 25 August 2000. The wolf had not been on the air for 3 years.

Bear Bluff Pack - Jackson County:

4-5 wolves in pack last winter; yearling female 311F was caught in the territory on 24 September 2000; no pups were heard on 4 howl surveys, but pup production was suspected.

South Bluff Area - Wood & Juneau Counties:

1 wolf in the area last winter; no summer surveys.

Beaver Creek Pack - Juneau County:

5-7 wolves occurred in the pack last winter; no surveys were conducted in this area during summer; the pack may have blended with an adjacent pack.

Suk Cerney Pack - Juneau County:

7 wolves occurred in the territory in the Necedah National Wildlife Refuge last winter; extensive trapping was conducted during summer, but no wolves were caught; no wolves responded to howl surveys, but howling of pups and adults were heard by citizens.

Yellow River Pack - Juneau County:

: 2 wolves were detected along the Yellow River last winter; 2 pups and an adult were heard during 1 howl survey.

WOLVES ON THE EDGE

Wolf 280M apparently had dispersed from Wisconsin into Minnesota and joined a territory near Bruno in April. The adult male occupied a 17 square mile home range about 18 miles west of the Wisconsin border.

Other Wisconsin packs overlapping into Minnesota including the Crex Meadow, Chase Brook, Moose Road, and Truck Trail Packs. The majority of these packs' territories occurred in Wisconsin.

At least 3 Michigan packs overlapped into Wisconsin. A pack containing a radio collared adult male and yearling female include home range areas in northern Iron County. A Michigan pack overlapped into east Iron County and a third pack overlapped into northwest Vilas County.

DISPERSING WOLVES AND RELOCATED WOLVES

Wolf 002F: Last winter it appeared that wolf 002F had split off from the Wildcat Mound Pack and found a new pack with 2 other wolves north of Highway 54 in the Pray/Saddle Mound area. It was apparent in spring and summer that 002F freely moved through the Noch Hanai area around Waterbury. It appeared that maybe wolf 002F may have joined the Noch Hanai Pack, but in late August she moved further northward. Between 20 August to 9 September she moved 12 miles north to an area north of Highway 73. She returned south of 73 by 12 September and spent the remainder of September in south Clark County between Highway 73 and Sherwood Lake.

Wolf 229F: This wolf was alpha female of the Augustine Lake Pack from 1994 until winter 1999-2000. She had moved north to join the West Firelane Pack in February and mid March. She attempted to rejoin the Augustine Lake Pack, but soon left and roamed areas west and north of the Augustine Lake Pack near Highway 13. Initially it was assumed that she had not bred, because she abandoned the West Firelane territory. But her movements in April and early May suggest the possibility that she may have produced pups. Collared wolves are rarely seen in Wisconsin in spring or summer, therefore it was not known if 229F was with another adult. Her restricted movements in summer and the death of a pup in her home range, indicate that she probably occupied a stable territory along the Penokey Range and along Highway 77.

Wolf 289F: Adult female 289F was caught in a deer farm near Hazelhurst in Oneida County on 26 April 2000. This wolf was originally caught on 5 June 1998 in the Shoberg Lake area of

Douglas. She disappeared soon thereafter and had not been detected again until recaptured on the deer farm, 110 miles to the east. The wolf was relocated 59 miles to the east in western Florence County in the Nicolet National Forest on 2 May 2000. Wolf 289F initially moved to the northwest in a direction across northern Forest County and into Vilas County. By 10 May, the wolf had moved as far west as Boulder Junction 60 miles to the west of her release site. The wolf spent most of the remainder of May in central Vilas County near Star Lake. In late May, 289F returned to western Florence County, and traveled to the east into Michigan in June. By 12 June, wolf 289F had moved 65 miles east of her release site to western Delta County, Michigan. She spent the remainder of June gradually heading back to Vilas County, Wisconsin, traveling through Michigan Counties Delta, Menominee, Marquette, Dickinson and Iron. Wolf 289F roamed eastern Vilas County in July, and took one trip back to her release site before returning to Vilas County. By August 2000, it appeared that 289F had settled into eastern Vilas County between Conover and Land O' Lakes. She continued to occupy the Vilas County area throughout September.

