WISCONSIN ENDANGERED RESOURCES REPORT #143
STATUS OF THE TIMBER WOLF IN WISCONSIN
PERFORMANCE REPORT 1 JULY 2011 THROUGH 30 JUNE 2012
(also PROGRESS REPORTS FOR 15 ARPIL 2011-14 APRIL 2012, and 2011 summaries)

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SUMMARY

This report covers activities conducted from 1 July 2011 through 30 June 2012, and summary of data collected in 2011 on wolf conservation in Wisconsin. The Wisconsin DNR reclassified wolves from endangered to threatened in 1999, delisted to protected wild animals on 1 August 2004, and designated a game species on 2 April 2012. The U.S. Fish and Wildlife Service federally downlisted wolves to threatened from 1 April 2003 to 31 January 2005 relisted thereafter, delisted from 12 March 2007 to 29 September 2008, relisted thereafter, delisted on 3 May 2009 to 1 July 2009, relisted thereafter, and delisted wolves again on 27 January 2012.. The 1999 Wisconsin Wolf Management Plan and 2007 Wolf Plan Addendum determined wolf management in the state, and this report follows the outline of those plans to describe wolf management activities. Act 169 signed by the Governor on 2 April 2012 designated a wolf hunting and trapping season, and this report summarizes efforts toward developing the public harvest.

Twenty wolves were live captured, and were fitted with radio collars in 2011 in 16 different packs. Eighty-two radio collared wolves were monitored during 2011. About 11,800 square miles of the state was estimated to be occupied by territorial wolves in winter 2011-2012. The minimum count for winter 2011-2012 was 815-880 wolves, including 20+ as loners and the rest in 213 packs, and included 774 to 838 wolves living outside Indian reservations in the state. Twenty-three wolves being actively monitored died in 2011 and included: 9 illegally killed, 7 vehicle collisions, 2 euthanized in human safety situations, 1 artillery fire, 1 capture related, 2 other wolves, 1 mange and disease. A total of 80 wolves were found dead in the state in 2011 and included the following mortality factors: 4 euthanized human safety concerns, 42 vehicle collisions, 24 illegally killed, 1 capture related, 1 artillery fire, 1 died from mange, 3 died from other wolves, and 4 died from unknown mortalities. One of 20 live-captured wolves examined in 2011 had sign of mange. Reports of wolf observations were received from 59 counties. Sixty-five cases of depredations on domestic animals occurred during the period and included: 68 cattle killed and 3 injured, 44 sheep killed, 11 goats killed and 1 injured, 1 horse, 1 llama, 2 chickens, 2 farm deer, 21 dogs killed and 7 dogs injured. Four wolves were captured and euthanized at human safety situations. Nonlethal methods were also used on many farms. Various other strategies for implementing the Wisconsin Wolf Management Plan were also conducted during the period.

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RECOVERY OF THE TIMBER WOLF
PERFORMANCE REPORT

1 July 2011 - 30 June 2012
(also 15 April 2011-14 April 2012 and summaries for 2011)

by Adrian P. Wydeven, Jane E. Wiedenhoeft, Jean Bruner, Ronald N. Schultz, and Sarah R. Boles

Job: 106.1 Wolf Management Zones
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Timber or gray wolves (*Canis lupus*) were listed as Endangered in the Great Lakes region in 1967 and 1974 by the U.S. Fish and Wildlife Service (USFWS 1992). The State of Wisconsin listed wolves as Endangered in 1975, reclassified them to Threatened in 1999, delisted wolves to Protected Wild Animal on 1 August 2004, and designated wolves as game species on 2 April 2012. The Wisconsin Department of Natural Resources (WDNR) has monitored wolves since 1979. A recovery plan with a reclassification goal to Threatened status of 80+ wolves was completed in 1989 (Wisconsin DNR 1989), and a management plan was completed in 1999 (Wisconsin DNR 1999). The management plan sets a state delisting goal of late winter count of 250 wolves outside of Indian reservations, and a management goal of 350 wolves outside of Indian reservations. At the management goal, permits could be issued to landowners, government trappers may conduct proactive population control activities, and public harvest of wolves could be considered after federal delisting is completed.

The plan included 14 management strategies that represent the general outline of this report. The Wisconsin wolf plan was updated in 2006 and 2007, although no major changes were made in the plan or strategies for managing wolves (Wisconsin DNR 2007).

The 1992 Federal Recovery Plan for the eastern timber wolf established reclassification goals of 80+ wolves for 3 years in Wisconsin, and a delisting goal of 100+ wolves for 5 years for Wisconsin and Michigan (USFWS 1992). Federal delisting also required a stable population of 1251 to 1400 wolves in Minnesota, and approved management plans for each state. In Minnesota the most recent wolf

population estimate was 2922 wolves (90% CI, 2192-3535) in winter 2008 (Erb 2008). In 2012, Michigan and Wisconsin shared over 1500 wolves, and had exceeded the 100+ threshold for 20 years

On 1 April 2003 the USFWS reclassified wolves to Threatened in Wisconsin and Michigan (Minnesota has been listed as Threatened since 1978), and other states in the Eastern Distinct Population Segment (EDP), but on 31 January 2005 a federal district court invalidated the 2003 reclassification process and wolves in Wisconsin and elsewhere (except Minnesota listed as threatened) were re-listed as endangered. The USFWS delisted wolves in Wisconsin, Michigan and Minnesota from the federal endangered and threatened species list as part of a Western Great Lakes Distinct Population Segment (WGLDPS) on 12 March 2007, returning wolf management authority to the 3 states and tribes in the region, as well as portions of North Dakota, South Dakota, Iowa, Illinois, Indiana, and Ohio (USFWS 2007). In 2005 and 2006, while wolves were listed as endangered, special section 10 permits or sub-permits were issued to Wisconsin and Michigan to allow the states to kill depredating wolves, but permits were lost both years due to lawsuits by animal welfare and environmental groups. Due to additional lawsuits, wolves were again placed on the endangered species list on 29 September 2008, again removed from the list on 3 May 2009, and again placed back on the list on 1 July 2009. During relisting, Minnesota wolves returned to threatened status, while wolves in the remainder of the region returned to endangered status. On 28 December 2011, the USFWS published a new delisting rule for Wisconsin and the remainder of the WGLDPS, and wolves were again delisted in the region on 27 January 2012 (USFWS 2011).

Shortly after the delisting was completed, the state assembly and senate published proposed bills to start a public hunting and trapping season on wolves. These bills were eventually passed and signed by Governor Walker as Act 169 on April 2, 2012, and thus designated the gray wolf as a state game species.
https://docs.legis.wisconsin.gov/2011/related/acts/169
A scope statement on an emergency rule for a public wolf hunt and trapping season was approved by the Wisconsin Natural Resources Board (NRB) on 23 May 2012, allowing DNR to develop quotas and regulations for such a season.
http://share.dnr.enterprise.wistate.us/teams/dnr/NRB/wolfrule/Shared%20Documents/WM-09-12(E)-scope-statement.pdf
During May and June, DNR staff prepared proposed rules and quota for a wolf hunting and trapping season. In June the proposed rules, quotas, and harvest zones were presented at public meetings and meetings with special interest groups and stakeholders. On 17 July 2012, the NRB approved the proposed rules with additions that the Stockbridge reservation would be included as a zero quota zone along with all the other recognized Indian reservations, and clarified that trapped wolves would be euthanized with firearm.
http://dnr.wi.gov/about/nrb/2012/July/07-12-3A.pdf
http://dnr.wi.gov/about/NRB/2012/July/07-12-NRB-brief-of-action.pdf
The wolf hunting and trapping season will run from October 15, 2012-Febraury 28, 2013. A quota of 201 wolves will be the allowable harvest and will be distributed across 6 harvest zones. Of the total quota, 85 will go to Chippewa tribes that have maintained treaty rights across much of the wolf range. Thus a quota of 116 wolves will be available to state harvesters. A total of 1,160 permits will be issued for the quota harvest and if quotas are achieved for any harvest zone, the zone will be closed to additional harvest.
http://dnr.wi.gov/files/PDF/pubs/wm/WM0538.pdf
http://dnr.wi.gov/topic/WildlifeHabitat/wolf/documents/WolfZones.pdf

The enclosed report describes wolf management activity conducted in Wisconsin between1 July 2011 through 30 June 2012. This report also includes and replaces “Progress Reports” on summer 2011 wolf surveys, annual wolf summaries for 2011, and winter 2011-2012 wolf surveys for the period 15 April 2011-14 April 2012. This will represent the last time this report will be listed as a Wisconsin Endangered Resources Report.

Personnel and funding

Funding for wolf conservation activity in Wisconsin was from the following: Federal Aid in Wildlife Restoration Project W-154-R; funds from the Nicolet-Chequamegon National Forest; Wisconsin Endangered Resources Fund (tax check-off and license plate); Timber Wolf Alliance (TWA); Timber Wolf Information Network (TWIN); Menominee Conservation Department; Stockbridge-Munsee Tribe; Ho-Chunk Nation; Bad River Band Chippewa; Lac Courte Oreilles (LCO) Band Chippewa; Wisconsin Natural Resources Foundation; research grants through University of Wisconsin - Madison supported research, as well as grants and donations from National Wildlife Federation, Defenders of Wildlife, and private individuals. Persons and organizations donating radio collars are listed in Appendix 2.

Adrian Wydeven was the ecologist in charge of the project, and was assisted by project wolf technicians/biologists Ron Schultz, Jane Wiedenhoeft, Sarah Boles and Jean Bruner. Michele Windsor had coordinated wolf surveys in the West Central Region until winter when she accepted another position and Tim Babros assumed those responsibilities. DNR pilots conducting aerial monitoring of collared wolves included: Joe Sprenger, Mike Weinfurter, Phil Miller, Beverly Paulan, Dan Cardinal, and Leo Bunderson. WDNR personnel who conducted, or participated in, carnivore track surveys during winter 2011-2012 include: Eric Fromm (on contract from USDA-WS), Ron Schultz, Jane Wiedenhoeft, Adrian Wydeven, Sarah Boles, Mandy Cyr, Gary Dunsmoor, Joanne Finnell (also regional coordinator), Bob Hanson, Steve Hoffman, Ken Jonas, Sara Kehrli, Rick Peterson, Mark Rasmussen, Heidi Rusch, Rich & Amy Staffen. Other DNR personnel that assisted extensively on wolf monitoring included, Nancy Businga, Lindsey Long, Greg Kessler, Todd Naas, Rick Weide, Pat Beringer, Laine Stowell, Nancy Christel, Jess Carstens, Kyle Anderson, Lesa Kardash, Jon Robaidek, Terry Dukerschein, Tom Carlson, Mark DeBaker, Karl & Marie Ericksen-Pilch, Eric Kroening, David MacFarland, Wayne Hall, Davin Lopez, and Mike Zeckmeister. Dawn Hinebaugh maintained the DNR wolf web site. Live trapping and field investigations of wolf depredations were conducted under the supervision of Jason Suckow and district supervisors Bob Willging and Charles Lovell of USDA-APHIS-Wildlife Services, as well as assistant district supervisor, Dave Ruid and included wildlife specialists Mark Kerr, Phil Peterson, Eric Fromm, Ed Zydzik, DeWayne Snobl, Jeremy Irish, Jim Miller, Chad Alberg, Steve Krueger, John Nuce, Mike Petrie, Aaron Freund, Barry Benson and Jim Tharman. Dead collared wolf specimens and some hybrids were sent to Paula Holahan at University of Wisconsin-Madison, and Paula assisted in identification of possible hybrids. Dead radio-collared wolves, suspected illegally killed wolves, and fresh dead wolves dying from unknown causes found in the field were necropsied by the DNR Wildlife Health Team. Toni Piaggio of the USDA National Wildlife Research Center in Fort Collins, CO provided genetic testing of wolf specimens. Wolf surveys were also conducted by Don Reiter on the Menominee Reservation; Randall Wollenhaup on the Stockbridge reservation, Bob Wilmer and Lacy Hill on the Bad River Ojibwa Reservation; Paul Christel on the LCO Ojibwa Reservation; and Karen Karash and other Ho Chunk members surveyed portions of central Wisconsin. Additional assistance with wolf monitoring was provided by Dean Beyer and Brian Roell (MI DNR); Dan Eklund, Mike Peczynski, Kathy Moe, Nicole Schutt, Scott Anderson, Jerry Van Cleve, and Tom Matthiae (U.S. Forest Service); and Tim Wilder and Nathan Tucker (U.S. Army-Fort McCoy); Sarah Boles and Northland College students; and Zack Wilson and Rad Watkins (TWA). Jennifer Stenglein conducted research with Dr. Tim Van Deelen of UW-Madison; Erik Olsen and Christine Browne-Nunez conducted research with Dr. Adrian Treves and Steve Ventura of the Nelson Institute at UW-Madison; Rocio Jara studied wolf diseases with Mike Samuel with the Cooperative Wildlife Research Unit. . About 135 volunteer trackers assisted with winter track surveys, and are listed by survey blocks in Appendix 3. Regional coordinators for the volunteer tracking program include: Tom & Durae Pfeffer, Linda Nelson, Tom Podlesny & Bobbi Rongstad, David Wiltrout, Karl & Marie Ericksen-Pilch, Al & Nancy Warren, Norm Poulton, Chris Giese, Joanne Finnell, Ron VanderVelden, Ray Leonard, Emily & Larry Scheunemann, and Mike Ravet.

JOB 106.1 WOLF MANAGEMENT ZONES

Four management zones were created in the 1999 wolf management plan (Figure 1). Wolf population and summary of wolf management activities for each zone for period 2011-2012 are discussed below. The 6 wolf harvest zones created in the recent wolf hunting plans will serve as harvest zones for the upcoming wolf harvest as part of an emergency rule. These harvest zones may become permanent if included in the final rule, but the harvest zones might still be modified in the final wolf harvest rule. The current wolf harvest zones do not correspond to the wolf management zones of the 1999 wolf plan, but these wolf management zones will probably be modified in the next update of the plan and would likely embed harvest zones within broader management zones.

Zone 1 (18,384 square miles) represents the northern forest wolf range in Wisconsin and in winter 2011-2012 consisted of 607-647 wolves in 162 packs plus 13 loners. Packs were detected in all 21 counties in the zone; public and agency reports of wolf observations were received from 20 of these counties. Depredations during 2011 included 58 cattle killed and 3 injured as well as 44 sheep, 1 horse, 1 llama, 2 chickens, 11 goats killed and 1 injured and 2 farm deer killed, on 33 farms by 24 wolf packs. Reimbursements were also provided for 202 missing calves that may have been due to additional wolf depredation. Nineteen packs (including one pack mostly located in MI) killed 19 dogs and injured 6 dogs. Five packs depredated on both dogs and livestock. Two wolves were captured at a depredation site and euthanized in a human safety situation. Average deer density across the zone in late 2011 was 19 deer per square mile (range 7 to 37 deer/mi^2 among 44 deer management units), and thus was at the average goal of 19 deer /square mile for the region. Wolf packs and territorial loners occupied about 9,083 square miles in the zone at a density of about 1 wolf per 14 square miles during winter (2.8 wolves/ 100km^2).

Zone 2 (4,521 square miles) represents the central forest wolf range, and in winter 2011-2012 consisted of 119-135 wolves in 32 packs. The zone consists of portions of 10 counties, but mainly consists of 7 counties that all contained wolf packs. Public and agency reports of wolf observations were received from all counties in the zone. Depredations in 2011 consisted of 4 cattle killed on 2 farms by 2 packs, and 1 dogs killed by 1 packs. In addition payments were provided for 55 missing calves that may have been depredated by wolves. Average deer density in the zone in late 2011 was 28 deer per square mile (range 23 to 33 deer / mi^2 among 5 deer management units), and was slightly above the average goal of 27 deer per square mile. Wolf packs occupied about 1,710 square miles in the zone at a density of about 1 wolf per 13 square miles during winter (2.9 wolves / 100km^2).

Zone 3 (~18,000 square miles) represents wolf dispersal habitat and marginal wolf habitat in areas of mixed forest/farmland across central and southwest Wisconsin and includes portions of 33 counties. This area was not expected to be important wolf habitat, and was not expected to support many packs. In winter 2011-2012, 69-78 wolves were detected in 19 packs plus 6 loners were detected. Reports of wolf observations were received from at least 17 counties. Twenty-three wolves were found dead in 13 counties in the zone in 2011. Depredations during 2011 occurred on 6 farms and included 6 cattle killed. Depredations on livestock were apparently caused by at least 3 packs and 1-2 lone wolves. One dog was killed and 1 injured by 1 pack and a loner. Wolf packs occupied about 1,015 square miles in the zone at a density of about 1 wolf per 13 square miles (2.9 wolves/ 100km^2).

Zone 4 (~16,000 square miles) represents portions of southern and eastern Wisconsin, and includes 28 counties in portions of the state that are mostly agricultural and urban areas. No packs, but 1 lone wolf were detected in the zone during the winter survey period. Reports of wolf observations were received from 19 counties in the zone during the study period. No wolves was found dead in the zone during the study period, although a wolf-dog hybrid found dead in Fond du Lac County, was initially mistaken for a wolf. No depredations on domestic animals were detected.

JOB 106.2 POPULATION MONITORING AND MANAGEMENT

Methods of study

A territory mapping system (Fuller et al. 2002) was used to determine the Wisconsin wolf population. Wolf territories and numbers of wolves in packs were located by radio-telemetry of radio-collared packs, snow track surveys of non-collared packs, depredation reports, mortalities, and agency and public reports of observations of wolves.

Wolves were live trapped and radio collared following procedures of Mech (1974) and Wydeven et al. (1995, 2009). Most trapping was done from early May through mid–September, mostly using foothold traps (Kuehn et al. 1986), but some limited trapping was done with cable restraints in winter (Olson and Tischaefer 2004).

Radio telemetry surveys were used to determine territory distribution and wolf numbers for packs with collared wolves (Fuller and Snow 1988). Aerial locations were obtained weekly with fixed winged aircraft on VHF radio collared wolves. Attempts were made to maintain one collared wolf in about one third of the packs in the state (Wydeven et al. 1995, Wisconsin DNR 1999, Wydeven et al. 2009). Movements of collared wolves were assumed to represent the general movements of the pack, and maximum count obtained from the air in mid or late winter was assumed to represent the whole pack. When collared wolves moved outside of known territories in extraterritorial moves or dispersals, the collared wolves were assumed to be traveling by themselves. Wolves were rarely observed from the air in Wisconsin, except during winter when collared wolves were observed up to 20-30% of the time flown. Pilots made special efforts to visually observe wolves from December through March. Numbers of visual observations were reported for all collared wolves in relationship to total radio-locations during the period of December through March.

Home range area for the winter period (15 September – 14 April) was determined from the minimum convex polygon (Mohr 1947). Normally, isolated radio locations over 5 km from other points would be considered extra-territorial moves as done by Fuller (1989). However, because of the small number of radiolocations available during the summer monitoring period, locations greater than 5 km from other points were considered part of the home range when they fell within or very near the mapped pack territory boundary and were not within another pack's territory. When 2 separate clusters of radiolocations existed with regular travel between them, areas in between were considered part of the home range regardless of distance, as long as both clusters did not occur in another pack territory. Home range areas were calculated for wolves that occupied stable areas, and did not include lone wolves that were dispersing.