Wolf 298M: Although 2-year old male 298M remained in the North Empire Pack most of this period, he did make several moves to the west into Minnesota up to 16 miles from his territory. His movements suggest that he appears to be preparing to disperse.

Wolf 309F: Female wolf pup 309F was caught in northern Necedah Wildlife Refuge on 15 November 1999. She was thought to be a member of the Beaver Creek Pack that roamed northern Necedah Refuge and Meadow Valley Wildlife area to the west. In February 2000, wolf 309F dispersed eastward to the west side of Petenwell Flowage, and remained in the area through late March. The wolf was lost from 28 March to 2 May, and was rediscovered near City Point in Jackson County to the northwest. By 6 June she had moved into Eau Claire County, 56 miles northwest of her original capture in Juneau County. Wolf 309F settled into an area of western Clark County west of Tioga, north of Highway 10 and south of the Rock Dam Lake.

Wolf 332F: Adult female 332F was also caught in the deer farm near Hazelhurst on 10 May 2000 and was released into western Florence County, 51 miles to the east on 29 May 2000. By 6 June she had moved 18 miles to the southeast to the Three Lakes area of Oneida County. By 13 June, 332F had moved 14 miles further southward to Highway 8, half way between Rhinelander and Monico. Wolf 332F continued southward, spending time in areas north of Pelican Lake, before traveling south into Langlade County on 21 June 2000, 15 miles south of her location on 13 June, and southwest of the release site. The wolf spent the remainder of the study period traveling across southeastern Oneida and northern Langlade counties, with concentrated activity north of Pelican. She traveled as far north as Stark, and as far south as Kempster, a distance of about 26 miles. It did not appear that she had settled into a permanent home range by the end of September.

Wolf 333F: Yearling female 333F was caught in the Wilson Flowage Pack on 23 May 2000, about 1 mile from 334M, the alpha male caught on the same day. She did not remain long in the Wilson Flowage Pack and by 31 May had moved 11 miles north to an area about 8 miles east of Park Falls. She remained in the area near Park Falls for about 2 weeks before heading to the southeast. By 15 June, 333F had moved 27 miles into the Little Rice River Pack area and remained in that territory until after 24 July. On 31 July, 333F was found dead 12 miles to the

northwest, in eastern Price County., It was not clear if 333F originated from the Wilson Flowage Pack or the Little Rice River Pack, her ready acceptance in the later pack suggests that it may have been her natal pack.

SUMMARY OF HOWL SURVEYS

Over 68+ pups were heard or observed in 26 different wolf packs across Wisconsin, averaging 2.6 pups per pack (Table 4). No pups were heard or observed in 19 packs. Pup production was probably considerably higher because it is difficult to count more than 3 or 4 pups in howl surveys, and many of the packs were not adequately surveyed. Last year 60 pups were heard in 21 packs, thus pup production was similar. Success rates on 63 surveys was responses at 40 stops of 504 howl stops or success rate of 7.9%. Surveys outside of Douglas County included 101.7 hours and 559 miles of survey.

Howl surveys were also conducted in areas where packs were not known to exist to determine if wolves were present. Surveys were conducted west of Park Falls, east of Mellen and east of Monico, but no wolves were detected in these areas. A volunteer did hear possible wolf howls in northern Oconto County.

REPORTED WOLF OBSERVATIONS

A total of 37 "probable" and "possible" wolf observations were reported for July-September 2000. This is higher than the 23 reports for the same period in 1999, and higher than the previous quarter when 25 were reported. Reports were received from 14 counties, including 10 of the 20 counties with known packs. Highest reporting rates were for Bayfield (9) and Price (6) Counties.

WOLF MORTALITY AND HEALTH

Ten wolves including 3 radio collared wolves were found dead between April and September 2000 (Table 6). One of the collared wolves was wearing an inactive collar. Vehicle collisions caused the death of 6 wolves, 1 was shot, 1 died from injuries due to other wolves, 1 died from a natural accident (became wedged between two stems of a tree), and 1 died from unknown causes.