Snow tracking and sign surveys (Wydeven et al. 2009) were used by trackers to obtain counts of wolves in packs without collared wolves, or to supplement survey information for collared packs where few observations were made from the air. Presence of raised leg urinations (RLU's) especially double raised leg urinations (urinations by both alpha male and female) were used to determine territory marking and likeliness of breeding activity (Peters and Mech 1975). Estrus blood in the snow with the RLU's of alpha females further demonstrated likely breeding activity (Rothman and Mech 1979). Breeding status was surmised for some packs based on regular breeding history in the past or large pack size, and in some cases was determined by observation of freshly excavated den sites in late winter. Surveys were conducted by slowly driving snow covered roads, generally within 1 to 3 days after new snow falls. During a specific survey, as many snow covered roads as possible were followed within specific survey blocks that covered about 200 square miles each (Appendix 3). Roads were followed until wolf tracks

were encountered and these tracks were backtracked and forward-tracked to see where they joined and left the road. Separations of packs were determined by distance between track sets and sign observations, direction of movements, timing of observations, presence of radio collared packs, historical pack use of an area, and knowledge of focal points such as den sites and rendezvous sites.

Attempts were made to conduct track surveys across most of the heavily forested areas of northern and central Wisconsin. Track surveys were especially focused on areas with historical wolf presence, recent observations of wolves, or areas of highly suitable wolf habitat (Mladenoff et al. 1995, Mladenoff et al. 2009). Although emphasis was on conducting surveys in fairly recent snow, surveys in older snow did allow detection of wolf presence and of wolf breeding activity (RLU's), but older snow was less suitable for precise counts due to vehicle activity, snowplowing, melting-freezing, and perhaps multiple passages by wolf packs.

Along with DNR trackers, volunteer trackers representing other agencies or the general public helped provide additional snow track surveys. This was the 16th year for the volunteer tracking program. Most heavily forested and mixed forest areas were subdivided into 154 survey blocks (Appendix 3). Volunteers were asked to conduct at least 3 "good" surveys per block, and track about 60-100 miles of road. All volunteers were required to attend weekend wolf ecology courses and day-long track training programs.

Public and agency reports on wolf observations were also used for determining wolf abundance and distribution. Such observations were included in the state wolf count only if verified by experienced trackers, photos or videos were available to verify wolf identification and counts, or the report was from a known reliable source. Track observations were used as part of the state wolf count only from experienced trackers, or from well documented observations (photos, plaster casts, scats collected, etc.).

Wolf packs along the border with Michigan or Minnesota were included in the Wisconsin wolf count if they appeared to have more than 50% of their home range or territory in Wisconsin. Thus some Minnesota and Michigan packs that overlapped only slightly into Wisconsin were not included as part of the state count.

The average winter territory area statewide, was multiplied by all territories to estimate area of occupied territories. Area of wolf occupancy across the state during winter was determined by multiplying occupied territories by 1.37 to include 37% interstitial areas around the territories (Fuller et al. 1992). Territories of lone wolves were included in estimates of home range area and wolf population density if lone wolves were remnants of previously documented packs and the loners appeared to continue to occupy regular territory areas. Lone wolves that appeared to be dispersing or floaters, that did not seem to occupy regular home range areas, were not used in density estimates of the wolf population.

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

General Results

Wolf Captures in 2011

Twenty wolves were live-captured and radio-collared in 2011 (Table 1). Collars were placed on 14 of 203 packs (13%) detected in the state in winter 2011, and on 2 packs not previously detected (Potato River and Little Moose River). A collar was also placed on 1 wolf that mainly appeared to be a loner/disperser. Nine

wolves were captured by fur trappers in the fall and turned over to WDNR for radio-collaring. The other 11 wolves were captured by WDNR, and USDA-WS. Captured wolves included: 6 adult males ($\overline{X}$ = 82.5 lbs. $\pm$ 11.4 SD), 10 adult females ($\overline{X}$ =67.4 lbs. $\pm$ 3.1 SD), 1 pup male (40 lbs.) and 3 pup females (50-64lbs).

Radio-Collared wolves monitored in Wolf-year 2011-2012

A total of 75 wolves were monitored during the 2011-2012 wolf-year (15 April 2011 – 14 April 2012; Table 2). A total of 82 wolves were monitored in calendar year 2011. Radio collared wolves monitored during the wolf-year were detected in 66 Wisconsin packs (32% of packs). In winter 2011-2012, 56 packs were monitored in Wisconsin which included 26 % of state wolf packs. Wolves monitored during the period included: 20 adult males, 48 adult females, 1 yearling males, 1 yearling female, 1 pup male, and 4 pup females. Most wolves were monitored in Zone 1 (53 wolves), with smaller numbers in Zones 2 (9) and 3 (13). During the wolf-year, 17 collared wolves died, 20 went missing or dispersed out of range. At the end of the study period, 38 wolves remained on the air including: 11 adult males, 24 adult females, 1 yearling male, 0 yearling females, 1 pup male and 1 pup female.

Winter Territory Area

Mean winter home range for wolves with $\geq$20 radiolocations in winter 2011-2012, was 39.0 mi^2 (range 12.4 to76.9 mi^2). The mean home range area for 27 wolves in Zone 1 (northern Wisconsin) was 39.3 mi^2, and 40 mi^2 for 2 wolves in Zone 2 (Central Forest), and 36.0 mi^2 for 3 wolves in Zone 3 (Central Wisconsin). The general trend some years seems to be that home range areas were smaller for Zone 2, and Zone 3, but that pattern was not evident in winter 2011-2012, although sample size outside Zone 1 was low. The higher deer density in Zone 2 would be expected to support smaller territory size. Only 1 winter home range extended over 100 mi^2, this being adult female 805F of the Siskiwit Lake Pack. Only 19 radio locations were obtained for 805F, and she disappeared in mid-February, suggesting her larger home range was due in part to eventual dispersal.

Howl Surveys and Pup Observations

Howl surveys were conducted in 70 packs (Table 3). A total of 84-86wolf pups were heard in 31 packs ($\overline{X}$ = 2.7-2.8 pups/pack) in summer 2011. A total of 53-55 pups were observed other than during howl surveys in 22 packs ($\overline{X}$ = 2.4- 2.5 pups/pack). Using highest counts from a combination of howl surveys and observations, a total of 129-133 pups were detected in 48 packs ($\overline{X}$ = 2.7-2.8 pups detected per pack). This rate was similar to 2010 when an average of 2.8 -2.9 pups were detected per pack. Overall, wolves were heard at 81 of 826 stops, or a detection rate of 9.8 %, similar to the detection rate in 2010 (10.2 %). Howl detections were lower in Zone 1, with wolves detected at only 6.8 % of stops, compared to 16.2 % of stops in Zone 2, and 18.2 % of stops in Zone 3. In Zone 1, pup observation rates were 1.8 – 2.0 pups per pack, compared to Zone 2 of 2.6 pups per pack, and Zone 3 of 5.5 pups per pack (Zone 3 included 1 pack in which 10 pups were observed). Although exact counts are difficult to obtain from howl surveys (Harrington and Mech 1982), these data suggest that pup estimates are probably comparable to visual observation if large enough samples are available. In general, it appeared pup production was relatively high and similar to previous years. Overall howl surveys with 826 howl stops were conducted for 197 hours along 1409 miles of survey routes.

Summary of Radio Telemetry Flights

Wisconsin DNR pilots detected 131 different wolves including 49 collared wolves being monitored and other wolves seen with them from December 2011 through March 2012 (Table 4). The 131 wolves detected in Wisconsin, represent 16 % of the state minimum count (815). Seven wolves lost their signals during the period and 3 died. The percentage of the state wolf population counted by pilots seemed to have declined from earlier years: 2011 (24%), 2010 (28%), 2009 (21%), 2008 (24%), and 2007 (22%),

and was less than the proportion of the population observed by pilots between 2003-2006, when 27 to 37% of state wolves were observed from the air (Wydeven et al. 2009).

The percentage of times wolves were observed from the air averaged 18% for the radio collared wolves monitored across the state. In winter 2011-2012 observation rates were highest in Zone 1 (19 %), slightly less in Zone 2 (14%), and lowest in Zone 3 (9%). The overall low rate indicated unfavorable snow conditions across wolf range for visual observations, and was less than winter 2010-2011 (28%) and 2009-2010, (29%) (Wydeven et al. 2011).

Mean pack size of 30 packs observed between December 2011 and March 2012 in Wisconsin by pilots was 3.7 wolves per pack (SD ± 1.72) and ranged from 2 to 9 wolves (Table 4). The pack count of 9 wolves for the North Willow Pack in Oneida County was the largest pack detected. At least 2 other packs also contained at least 7 wolves. Eight packs consisted of just a pair (27 %). Observation rates on collared wolves was relatively low, and if only packs observed 4 or more times are considered, mean pack size for 11 packs was 4.5 wolves (SD ± 2.10). In 13 packs, collared wolves assumed to be pack members were only observed by themselves, but in most of these cases, the wolf was visually observed only 1 or 2 times during the period. Four collared wolves assumed to be members of packs were not visually observed at all during the period. Only 4 loners/dispersers were detected during the period, but 3 were on the air only a short time, and only one wolf apparently was a loner throughout the period (2.7% of wolves on the air for the period). Some collared wolves suspected of being pack members may also have been loners.

The average pack size of 3.7 observed by pilots was similar to observations in 2011 ($\overline{X}$ = 4.0 ± 2.37 SD, n=47), 2010 ($\overline{X}$ = 4.1 ± 2.18 SD , n=42), 2009 ($\overline{X}$ = 3.8 ± 1.73 SD, n=32), 2008 ($\overline{X}$ = 3.8 ± 1.80 SD, n=35), and 2007 ($\overline{X}$ = 3.6 ± 1.68 SD, n=27), but somewhat less than 2006 ($\overline{X}$ = 4.5 ± 2.4 SD, n=26), or 2005 ($\overline{X}$ = 4.6 ± 2.1 SD, n=28) (Wydeven et al. 2011). The average pack size of 4.5 wolves detected for packs observed 4 or more times in winter 2012, may be more representative, although larger packs are probably more easily seen and could bias the average upward.