Wolf 315F died in late April due to bites, apparently from other wolves. Her radio collar was too tight due to foam rubber material on the collar that normally allows expansion, but did not wear away, and caused the collar to wear down to the neck muscles. The handicap may have reduced the wolf's ability to adequately defend herself or escape attacks. Different foam rubber material will be used on future pup captures to eliminate this type of injury.

Generally, wolves captured in summer 2000 looked healthy and none appeared to have mange. Blood was collected on all wolves and will be tested for diseases this winter.

WOLF DEPREDATION

Eleven cases of wolf depredation occurred in Wisconsin between April and September 2000

(Table 7). These included 8 cases of livestock depredation, 1 poultry, 1 deer (deer farm), and 1 dog. Total depredation included 6 calves killed, 1 calf injured, 2 calves missing, 4 chickens killed, 3 deer killed and 1 dog killed. Depredation on dogs seems to have declined in recent years, while livestock depredation has been similar the last 3 years.

Two wolves were live captured out of a deer farm at Hazelhurst. The same farm lost 19 deer last year, and 2 wolves were removed in spring 1999. Fence repairs were apparently not adequate, and 1 or 2 wolves again moved into the deer farm in fall 1999. Intermittent trapping by USDA-Wildlife Services was not successful until late April and early May when 2 adult females were live trapped. Both wolves were relocated to western Florence County 51 and 59 miles away. Wolf 289F was being monitored by satellite collar, while 332F was being monitored by traditional VHF collar. Although both wolves moved extensively, neither returned to the deer farm.

Live trapping was attempted on the Chase Brook pack in Burnett County to attempt to place shock collars on pack members as done in 1999. Wolf 724F was fitted with a shock collar in 1999, and no depredations occurred on the farm that year. No wolves were caught in 221 trap nights. Two calves were lost on the farm during spring and summer, although no radio locations of 724F were detected on the farm. Possibly depredation was due to other pack members.

PLANS FOR NEXT STUDY PERIOD

Aerial telemetry will be used to obtain complete counts on collared packs, and snow tracking will be used to count wolves in non collared packs. Intense monitoring of packs will occur during fall hunting seasons. A volunteer tracking program will be used for the 6th winter season to help supplement agency surveys.

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Appendices.

Note: This report is a preliminary progress report and should not be construed as a finalized publication. Some of the numbers of pack size, composition, population figures, and other information may change as more data becomes available. Persons wishing to cite figures within the report should consult with the author. Persons wishing to cite figures on the Highway 53 Wolf Study should contact Bruce Kohn directly.

Table 1
Wolves captured and radio-collared in Wisconsin April - September 2000

Wolf Number	Sex/Age ^a	Weight (lbs)	Pack/Area	County	Date Captured
247	F/P	31	Black Lake	Sawyer	04 Sep 00
248	M/A	78	Torch River	Ashland	28 Jun 00
250	M/P	30	Black Lake?	Sawyer	09 Sep 00
289 ^b	F/A	80	Relocated	Oneida	26 Apr 00
310	F/P	42	Dead Creek	Jackson	15 Sep 00
311	F/Y	76	Bear Bluff	Jackson	24 Sep 00
318	F/Y	60	Nineweb Lake	Vilas	11 May 00
332 ^c	F/A	69	Relocated	Oneida	10 May 00
333	F/Y	59	Wilson Flowage	Price	23 May 00
334	M/A	108	Wilson Flowage	Price	23 May 00
335 ^d	M/P	10	Bootjack Lake	Oneida	30 May 00
336 ^d	M/P	26	Bootjack Lake	Oneida	10 Jul 00
337	M/A	80	Wildcat Mound	Jackson	17 Jul 00
351	M/A	86	Chippewa River	Iron	17 Jun 00
353	M/P	41	Bootjack Lake	Oneida	12 Sep 00

^aAge at time of capture assuming birth date 1 April (P = Pup, Y = Yearling, A = Adult)

^bCaptured by Wildlife Services on game farm, relocated to Florence County 2 May 00.

^cCaptured by Wildlife Services on game farm, relocated to Forest County 29 May 00.

^dNot collared, too small.

Table 2
Radio-collared wolves monitored in northern
and central Wisconsin
April - September 2000.

Wolf Number	Age^a	Pack/Area	Counties	Date Captured	Last Date	Location^b
002F	Y	Pray/Nock Hanai	Jackson	10 May 98	Ongoing	129
155M	A	Moose Road	Douglas/Pine	6 May 97	Ongoing	274
229F	A	Disperser?	Ashland	17 July 98 ^c	Ongoing	357
241F	P	Ghost Lake	Bayfield	20 Nov 97 ^d	Ongoing	136
244F	A	North Willow	Oneida	23 Jul 97	Ongoing	152
245F	P	Hoffman Lake	Iron/Price	30 Jul 97	Ongoing	165
247F	P	Black Lake	Ashland/Sawyer	4 Sept 00	Ongoing	4
248M	A	Torch River	Ashland	28 June 00	Ongoing	12
250M	P	Black Lake?	Sawyer/Ashland	9 Sept 00	Ongoing	2
266F	Y	Bird Sanctuary	Douglas	7 Aug 96	Ongoing	344
267M	A	North Empire	Douglas	28 Aug 96	Ongoing	334
268M	Y	Truck Trail	Douglas/Pine	11 Jun 97 ^e	Ongoing	263
269M	P	Dead Creek	Jackson/Juneau	17 Sept 99	Ongoing	56
280M	Y	MN pack	Pine	13 May 98	Ongoing	155
282F	Y	Little Rice River	Oneida	10 May 98	Ongoing	129
285F	A	Ranger Island	Lincoln	24 Aug 98	Ongoing	106
286F	Y	Brunet River	Sawyer/Ashland	5 Sep 98	Ongoing	101
289F	A	Relocated	Florence/Vilas/MI	26 Apr 00 ^f	Ongoing	76
291M	A	Chain Lakes	Douglas/Washburn	27 Jun 99	Ongoing	69
292M	Y	Tranus Lake	Washburn	21 May 99	Ongoing	79
293F	A	Frog Creek	Washburn	23 May 99	Ongoing	78
294M	A	Totagatic River	Burnett	23 May 99	Ongoing	77
295F	Y	Totagatic River	Burnett/Douglas	25 May 99	Ongoing	78
296M	Y	Crotte Creek	Douglas	28 May 99	Ongoing	77
297M	A	South Empire	Douglas	2 Jun 99	Ongoing	77
298M	Y	North Empire	Douglas/Pine	8 Jun 99	Ongoing	73
309F	P	Disperser	Jackson/Clark	15 Nov 99	Ongoing	59
310F	P	Dead Creek	Jackson	15 Sep 00	Ongoing	
310M	P	Brush Creek	Ashland	2 Nov 97 ^g	Ongoing	79
311F	Y	Bear Bluff	Jackson	24 Sept 00	Ongoing ^g	
315F	P	Averill Creek	Lincoln	4 Sep 99	19 Apr 00 ^h	37
316F	A	Wintergreen	Price	20 Oct 99	Ongoing	55
318F	Y	Nineweb Lake	Vilas	11 May 00	Ongoing	27
332F	A	Relocated ⁱ	Forest/Oneida/Lan glade	10 May 00	Ongoing	36
333F	Y	Disperser	Price/Oneida	23 May 00	31 July 00 ^h	26
334M	A	Wilson Flowage	Price	23 May 00	Ongoing	23
337M	A	Wildcat Mound	Jackson	17 Jul 00	Ongoing	12

351M	A	Chippewa River	Ashland/Iron	17 Jun 00	Ongoing	17
353M	P	Bootjack Lake	Oneida/Price	12 Sep 00	Ongoing	2
724F	A	Chase Brook	Burnett	26 April 99 ^j	Ongoing	270

^aAge at time of capture (P=Pup,Y=Yearling,A=Adult)

^bTotal locations from the time of capture

^cRecaptured wolf, first captured as a yearling in Sawyer County on 9 Jul 1993

^dRecaptured wolf, first captured in Ashland County on 23 Jun 1997, 19 lb. pup too small to collar

^eRecaptured wolf, first captured as a pup in Douglas County on 28 Aug 1996

^fRecaptured wolf, first captured in Douglas County on 5 Jun 1998, captured in deer farm in Oneida County, relocated to Florence Cty.