Summary of Track Surveys

Volunteer trackers turned in surveys for 92 of 106 assigned survey blocks (87 %), of designated blocks (Table 5, Appendix 3). DNR trackers surveyed 79 blocks, and both groups combined surveyed 123 of 154 designated survey blocks. A total of 133 blocks were designated prior to 2010, but that year 21 additional blocks were added. Blocks not surveyed by snow track surveys included those surveyed only by radio telemetry, blocks on Indian reservations, and blocks in marginal wolf habitat with none or few reports of wolf activity. The percentage of assigned blocks surveyed by volunteers was similar to rate in 2011 (83%), 2010 (89%), (2009 (83%), and 2008 (85%) and higher than 2007 (79%) or 2006 (74%). Volunteer trackers detected 484 wolves along 6806 miles of snow-tracking, and DNR trackers detected 372 wolves along 3162 miles. Volunteer trackers averaged 3.4 surveys per block, averaging 74.0 miles, and 12.8 hours per block.

Both DNR and volunteer trackers surveyed for wolves in 47 survey blocks. Overall number of wolves detected was 184 wolves detected by volunteers and 216 wolves detected by DNR trackers. Detection rates between DNR and volunteers did vary by individual blocks. DNR detected more wolves in 28 blocks, volunteers detected more wolves in 15 blocks, and both detected the same in 4 blocks.

Dispersing Wolves

Of the 74 radio collared wolves monitored between 15 April 2011 and 14 April 2012 dispersal moves were detected for 13 wolves. Five apparently moved into other pack territories, 4 dispersed from

territories and disappeared, 3 died while dispersing, and one wolf dispersed and continued to be moving at the end of the period. Dispersers included 8 females and 5 males, all were adults, except one pup male and one pup female that dispersed in late winter.

Among 59 wolves found dead in the state that were not radio-collared, or collared animals not actively monitored by the Wisconsin DNR, 15 appeared to be dispersers. Among these apparent dispersers, 10 included males, and 5 were females. Of 23 wolves found dead in Zone 3, 13 were suspected as dispersers (1 collared wolf and 12 uncollared). In Zone 3 dispersers were found in Chippewa, Dunn Jackson, Lincoln, Marathon, Monroe, Oconto, and Shawano Counties. Two dispersers found dead in Zone 1 included Michigan collared wolves, including an adult male killed (5506M) in Douglas County that had traveled a straight line distance of 230 miles from Menominee County, Michigan.

Wolf Count Summary

Through radio tracking of collared wolf packs, snow tracking of noncollared packs, and public and agency reports of wolf observations, a total statewide population count was obtained of a minimum of 815 to 880 wolves in winter 2011-2012 (Table 6). This included 795 to 860 wolves in 213 packs or groups of $\geq$ 2 wolves, and at least 20+ loners (Figure 2). The count outside of Indian reservations was 774 to 838, thus the wolf population was at least 424 wolves above the state population goal of 350 wolves outside of Indian reservations (Wisconsin DNR 1999). Using the lower range of the population in winter 2010-2011 of 782-824, the wolf population increased 4 % to winter 2011-2012. Annual growth averaged 12% between 2000 and 2007, but was higher between 1990 and 1999 when the rate averaged 22% (Wydeven et al 2009b). The low increase could indicate the wolf population was starting to stabilize, but may also reflect poorer snow conditions for tracking or seeing wolves from the air. The wolf population growth since 1979-1980 is shown in figure 2.

Average pack size was 3.7-4.0 wolves across the state, which was similar to pack counts in recent years including 2011 (3.8-4.0), 2010 (3.7 to 4.0), 2009 (3.8 to 4.0), 2008 (3.6 to 3.8), 2007 (3.8 to 4.1), 2006 (3.9 to 4.3), and 2005 (3.8 to 4.1) (Wydeven et al. 2011). The area occupied by territorial wolves in winter was estimated to cover 11,808 mi^2, and thus 805-870 territorial wolves occurred at densities of 1 wolf per 12.9 mi^2 to 14.7 mi^2 within occupied wolf range (2.6 -3.0 wolves/100 km^2). DNR pilots detected 131 different wolves at 249 radio locations, and mean size of 30 packs observed by pilots was 3.7 wolves per pack (SD ± 1.72).

Eighty wolves and 1 wolf-dog hybrid were found dead in counties in the state during 2011 (Table 7). The wolf sample included: 25 adult males, 20 adult females, 4 adult unknown sex, 6 yearling males, 5 yearling females, 1 yearling unknown sex, 3 pup males, 4 pup females, 2 pups unknown sex, 4 females of unknown age, 6 wolves sex and age unknown. Among 23 wolves that died while being actively monitored mortality included: 9 (39 %) were illegally killed, 7 (30 %) vehicle collision , 2 (9%) euthanized in human safety situations,1 (4 %) disease (mange related), 2 (9 %) intraspecific strife, 1 (4%) artillery fire on a military base, and 1 (4%) capture related. Thus, 39 % of mortality of actively monitored wolves was due to illegal kills, and 87 % were human caused mortalities.

Among the overall sample of 80 wolves found dead in the state in 2011, mortality included: 4 (5 %) euthanized human safety concerns, 42 (52 %) vehicle collisions, 24 (30 %) illegally killed, 1 artillery fire, 1 (1%) capture related, 1 (1%) died from manage and other disease, 3 (4 %) intraspecific strife, and 4 (5 %) unknown causes. Among the overall sample, at least 90 % were human caused mortality and among the actively monitored collared wolves, 87 % were human caused mortality. The radio-collared sample is probably less biased as far as assessment of overall mortality rates. Illegal kill represented 39%

of all mortality among collared wolves in 2011 compared to 44% in 2010, 62% in 2009, 23% in 2008, 19% in 2007, and 67% in 2006. Mange seemed to be a relatively minor mortality factor in 2011.

A total of 204 radio collared wolves actively being monitored were found dead in Wisconsin from October 1979 through December 2011 (Table 8). A total of 60 % were human caused mortality, and 40% were caused by natural factors among known mortalities. The most important mortality factors were: illegal killing (36%), disease (23%), other wolves (11%), and vehicle collisions (11%). Illegal killing was especially important in the 1980s, but declined drastically in the 1990s. Illegal killing seemed to be increasing in recent years. Mange was probably the most important disease factor over time, but was relatively unimportant during the current study period. Euthanizing of depredating wolves is becoming a more important mortality factor, although it had only been possible since 2003, and was only used in human safety situations in 2010 and 2011.

Statewide Wolf Distribution

Reports of wolf observations that were classified as "probable" or "possible" were received from 59 counties in the state, although only single observations were received from 14 counties (Table 9). These reports, from citizens and agency personnel, supplement other wolf survey work, provide early reconnaissance of new wolf occurrence, and provide information on general distribution of wolves across the state, especially lone dispersers. These reports do probably also contain some misidentifications of coyotes, wolf-dog hybrids, and dogs as wolves. The 536 reports of wolf observations in 2011 was the highest number of wolf reports received and compares to 2010, with 365 reports, and 2009 with 373 reports, the previous record high. A major reason for the increase in wolf reports in 2011 was wolf observations on trail cams in Central Wisconsin in a bobcat study by graduate student John Clare of UW-Stevens Point. The highest report rates for wolf observations by counties were Juneau (111), Marathon (34), Bayfield (27), Oneida (26), and Wood (25). The high wolf observation rates for the central Wisconsin counties, reflects high reporting rates of the UW-SP bobcat study.

JOB 106.3 WOLF HEALTH MONITORING

Some limited disease testing was conducted on wolves that were live captured in 2011 by graduate student Rocio Jara, but results are not currently available. Attempts were made to conduct necropsies on wolves with radio collars that died, and wolves that died of unknown causes or suspected legal cases if carcass were still relatively fresh. Overall assessments of general physical conditions were made of all wolves necropsied.

The crude mortality rate during the study period of 21 radiocollared wolves found dead of 82 wolves monitored in 2011, was 26 % mortality among wolves that were mostly $\geq$ 1 year old. While this rate is relative modest, another 14 wolves went missing in 2011, and some of these could have represented additional mortality. When adult mortality starts to exceed 34%, the population can start declining (Fuller et al. 2003). Among these 21 wolves, 1 (5 %) died from disease (mange related). Although sample size was low, prevalence of mange appeared to be low in 2011. Mange was detected on one (5%) of 20 wolves live-captured in 2011 for monitoring. Overall rate of mortality was modest for wolves one year or older, and may be part of the reason little growth was observed in the wolf population in 2012.

Pup survival has been estimated at 30% during recent years (Wydeven et al. 2009). Pup survival was not determined since winter 2009-2010 because detailed information on age composition from each pack in the state is becoming difficult to obtain with the growing and expanding wolf population. From a combination of howl surveys and observations a total of 129-133 pups were detected in 48 packs , compared with 142-148 pups detected in 51 packs in summer 2010, 108-117 pups detected in 45 packs in

2009, and 131-137 pups detected in 45 packs in 2008. These represent probably less than 1/3 of packs producing pups, suggesting that healthy levels of pup production continue, but may be starting to decline. Pup survival rates will probably decline in the future as the population approaches carrying capacity (Van Deelen 2009).

In general the Wisconsin wolf population appeared to be healthy. Adult survival rates were moderate, incidence of mange was low, recruitment of pups was adequate for maintaining the population, and few wolves died from disease. Rates of illegal kill appear to be on the rise, which may be an indication of broad wolf distribution into areas with higher encounter rates with humans, or may represent a backlash to a high wolf population or frustration with the delisting/relisting process.

JOB 106.4 HABITAT MANAGEMENT

Wolf program personnel worked with public land agencies, and utility companies to encourage maintaining areas of low road densities and protecting den sites. Potential den sites are also listed on files for the Natural Heritage Inventory, and whenever management activities were planned for these areas, the agency or company planning such activities contacted the wolf program to avoid disturbance of den sites. Wolf pack territory shapefiles were provided to organizations, when requested, to aide in assessment of land use options. Forest and ecological management benefited wolves and provided habitat on the Chequamegon-Nicolet National Forest, State Forests (Northern Highland/American Legion, Brule River, Governor Knowles, Flambeau River, Black River, and Peshtigo River), Necedah National Wildlife Refuge, county forests, Apostle Islands NLS, St. Croix NRW, state wildlife areas, and various industrial and private forest lands. Presentations were given by Jon Robaidek on 27 August 2010 to 50 Woodland Owners. Adrian Wydeven talked to the UW Coverts workshop for private forest owners on 12 August 2011 (40 people), Tri-State Forestry Conference in Sinsinawa Mound 10 March 2012 (60 people), and County Forests Association in Wausau on 23 March 2012 (80 people).

JOB 106.5 WOLF DEPREDATION MANAGEMENT

Wolf depredation to livestock occurred on 41 farms in 2011, compared to 46 farms in 2010 (Table 10a). Total verified livestock depredation in 2011 included: 68 cattle killed (59 calves), 3 cattle injured, 44 sheep killed (35 lambs), 11 goats killed, 1 goat injured, 1 horse, 1 llama, 2 farm deer, and 2 chickens killed. In addition to these verified depredations, the Wisconsin DNR also provided payments for an additional 257 calves missing during the grazing season that may have included additional wolf depredations on farms that also had previous verified depredations. A total of 29 packs (14 % of packs in state) and1 loners/disperser were involved in depredation on livestock. Four verified cases of wolf harassment or threats to livestock were also recorded during 2011 (Table 5a).

Twenty-four cases of wolf depredations on dogs were detected during 2011, including 6 cases of wolf depredations on pet dogs near homes, and 18 cases of depredations on dogs in hunting and training situations (Table 10b). A total of 21 dogs were killed and 7 were injured by wolves in 20 different packs (10 % of packs in the state in 2011) and 1 loner/disperser. Among hunting dogs, 17 were killed and 5 were injured, and among pet dogs, 4 were killed and 2 were injured. The total kill on dogs by wolves was less than the record 25 killed in 2006, and the 7 injured compared to 14 injured in 2010. Rate of wolf depredation on hunting dogs was down from 19 killed and 4 injured in 2010. Number of incidents of depredations on pet dogs near homes was down from 14 cases in 2010, and number killed declined from 6 to 4, while numbers injured declined from 10 to 2. A total of 6 packs were involved in depredation on both dogs (2 pet dogs and 4 hunting dogs) and livestock. A total of 32 packs (16 % of state packs) would have been likely exposed to control actions if wolves had been delisted (packs attacking livestock or pets near homes), and with typical

success rate of these controls, wolves would have been removed from about half these packs. No authority for lethal controls, accept in human safety situations existed for the Wisconsin DNR in 2011.

Six safety concerns involving 6 packs across 4 counties were documented in 2011 (Table 10c). In two of these situations, levels of habituation were serious enough that WDNR exercised its authority to "take" wolves that were considered "demonstrable but not immediate threats to human safety". In cooperation with USDA-Wildlife Services, 4 wolves were captured and euthanized or shot from a farm in Price County, and a cranberry bog in Adams County. The Price County pack was also involved in livestock depredation and harassment, and the Adams County pack had also attacked and threatened livestock.

During 2011, USDA-WS received 183 wolf complaints which included 94 verified attacks (confirmed and probable), 9 verified threats and harassment of domestic animals, 7 verified human safety threats, 34 coyote attacks, 6 dog attacks, 1 bear attacks, and 32 unconfirmed. Complaint counts are higher than wolf cases in tables 10a and 10b because more than one complaint was received from some farm and home sites that are listed as 1 wolf case on those tables.

JOB 106.6 WOLF EDUCATION PROGRAMS

During the study period, talks about wolves were given by the following DNR Wolf Program personnel (talks/people): Adrian Wydeven (31/1573), Ron Schultz (6/186), Jane Wiedenhoeft (1/36), Sarah Boles (1/42). Others giving talks included Jon Robaidek (1/42), Steve Hoffman (2/76), Brad Koele (2/27), Tim Ewing with Navarino Nature Center (1/12), John Heusinkveld with Treehaven (10/305), Karen Karash with Ho-Chunk (4/113), Linda Nelson (1/15), Nancy Warren (4/245), Dick Thiel (1/29), Emily Scheunemann (2/68), Erik Olson with UW-Madison (1/30 plus numerous class and workshop presentations), and Norm Poulton (1/10). USDA-Wildlife Services gave several talks, especially for farm groups and included: Ed Zydzik (2/100), Eric Fromm (2/70), and Dave Ruid (2/130 + TV interview). Numerous talks were also given by others in DNR Wildlife Management, State Parks, USDA-Wildlife Services, naturalists and volunteers with Timber Wolf Alliance (TWA) and Timber Wolf Information Network (TWIN). Talks by the project personnel on wolf ecology and management and training were provided for students at Northland College, UW-Stevens Point, and UW-Whitewater. DNR program personnel talks included about 150 people at volunteer tracking workshops in fall 2011 and early winter 2012. Wisconsin DNR, US Forest Service, and other agencies cooperated with TWA to distribute 1000's of wolf education posters during Wolf Awareness Week in October 2011.

Media contacts by the project ecologist included 82 contacts including, 40 newspaper (including wire service), 19 radio, 19 television, and 4 magazine interviews. Major news stories included: completion of federal delisting effort on Great Lakes wolves, development of wolf hunting and trapping season in Wisconsin, wolf depredations on dogs and livestock, new population count, and new wolf controls in place. News releases were developed for new delisting of wolves, dog and livestock depredations, coyote season closure during deer season, new population count, hunting/trapping season development, and listing of public meetings for discussing the wolf rule. Three progress reports were produced including annual wolf status management efforts for July 2010-2011, annual wolf management summary for 2010, and annual wolf survey reports were written and distributed and posted on the DNR wolf web site
http://dnr.wi.gov/topic/WildlifeHabitat/documents/reports/graywolfpop2.pdf
http://dnr.wi.gov/topic/Wildlifehabitat/wolf/documents/ERReport141.pdf
http://dnr.wi.gov/topic/Wildlifehabitat/wolf/documents/ERReport142.pdf

The DNR wolf web site (http://dnr.wi.gov/topic/wildlifehabitat/wolf/) also contained information on wolf depredations on farms, latest updates on depredation on hounds, updated wolf distribution maps,

news releases, and information on the Volunteer Carnivore Tracking Program. Since 2010, a notification system was established to let hunters and other pet owners know as soon as possible the occurrence of new dog depredations so that hunters could avoid depredating packs or modify their behavior if hunting or training in an area with a depredating pack. All new dog depredations are listed on the email notification system as soon as DNR staff receive and post the information, generally on the same day when verifications are made.
http://dnr.wi.gov/topic/wildlifehabitat/wolf/dogdeps.html

JOB 106.7 LAW ENFORCEMENT

Wolf project personnel assisted DNR conservation wardens and U.S. Fish and Wildlife Services special agents on the 24 illegally killed wolves that occurred during 2011. Between 1 January 2012 and 30 June 2012, an additional 6 illegal kills occurred. In 2011 distribution of illegal kills included 13 (54 %) in Zone 1, 4 (17%) in Zone 2, 7 (29 %) in Zone 3, and 0 in Zone 4. The percentage of wolves known to be living in each zone in winter 2010-2011 was 76% in Zone 1, 15% in Zone 2, 12% in Zone 3 and <1% in Zone 4, indicating that illegal kill was not evenly spread across the wolf population.

The coyote closed area during the firearm deer season for Zone 1 was monitored during the hunting season, and a news release was published prior to the deer season to remind hunters of the coyote closed season and the protective status of wolves. Zones 2 through 4 were not closed to coyote hunting and attempts were made to reduce illegal kill by more educational efforts. Extra flights were flown during the deer season. Seven wolves were detected illegally killed during the 9-day firearm deer season, and four occurred in Zone 1, areas closed to coyote hunting. This was down from illegal kill of 9 detected in the 2009 firearm deer season.

JOB 106.8 INERAGENCY COOPERATION AND COORDINATION

The Wisconsin Wolf Science Committee met 15 June 2012 to examine new population estimates, review wolf depredation management, and discuss and give recommendations on the new wolf season being planned. Members of the Wolf Science Committee also attended the spring (20 Apr. 2012) wolf population monitoring and Stakeholders (21 Apr. 2012) meetings. The Wisconsin Wolf Science committee advises DNR administration, the Wisconsin Wolf Stakeholders, and the Wisconsin Natural Resources Board on scientific management of wolves in the state, and consisted of staff from Wisconsin DNR, University of Wisconsin, University of Wisconsin Extension, Wisconsin Department of Agriculture Trade & Consumer Protection, U.S. Forest Service, USDA-Wildlife Services, Great Lakes Indian Fish and Wildlife Commission (GLIFWC), U.S. Fish and Wildlife Services, Wisconsin county forests, and a private veterinarian.

A meeting was held with the Wisconsin Wolf stakeholders on 21 April 2012 to discuss wolf population updates, depredation management, wolf management policies, discuss the new federal delisting, and discuss plans to develop wolf harvest rules. The Wolf Stakeholders consisted of a diverse group of interested parties including hunting groups, environmental groups, animal welfare organizations, farm groups, tribes, educators and private citizens. An additional meeting was also held with the Wolf Stakeholders on 16 June 2012 to discuss proposed rules for the wolf harvest.

The Midwest Wolf Stewards met in Duluth, Minnesota on 26-27 April 2012, and was organized by the Minnesota DNR, International Wolf Center, and Wildlife Science Center, and Wisconsin DNR participated. Talks and discussions were also held on wolf status and research in Michigan, Wisconsin, Minnesota and Ontario, as well as federal delisting plans for Western Great Lakes. Other organizations involved included: DNR, Michigan, Ontario Ministry of Natural Resources, USDA-Wildlife Services,

U.S. Fish and Wildlife Service, U.S. Forest Service, University of Wisconsin-Madison, Trent University, Northland College, Timber Wolf Alliance, Michigan Technological University, Michigan State University, GLIFWC, Bad River Band of Chippewa, Potawatomi Tribe, Stockbridge/Mohican Tribe, Odawa Tribe, Defenders of Wildlife, National Wildlife Federation, Wolf Park, Humane Society of U.S. and others.

Adrian Wydeven, Davin Lopez, and Dave Oginski, met with the Wisconsin Conservation Congress, Wolf Committee on 16 September 2011 in Stevens Point. Major discussions were held on population status, depredation management, federal delisting that would be completed in winter. Bill VanderZouwen, Brad Koele, and Wydeven again met with the committee on 9 June 2012 to discuss rules and quota for the new wolf season.