^gCaptured in Houghton County, Michigan

^hMortality

ⁱCaptured in deer farm in Oneida County, relocated to Forest County

^jRecaptured wolf, first captured in Douglas County 28 May 1997

Table 3
Home range of wolves monitored during summer 2000

Wolf Number	age^a	Pack/Area	No. of Summer Locations^b	Winter Home Range (mi²)
002F	A	Pray/Disperser ^c /Noch Hanai	25	53
155M	A	Moose Road	22	32
229F	A	Loner?	22	19
241F	A	Ghost Lake	22	32
244F	A	North Willow	22	14
245F	A	Hoffman Lake	23	21
247F	P	Black Lake	4	NE ^d
248M	A	Torch River	12	18
250M	P	Black Lake	2	NE
266F	A	Bird Sanctuary	22	27
267M	A	North Empire	22	33
268M	A	Truck Trail	22	44
269M	Y	Dead Creek	24	39
280M	A	MN Pack	22	17
282F	A	Little Rice River	24	31
285F	A	Ranger Island	22	9
286F	A	Burnet River	20	34
289F	A	Relocated	62	NE
291M	A	Chain Lakes	22	31
292M	A	Tranus Lake	22	13
293F	A	Frog Creek	22	31
294M	A	Totagatic River	22	37
295F	A	Totagatic River	22	39
296M	A	Crotte Creek	22	15
297M	A	South Empire	22	34
298M	A	North Empire	21	28
309F	Y	Disperser ^e	34	50
310M	A	Brush Creek	22	30
315F	Y	Averill Creek	1	NE
316F	A	Wintergreen	21	42
318F	Y	Nineweb Lake	26	96
332F	A	Relocated	37	NE
333F	Y	Disperser/Little Rice River ^f	17	33
334M	A	Wilson Flowage	23	27
337M	A	Wildcat Mound	12	26
351M	A	Chippewa River	17	38
353M	P	Bootjack Lake	2	NE
724F	A	Chase Brook	22	9
Mean Overall (20+ locations, n = 28)f				32 mi ²

Mean adult (20+ locations, n = 25)^f | 28 mi²

^aAge during monitoring period (P=Pup, Y=Yearling, A=Adult)

^bTotal locations 15 April to 14 September 2000

^cLocations before dispersal

^dNo estimate

^eLocations after dispersal

^fLocations while in Little Rice River pack

Table 4
Howl Surveys and Pup Production in
Wisconsin Wolf Packs Spring-Summer 2000.

Pack/Area	N o. of H o w l S u r v e y s	Miles Surveyed	Hours Howled	No. of Howl Stops	No. of Stops W/Wolves	Est. No. of Pups	Pups Observed
Bear Bluff	4	43.4	7.5	32	1?	0	-
Bird Sanctuary	N D	ND	ND	ND	ND	4+	-
Black Lake	1	16.6	2	17	3	2	-
Bootjack Lake	1	6	1.8	8	2	3 ^a	3
Brush Creek	1	4	0.6	3	2	2+	-
Chain Lake	N D	ND	ND	ND	ND	2+	-
Chase Brook	N D	ND	ND	ND	ND	3	-
Clifford	1	24.6	3.1	18	0	0	-
Crotte Creek	N D	ND	ND	ND	ND	3	-
Dead Creek	1	ND	ND	ND	ND	1+	1
Flagg River	1	19.3	5.8	19	0	0	-
Frog Creek	1	2	0.5	1	1	2+	-
Ghost Lake	1	8.7	0.8	6	0	0	-
Giant Pine	1	11.1	2.5	11	2	3	-
Hellhole Creek	1	15.2	2	9	0	0	-
Hoffman Lake	1	7.9	1.2	7	4	2+	-
Kidrick Swamp	1	16	4.2	18	0	0	-
Little Rice River	2	9.6	0.9	4	1	2+	-
Log Creek/Brunet River?	3	38.5	6	30	0	0	-
Miles Lake	1	7	2.2	9	0	0	-
Moose Lake	2	18.7+	2+	14+	2	2+	-
Moose Road	N D	ND	ND	ND	ND	3+	-