The project ecologist worked closely with the U.S. Fish and Wildlife Service in finalizing plans for a new delisting rule for the Western Great Lakes region, as well as working carefully with Minnesota and Michigan DNR. The final rule for federal delisting was published on 28 December 2011, and the rule went into effect on 27 January 2012.
http://www.fws.gov/midwest/wolf/delisting/FRgrwoWGLdelistFinal28Dec2011.html

Other coordination by wolf program personnel included some of the following: numerous meetings with project ecologist and administrators over wolf issues throughout the year, 4 meetings with researchers from UW Madison for planning or reviewing research, meeting USFWS to discuss assessment of Eastern Wolf by Richard Thiel and Adrian Wydeven (25 July, 8 August, 10 May), discuss Wisconsin wolf management at Native American Wildlife Conference in Keshena (4 September 2011), discuss wolf delisting changes with Conservation Warden Supervisors at Ft. McCoy (19 January 2012),meet with Ag Specialist to update ceiling of wolf payments (24 January 2012), meeting on wolf monitoring in Central Forest in Black River Falls (2 February 2012), and Northern Wildlife Managers and USDA-Wildlife Services (5 March 2012). A meeting was held on 20 April 2012 with wolf trackers and trappers to summarize wolf survey work from the previous season and plan wolf survey activities.

JOB 106.9 PROGRAM GUIDANCE AND OVERSIGHT

Extensive DNR meetings were held over the year to plan delisting, start controls with delisting, comment on wolf harvest law/ statutes development, and develop rules, harvest zone and harvest quota for the state. Hearings were held on wolf harvest bills by the Wisconsin Assembly on AB 502 on 1 February 2012, and the Wisconsin Senate on SB 411 on 28 February 2012. The bills were essentially the same and the senate version with minor modifications was signed by Governor Scott Walker on 2 April 2012, thus designating the gray wolf as a game species and establishing a hunting and trapping season. A DNR Ad Hoc committee developed regulations, harvest zones and quota in Spring 2012 (4/18, 5/7, 5/21, 5/31 & 6/18) , and held public meetings on the proposed wolf harvest rules on 6 June in Rhinelander, 8 June in Black River Falls, 14 June in Fond du Lac, and 15 June in Rhinelander. Meetings were also held with the Wolf Science Committee (6/15), the Conservation Congress Wolf Committee (6/9), and Wisconsin Wolf Stakeholders Committee (6/16). Additional meetings were held by others in the DNR with Wisconsin Cattlemen Association, Farm Bureau, Wisconsin Bear Hunters Association, Wisconsin Wildlife Federation, and Fort McCoy staff.

The DNR established a harvest quota of 201 wolves to be harvested across 6 harvest zones from 15 October 2012 through February 28, 2013. Each zone would have portions of the quota and if the sub-quota was attained before the end of the season, that zone would be closed. Within Chippewa ceded territories, the tribes can request up to 50% of allowable harvest initially, and 167 wolves of the quota were expected to come from the ceded territories. The tribes were granted 85 wolves of the quota and

state harvesters would be able to harvest the other 83 wolves in the ceded territory and 33 wolves living outside the ceded territory. Thus state hunters and trappers would be able to harvest up to 116 wolves, and DNR planned to issue wolf harvest permits to 1,160 hunters and trappers.

JOB 106.10 VOLUNTEER PROGRAMS

Volunteers were again important to wolf conservation activity in Wisconsin including assistance on wolf surveys, assisting with funding including the purchase of radio collars, and providing education and outreach about wolves. Volunteers also served on the Wolf Stakeholders group which met on 21 April and 16 June 2012, and the Conservation Congress Wolf advisory committee, which met on 16 September 2011 and 9 June 2012, to advise DNR on wolf issues. Volunteer speakers with the Timber Wolf Alliance gave talks to over 1000 people. A total of about 150 volunteers attended track training classes, and 135 people completed 6806 miles of track surveys in 92 survey blocks. Volunteers averaged 3.4 surveys per block (~ 200 square mile area), 74.0 miles of roads and trails surveyed per block, and 12.8 hours surveying per block. Volunteers also assisted with wolf trapping, radio collaring, scouting for wolf sign, howl surveys, and reporting wolf observations.

JOB 106.11 WOLF RESEARCH

The Wisconsin DNR wolf workers Adrian Wydeven, Ronald Schultz, Davin Lopez, Jean Bruner and Jane Wiedenhoeft continued research with DNR Wildlife Health including Lindsey Long and Nancy Businga. Radio collared wolves dying in the state, and those suspected of illegal killing or unknown mortalities were necropsied.

Paula Holahan (University of Wisconsin), continued research on osteopathology of wolves that have died in Wisconsin. Attempts will be made to correlate pathological conditions on skeletons of wolves with necropsy results and field conditions. Paula Holahan also investigated structural and anatomical differences between wolves and wolf-dog hybrids.

Toni Piaggio, geneticist at the USDA, National Wildlife Research Center, in Fort Collins, Colorado helped genetically identify wolves and verify some cases of wolf-dog hybrids occurring in Wisconsin. Ongoing sharing of wolf genetic samples also occurred with U.S. Fish and Wildlife Service Forensic Lab in Ashland, Oregon.

Jennifer Stenglein continued her PhD dissertation research "Understanding spatially explicit patterns of gray wolf (*Canis lupus*) survival to inform long term conservation of wolves in Wisconsin", with Professor Tim VanDeelen at University of Wisconsin-Madison. Jen is examining 30 years of radio telemetry data of Wisconsin wolves to learn about variations in survival across the landscape based on habitat quality. She has developed an individually based model for predicting population outcomes from various types of exploitations that may be applied to the wolf population. Her model was used extensively in spring for helping develop quota and harvest zones for the Wisconsin wolf harvest.

Adrian Treves UW-Madison and David MacFarland, DNR Carnivore Research Scientist, continued examining the effectiveness of lethal controls on reducing wolf depredation and public and landowner tolerance of wolves based on use of lethal or nonlethal controls. They are being assisted by post-doc researcher Christine Browne-Nunez, who is conducting focus group discussions with various stakeholder groups.

WDNR research scientist Mike Watt, and others with WDNR and UW-Madison continue a research project examining predator impact on deer, including wolves impact on fawn survival in Wisconsin.

http://dnr.wi.gov/topic/wildlifehabitat/research/whiteTailedDeer.html

Erik Olson, PhD candidate at UW-Madison began research, working with Steve Ventura and Adrian Treves, to examine wolf depredations on dogs, and develop models to predict where these will occur in the future as well as examining trophic cascades effects of wolves on deer behavior. Erik also examined spatial considerations for developing a state wolf harvest, which helped inform WDNR in establishing harvest zones and quotas for a wolf hunting and trapping season.

Research project on wolf serology and disease assessment of wolves in the Great Lakes region continued by graduate student Rocio Jara, working with Michael Samuel of the Cooperative Wildlife Unit at University of Wisconsin-Madison. Rocio is collecting new samples, but is also interpreting and summarizing disease testing conducted over the years.

The wolf program produced several other reports during the study period. The Wisconsin Wolf Population in 2010-2011 was published in the *Wisconsin Wildlife Surveys* (Wydeven and Wiedenhoeft 2011). A progress report on wolf population monitoring was produced for wolf surveys and management activity, and a report on annual summaries of depredation and monitoring activity was produced.

JOB 106.12 WOLF DOG HYBRIDS AND CAPTIVE WOLVES

Seventeen cases of suspected wolf-dog hybrid incidents were reported in 2011 (Table 12). WDNR started to regulate wolf-dog hybrids on 1 July 2010 (NR 16), but not all cases of wolf-dog hybrids came to the attention of the wolf program. Some wolf dog hybrid problems were handled by local law enforcement personnel or animal control officers, but cases listed in table 11 included some involvement by WDNR. Wolf-dog hybrid problems occurred in 15 Wisconsin counties and occurred throughout the state.
A wolf-dog hybrid found shot in Fond du Lac County on 28 December 2011, was initially suspected as being wolf, but was determined to be a wolf-dog hybrid by DNA testing; at least 2 incidents of wolf-dog hybrids roaming in the county were detected earlier.

The Wisconsin DNR regulates wolf-dog hybrids as harmful wildlife, and wardens have gotten involved in several situations trying to determine if specific animals needed to be regulated. The wolf program has developed a panel of experts to review identity of potential wolf-dog hybrids based on photos of the animals, and classify canids in the following categories:

1. Likely wolf and no evidence of any dog characteristics
2. Likely wolf but possibly also has some dog characteristics
3. Likely wolf-dog hybrid, and has obvious wolf and dog characteristics
4. Likely dog, but possibly with some wolf characteristics
5. Likely dog with no evidence of any wolf characteristics.

This panel reviewed possible wolf-dog hybrids both for conservation wardens and pet owners, to determine if animals need to be regulated as either “wolf” or “wolf-dog hybrid”. This panel has been able to serve as a first cut in determining whether animals need to be regulated, and has been able to help save time for wardens and pet owners in situations where the canids did not need to be regulated.

JOB 106.13 WOLF SPECIMEN MANAGEMENT

Attempts were made by WDNR Wildlife Health staff to necropsy radio-collared wolves, suspected legal cases, and wolves dying of unknown causes found dead in the state, if carcasses were not too decomposed. Wolves that were euthanized in depredation situations were not submitted for formal necropsies, but received amended field necropsies. Most collared wolves that died, and some wolf-dog hybrids, were made into specimens at UW Zoology Museum in Madison. Other wolf specimens were

made available to nature centers, DNR offices, tribal offices, tribal spiritual use, and wolf educators. Davin Lopez coordinated wolf specimen distributions. Wolf specimens handled by WDNR regions in 2011 included: 44 in the Northern Region, 28 in the West Central Region, 9 in the Northeast Region, and 0 in the South Central Region.

JOB 106.14 ECOTOURISM

Workshops by the Timber Wolf Alliance, Timber Wolf Information Network, and Sandhill Outdoor Skills Center brought people into communities of Manitowish Waters, Tomahawk, and Babcock to explore wolf habitat and supporting local businesses. Wolf programs were also given at the Cable Natural History Museum, State Parks and Forests, and National Park Service, and these programs were part of the attractants for people to visit these areas. The Wisconsin DNR continued support and monitoring of ecotourism activities involving wolves in forested portions of the state.

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Table 1. *Wolves captured and radio-collared in Wisconsin in 2011*.

	Adult		Yearling		Pup		
Zone 1	Male	Female	Male	Female	Male	Female	**TOTAL**
# Captured	4	6					**10**
# Collared	4	6					**10**
Avg Weight (lbs.)	88	66					---
Zone 2							
# Captured		2			1		**3**
# Collared		2			1		**3**
Avg Weight (lbs.)		71			40		---
Zone 3							
# Captured	2	2				3	**7**
# Collared	2	2				3	**7**
Avg Weight (lbs.)	71	68				58	---

Table 2. *Wolves radio monitored in Wisconsin from 15 April 2011 to 14 April 2012.*

Age at beginning of period	Adult		Yearling		Pup		
Zone 1	Male	Female	Male	Female	Male	Female	**TOTAL**
# on air beginning of period	11	29	0	1	0	0	**41**
# Captured	4	7	0	0	0	0	**11**
Avg. Weight of captures (lbs)	88	68	-	-	-	-	**-**
# Collared	4	7	0	0	0	0	**11**
# Found	0	1	0	0	0	0	**1**
Avg. summer home range (mi^2)[a]	26 (n=10)	22 (n=19)	-	NE	-	-	**-**
Avg. winter home range (mi^2)[a]	44 (n=9)	37 (n=18)	-	NE	-	-	**-**
Mortalities	3	7	0	0	0	0	**10**
Lost signal	2	8[b]	0	1	0	0	**11**
Dispersed out of state	0	0	0	0	0	0	**0**
# Still on air at end of period	10	22	0	0	0	0	**32**
Zone 2							
# on air beginning of period	1	4	0	0	0	0	**5**
# Captured	0	2	0	0	1	1	**4**
Avg. Weight of captures (lbs)	-	71	-	-	40	-	**-**
# Collared	0	2	0	0	1	1	**4**
# Found	0	0	0	0	0	0	**0**
Avg. summer home range (mi^2)[a]	NE	16 (n=3)	-	-	NE	-	**-**
Avg. winter home range (mi^2)[a]	NE	40 (n=2)	-	-	NE	-	**-**
Mortalities	0	3	0	0	0	0	**3**
Lost signal	1	1	0	0	0	1	**3**
Dispersed out of state	0	0	0	0	0	0	**0**
# Still on air at end of period	0	2	0	0	1	0	**3**
Zone 3							
# on air beginning of period	1	3	0	0	0	0	**4**
# Captured	3	2	0	0	0	3	**8**
Avg. Weight of captures (lbs)	78	72	-	-	-	58	**-**
# Collared	3	2	0	0	0	3	**8**
# Found	0	0	1	0	0	0	**1**
Avg. summer home range (mi^2)[a]	5 (n=1)	13 (n=2)	NE	-	-	-	**-**
Avg. winter home range (mi^2)[a]	NE	29 (n=1)	40 (n=1)	-	-	39 (n=1)	**-**
Mortalities	2	1	0	0	0	1	**4**
Lost signal	1	4[c]	0	0	0	1	**6**
Dispersed out of state	0	0	0	0	0	0	**0**
# Still on air at end of period	1	0	1	0	0	1	**3**

[a] n= # of wolves w/≥20 radiolocations used for this calculation. NE=no estimate.
[b]Includes 1 slipped collar [c]Includes 2 slipped collars

Table 3. *Howl surveys and pup observations in Wisconsin wolf packs spring-summer 2011.*

Pack/Area	No. of Howl Surveys	Miles Surveyed	Hours Howled	No. of Howl Stops	No. of Stops w/ Wolves	Est. No. of Pups	Pups Observed
Zone 1	79 (45 packs)	673	125	562	38 (21 of 45 packs)	26-27+ (12 of 45 packs)	24-26+ pups in 13 packs
Zone 2	61 (23 packs)	728	70	253	41 (19 of 23 packs)	55+ (18 of 23 packs)	18+ pups In 7 packs
Zone 3	2 (2 packs)	8	2	11	2 (1 of 2 packs)	3-4 (1 of 2 packs)	11 pups in 2 packs
Total	**142 (70 packs)**	**1409**	**197**	**826**	**81 (41 of 70 Packs)**	**84-86+ (31 of 70 Packs)**	**53-55+ pups In 22 packs**

Table 4. *Visual observation rates of radio-collared wolves by DNR pilots during December 2011 – March 2012 in Wisconsin.*

Wolf Mgmt Zone	No. of wolves radio monitored	No. of radio Locations	Visual Observ.	Percent Visuals	Max.Wolves Seen[a]	No. of Packs
1	39	554	107	19%	110	37 (+ 3 disp/loners)
2	6	69	10	14%	14	7
3	4	32	3	9%	7	2
Total	**49**	**655**	**120**	**18%**	**131**	**46 (+3 disp/loners)**

[a]Includes wolves not seen, but with active signal.

Table 5. *Track Surveys in survey blocks by volunteers and DNR in northern and central Wisconsin in winter 2011-2012. Some surveys were not turned in and are not included in this table, but mid-season reports that include those surveys were used in determining the wolf count.*

	Blocks Surveyed[a]	No. of Surveys	Miles	Hours	Wolves Counted[b]	Blocks w/estrus blood detected
Volunteers	92	311	6806	1174	484	-
DNR	79	-	3162	-	372	-
Total	**123**		**9968**		**856**	**31**

[a]Some blocks were surveyed by both volunteers and DNR.

[b] Wolves Counted reflects double counting of some packs in more than 1 block. Total also reflects double counting of some packs by both volunteers and DNR.

Table 6. *Pack and lone wolf summaries for Wisconsin in winter 2011-2012.*

Zone		# of Packs	# of Wolves in Packs	Loners	Total # of Wolves	# of radio monitored Wolves	Average pack territory[a] (mi^2)
1	Off Reservations	*154*	*573-612*	*12*	*585-624*	*34*	
	On Reservations	8	34-35	1	35-36	5	
	Total	162	607-647	13	620-660	39	48.5 N=37
2	Off Reservations	*32*	*119-135*	*0*	*119-135*	*6*	
	On Reservations	0	0	0	0	0	
	Total	32	119-135	0	119-135	6	33.8 N=6
3	*Off Reservations*	*18*	*64-73*	*5*	*69-78*	*2*	
	On Reservations	1	5	1	6	1	
	Total	19	69-78	6	75-84	3	17.3 N=2
4	Off Reservations	0	0	1	1	0	
	On Reservations	0	0	0	0	0	
	Total	0	0	1	1	0	-
Statewide	Off Reservations	***204***	***756-820***	***18***	***774-838***	42	
	On Reservations	9	39-40	2	41-42	6	
	Total	213	795-860	20	815-880	48	45.2 N=45
Outside WI		1	3	1	4	0	-

[a]Pack territory size is only calculated for packs with ≥20 radiolocations for the period 15 April 2011 to 14 April 2012.

Table 7. *Wolf mortality in Wisconsin in 2011. Complete necropsies are pending for some wolves.*

	Adult		Yearling		Pup			
Zone 1	Male	Female	Male	Female	Male	Female	Unknown	**TOTAL**
Legal control action								**0**
Legally killed		2						**2**[a]
Illegally killed	6	3	1	2		1		**13**[b]
Vehicle Collision	7	4	1		3	2	5	**22**[c]
Capture related		1						**1**[d]
Unknown human caused								**0**
Total Human Caused								***38***
Disease/ Injury	1							**1**[d]
Inter-specific strife							1	**1**
Unknown natural cause								**0**
Total Natural Caused								***2***
Unknown cause							2	**2**
ZONE 1 TOTALS	**14**	**10**	**2**	**2**	**3**	**3**	**8**	**42**
Zone 2								
Legal control action								**0**
Legally killed	1	1						**2**
Illegally killed	1	3						**4**[a]
Vehicle Collision	1	1		1			3	**6**[d]
Capture related								**0**
Unknown human caused								**0**
Total Human Caused								***12***
Disease/ Injury								**0**
Inter-specific strife		1						**1**[d]
Unknown natural cause								**0**
Total Natural Caused								***1***
Unknown							2	**2**
ZONE 2 TOTALS	**3**	**6**	**0**	**1**	**0**	**0**	**5**	**15**
Zone 3								
Legal control action								**0**
Legally killed	1							**1**[d]
Illegally killed	1	2	1			1	2	**7**[a]
Vehicle Collision	5	2	3	2			2	**14**
Capture related								**0**
Unknown human caused								**0**
Total Human Caused	*7*	*4*	*4*	*2*	*0*	*1*	*4*	***22***
Disease/ Injury								**0**
Inter-specific strife	1							**1**[d]
Unknown natural cause								**0**
Total Natural Caused	*1*	*0*	*0*	*0*	*0*	*0*	*0*	***1***
Unknown								**0**
ZONE 3 TOTALS	**8**	**4**	**4**	**2**	**0**	**1**	**4**	**23**

Table 7. *Continued.*

	Adult		Yearling		Pup			
	Male	Female	Male	Female	Male	Female	Unknown	**TOTAL**
Zone 4								
Legal control action								**0**
Legally killed	1[e]							**1**
Illegally killed								**0**
Vehicle Collision								**0**
Capture related								**0**
Unknown human caused								**0**
Total Human Caused	*1*	*0*	*0*	*0*	*0*	*0*	*0*	***1***
Disease/ Injury								**0**
Inter-specific strife								**0**
Unknown natural cause								**0**
Total Natural Caused	*0*	*0*	*0*	*0*	*0*	*0*	*0*	***0***
Unknown								**0**
ZONE 4 TOTALS	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
STATEWIDE TOTAL	**26**	**20**	**6**	**5**	**3**	**4**	**17**	**81**
Legal control action								**0**
Legally killed								**6**
Illegally killed								**24**
Vehicle Collision								**42**
Capture related								**1**
Unknown human caused								**0**
Total Human Caused								***73***
Disease/ Injury								**1**
Inter-specific strife								**3**
Unknown natural cause								**0**
Total Natural Caused								***4***
Unknown								**4**