Nineweb Lake	2	11.3	3	12	1	3	-
Noch Hanai?	2	19	3.3	22	1	? ^b	-
North Empire	N D	ND	ND	ND	ND	3+	-
North Willow	3	13.2	5	18	1	0	-
Oriente Falls	2	8	2.3	8	0	0	-
Rainbow Lake	3	35.2	6.8	24	1	2+	-
Ranger Island	1	ND	0.1	1	1	5	-
Saddle Mound/Pray	1	1.8+	0.7	8	3	2 ^b	-
Shoberg Lake	N D	ND	ND	ND	ND	3	-
Sioux River	1	5.8	1.4	5	2	3+	-
Smoky Hill	6	77.8	7.5+	35	2+	1+	-
South Empire	1	19.9	5	21	1	0	-
Stuntz Brook	N D	ND	ND	ND	ND	3	-
Suk-Cerney	3	30.7+	3.8+	32	0	? ^c	-
Thornapple River	1	9	1.9	10	0	0	-
Torch River	1	5	0.7	3	2	2+	-
Totagatic River	N D	ND	ND	ND	ND	0	-
Tranus Lake	2	3+	0.5+	3+	2+	3+	-
2-Korner	1	4.8	1	6	0	? ^b	-
Wildcat Mound	3	3.1+	2.1+	10	4	2+	-
Wilson Flowage	5	58.5	12.3	48	3	0	-
Wintergreen	1	4.4	1.2	5	0	0	-
Yellow River	1	ND	ND	4	1	2+	-
Additional Areas Surveyed							
W. Park Falls	3	14	3.9	16	0	0	-
Monico – SE	1	8.8	2.2	9	0	0	-
Penokee Ridge	1	3	0.7	2	0	0	-
Totals	63 (36 packs)	558.9 (33 packs)	101.7 (34 packs)	481 (35 packs)	43 (23 of 35 packs)	68+ (26 of 45 packs)	4 pups observed

^aND = No Data

^b3 pups captured in pack, but none heard

^cSaddle Mound pups possibly members of Noch Hanai or 2-Korner pack

^d10+ pups and adults reported howling by citizen

Table 5
Wolf observations by the general public and
resource agency personnel April - September 2000.

County	No. of Sightings	Wolves Seen	Track or Sign Observations	Total Wolf Observations
Ashland*	3	3	0	3
Bayfield*	8	21	1	9
Buffalo	1	1	0	1
Douglas*	1	1	0	1
Fond Du Lac	1	1	0	1
Iron*	4	8	0	4
Juneau*	1	1	0	1
Langlade	1	1	0	1
Lincoln*	1	6	0	1
Marathon	1	2	0	1
Oneida*	1	1	0	1
Price*	6	8	0	6
Vilas*	4	5	0	4
Washburn*	3	4	0	3
Totals	36	63	1	37

* Counties with known breeding packs. No observations were reported from Burnett, Clark, Eau Claire, Forest, Jackson, Monroe, Rusk, Sawyer, Taylor and Wood Counties where breeding packs are known to exist.

Table 6
Wolf mortality in Wisconsin
April - September 2000

Date	Wolf Number	Age/Sex	County	Cause
04/10/00		?/?	Taylor	Accident
04/19/00	315	Y/F	Lincoln	Other wolves/tight collar
5/16/00		A/M	Bayfield	Vehicle collision
06/15/00		?/?	Vilas	Unknown
07/08/00		P/?	Ashland	Vehicle collision
07/31/00	333	Y/F	Price	Shooting
08/15/00		P/M	Ashland	Vehicle collision
08/24/00		P?/M	Douglas	Vehicle collision
08/25/00	238	A/M	Jackson	Vehicle collision
09/05/00	?*	P/M	Douglas	Vehicle collision
*Possibly wolf-dog hybrid				

Table 7
Wolf depredation cases on livestock and
pets in Wisconsin, April - September 2000

Date	Animal Lost	Pack Involved	County	Payments	Other Actions
4/12	1 calf	Chase Brook	Burnett	Pending	None
4/26 & 5/10	3 deer	Little Rice River?	Oneida	\$13,000	2 livetrapped by WS, translocated
5/2	1 calf	Tupper Creek?	Sawyer	\$500	None
5/8	1 calf	Pine Lake	Iron	\$730	None
5/19	1 calf injured 1 calf missing	Loner	Douglas	No claim	None
5/20	1 calf missing	Tranus Lake	Washburn	Pending	None
7/8	1 calf	Case Brook	Burnett	Pending	None
7/28	1 calf	Hybrid?	Marathon	Pending	None
8/22	4 chickens killed 3 turkeys missing	North Empire	Douglas	Pending	None
8/25	1 dog (Plott)	Chain Lake	Douglas	Pending	None
9/16	1 calf	Flagg River	Bayfield	Pending	None
11 cases	14 animals killed 1 animal injured 5 missing	8 packs 1+loners 1 unknown	8 counties 8 farms		2 livetrapped 2 translocated
	6 calves killed 1 calf injured 2 calves missing 1 dog killed 4 chickens killed 3 turkeys missing 3 deer killed				

Appendix
Nicknames used for radio-collared wolves

Wolf Number	sex^a	Age^a	Status	Nickname
002	F	A(3yrs)	Subordinate	Miva
155	M	A(5yrs)	Subordinate?	Woody
229	F	A(8yrs)	Subordinate	Shelby
241	F	A(3yrs)	Subordinate	Marry
244	F	A(7yrs)	Alpha	Maggie
245	F	A(3yrs)	Alpha	Jody
247	F	P(<1yr)	Subordinate	Hattie
248	M	A(>2yrs)	Alpha	Grady
250	M	P(<1yr)	Subordinate	Wundo
266	F	A(5yrs)	Alpha	Luna
267	M	A(>6yrs)	Alpha	De Brock
268	M	A(4yrs)	Alpha	Barker
269	M	Y(1yr)	Subordinate	Mike
280	M	A(3yrs)	Alpha?	Tagg
282	F	A(3yrs)	Subordinate	Sheri
285	F	A(>3yrs)	Subordinate?	Shelli
286	F	A(3yrs)	Alpha?	Raven
289	F	A(>4yrs)	Subordinate	Journey
291	M	A(>3yrs)	Alpha?	Sase
292	M	A(2yrs)	Subordinate	Daniel
293	F	A(>3yrs)	Alpha	Terra
294	M	A(>3yrs)	Alpha	Joseph
295	F	A(2yrs)	Alpha	Jesse
296	M	A(2yrs)	Subordinate	Wag
297	M	A(>3yrs)	Alpha?	Albert
298	M	A(2yrs)	Subordinate	Max
309	F	Y(1yr) ^e	Subordinate	Ann
M310	M	A(3yrs)	Alpha?	Cayuga
310	F	P(<1yr)	Subordinate	Lorrie
311	F	Y(1yrs)	Subordinate	Severina
315	F	Y(1yr)	Subordinate	Melanie
316	F	A(>3yrs)	Alpha	Jane
318	F	Y(1yr)	Subordinate	Thunderbolt
332	F	A(>2yrs)	Subordinate	Pam
333	F	Y(1yr)	Subordinate	Linda
334	M	A(>2yrs)	Alpha	Marshall
337	M	A(>2yrs)	Alpha?	Jack
351	M	A(>2yrs)	Alpha?	Jay
353	M	P(<1yr)	Subordinate	Midnight
724	F	A(>5yrs)	Alpha?	Kara

^aAge as of 1 May 2000