[a]Includes 2 radio collared wolves
[b]Includes 6 radio collared wolves (5 being actively monitored)
[c]Includes 6 radio collared wolves
[d]Includes 1 radio collared wolf
[e]Hybrid

Table 8. *Mortality summary of radio collared wolves in Wisconsin from October 1979 – December 2011.*

	Cause of Death	Number	% Known Mortality
Human Causes	Capture Related	10	5%
	Euthanized (depredation)	7	4%
	Euthanized (safety)	5	3%
	Legal control by landowner	1	1%
	Vehicle Collision	20	11%
	Illegally killed	65	36%
	Other human caused	1	1%
	Unknown Human Causes	0	0%
	Total Human Causes	*109*	*60%*
Natural Causes	Accident	4	2%
	Birthing Complications	1	1%
	Disease	43	23%
	Malnutrition/Starvation	3	2%
	Killed by Other Wolves	20	11%
	Unknown Natural Causes	3	2%
	Total Natural Causes	*74*	40%
Totals	*Known Mortality*	*183*	*100%*
	Unknown Mortality	20	
	Total Mortality	**204**	

Some final necropsy results pending do not cite for publication

Table 9. *Probable and possible wolf observations reported by natural resource agency personnel and private citizens in Wisconsin, 2011.*

County	Number of Sightings	Wolves Seen	Track or Sign Observations	Total Wolf Observations
Adams*	7	14	3	10
Ashland*	8	15	4	12
Barron	1	1	0	1
Bayfield*	17	28	10	27
Brown	4	4	0	4
Burnett*	2	2	2	4
Chippewa*	2	2	0	2
Clark*	5	11	2	7
Columbia	4	5	0	4
Crawford	1	1	0	1
Dane	9	9	0	9
Dodge	2	3	0	2
Douglas*	9	18	6	15
Dunn*	2	5	1	3
Eau Claire*	1	1	1	2
Florence*	6	20	1	7
Fond du Lac	2	2	0	2
Forest*	5	8	8	13
Grant	1	1	0	1
Iron*	10	18	4	14
Jackson*	6	11	0	6
Jefferson	2	2	0	2
Juneau*	108[a]	213	3	111
Kenosha	2	2	0	2
LaCrosse	4	4	0	4
Langlade*	4	10	0	4
Lincoln*	11	23	7	18
Manitowoc	1	1	0	1
Marathon*	32[a]	48	2	34
Marinette*	5	11	4	9
Marquette	4	4	1	5
Milwaukee	1	1	0	1
Monroe*	7	20	14	21
Oconto*	8	12	2	10
Oneida*	20	34	6	26
Outagamie	4	6	0	4
Ozaukee	2	2	0	2
Pepin	1	1	0	1
Polk*	0	0	1	1
Portage*	8[a]	10	0	8
Price*	7	12	2	9
Racine	1	1	0	1
Richland	0	0	1	1
Rock	3	3	0	3
Rusk*	7	16	1	8
Sauk	4	4	0	4
Sawyer*	13	41	11	24
Shawano*	5	8	3	8
Sheboygan	2	2	0	2
St. Croix	1	1	0	1
Trempealeau	1	2	0	1
Vernon	1	2	0	1
Vilas*	15	30	2	17
Walworth	1	1	0	1

Table 9. *Continued.*

County	Number of Sightings	Wolves Seen	Track or Sign Observations	Total Wolf Observations
Washburn*	9	12	2	11
Waukesha	3	3	0	3
Waupaca*	1	3	0	1
Waushara*	2	2	0	2
Wood*	23[a]	33	2	25
Total	**430**	**762**	**106**	**536**

*Counties believed to have packs with breeding activity in 2011. No observations were reported from Menominee & Taylor counties where breeding packs are known to exist.

[a] Many observation reports from this county were due to a graduate student research project using trail cameras.

Table 10a. *Wolf depredation on livestock in Wisconsin in 2011.*

Wolf Mgmt. Zone	Chronic Farms w/wolf depredation	Other farms	*Total Farms*	Packs Involved	Livestock Depredated	Payments
1	14	19	*33*	24	Calves: 52 killed, 2 inj., 202 missing Adult cattle: 6 killed, 1 inj. Lambs: 35 killed Sheep: 9 killed Goats: 11 killed, 1 inj. Deer: 2 killed Horse: 1 killed 1 llama, 2 chickens killed	$233,148.82
2	0	2	*2*	2	Calves: 2 killed, 55 missing Adult cattle: 2 killed	$46,250.00
3	0	6	*6*	3	Calves: 5 killed Adult cattle: 1 killed	$4,531.00
Total	**14**	**27**	**41**	**29**	**Calves: 59 killed, 2 inj., 257 missing** **Adult cattle: 9 killed, 1 inj.** **Lambs: 35 killed** **Sheep: 9 killed** **Goats: 11 killed, 1 inj.** **Deer: 2 killed** **Horses: 1 killed** **1 llama & 2 chickens killed**	**$283,929.82**

Table 10b. *Non-livestock wolf depredation cases in Wisconsin in 2011.*

Wolf Mgmt. Zone	Dogs at homes				Dogs hunting or training			
	Killed	Injured	Packs Involved	Payments	Killed	Injured	Packs Involved	Payments
1	2	1	3	$818.20	17	5	16	$43,487.45
2	1	0	1	$110.96	0	0	-	-
3	1	1	1	$2,583.00	0	0	-	-
TOTALS	**4**	**2**	**5**	**$3,512.16**	**17**	**5**	**16**	**$43,487.45**

Table 10c. *Verified non-depredation wolf complaints in Wisconsin in 2011.*

Wolf Mgmt. Zone	Threat to livestock	Packs Involved	Health & safety concern	Packs Involved	Total cases	Total Packs
1	2	2	4	4	6	6
2	1	1	2	2	3	3
3	1	1			1	1
TOTALS	**4**	**4**	**6**	**6**	**10**	**10**

Table 11. *Wolf control actions in Wisconsin in 2011.*

Wolf Mgmt. Zone	Sites w/Non-lethal attempted	Sites w/trapping attempted	Sites w/wolves euthanized	No. of wolves euthanized	Total Sites w/control actions
1	13	1	1	2	13
2	1	1	1	2	1
3	3	0	0	0	3
TOTALS	**17**	**2**	**2**	**4**	**17**

Table 12. *Suspected wolf dog hybrid incidents and problems in Wisconsin in 2011.*

Date	County	No. of wolf dogs Age/Sex	Problem	Outcome
03/13/11	Vilas	2A	Roaming loose near homes	Unknown
03/16/11	Douglas	2A	Escaped from captivity	Euthanized
03/26/11	Fond du Lac	1A	Roaming farm area	Unknown
03/?/11	Douglas	2 ?/?	Escaped from captivity	Euthanized
03/?/11	Price	1 A/?	Roaming loose in rural area	Unknown
04/04/11	Waupaca	1 A/?	Roaming loose near residence	Unknown
04/25/11	Juneau	1AM & 1AF	Found dead in wild	Disposed
05/15/11	Oneida	?	Hybrids listed for sale in paper	Referred to LE; not hybrids
05/17/11	Outagamie	1 A/F	Raising pups in the wild	Unknown
06/10/11	Rusk	1 A/?	Roaming loose near residence	Unknown
07/25/11	Columbia	2 A/?	Escaped from captivity	Unknown
08/16/11	Wood	1 J?	Roaming & shot	Disposed
08/26+/11	Sawyer	1 A	Roaming edge of Hayward	Unknown
10/04/11	Waupaca	7	B & G canids roaming in wild	Unknown
10/26/11	Forest	2 A	Feeding on roadkills near homes	Unknown
11/08/11	Fond du Lac	1 A	Roaming in wild	Unknown
12/15/11	Door	1 A	Roaming near homes	Unknown

APPENDIX 1. *Nicknames used for radio-collared wolves*

Wolf No./ Sex	Age[a]	Total Radio-locations[b]	Nickname	Status	Sponsor
M2749F	A	189		?	MI DNR
M2761F	A	115		?	MI DNR
M2778F	A	55		Alpha?	MI DNR
M734M	A	100		Alpha	MI DNR
500B F	A	257	Yunawiko	Alpha	North Lakeland Discovery Center
508F	A	341	Chris	Alpha	Bruce Bacon[c]
555M	A	137		Subordinate	
564F	A	199		Alpha	
573F	A	190	Star	Subordinate	Louis Foundation
602F	A	247		Alpha	
615F	A	196		Alpha	
616F	A	196	Cole	Alpha	
623F	A	182	Janet	Alpha?	
626F	A	180		Alpha	
630F	A	129		Alpha	
635F	A	135		Alpha	Eric Ashburn[c]; Ho-Chunk Nation
650F	A	145		?	
651M	A	131		Alpha?	
652F	A	140		Alpha?	
654F	A	112	Hinake	Alpha?	Ho-Chunk Nation
657M	A	115	Haga	Alpha	Gerry Gross[c]; Ho-Chunk Nation
658F	A	89		Alpha?	Mohican Nation
664F	A	154	Fria	Alpha	Ed Coulombe[c]
665F	A	45	Isi	Alpha	
666F	A	46	Niebla	Subordinate	
667M	A	107	Nii-Jii	Alpha?	
669F	A	125	Sprout	Subordinate	Jeff Lauren[c]
670F	A	136		Alpha	
671F	A	115		Subordinate?	
672F	A	161		Subordinate	
686M	A	128		Subordinate	
687M	A	144	Timothy	Alpha	
689F	A	22		Subordinate	Anonymous[c]
690F	A	78	Molley	Subordinate	C.Evenhouse[c]
692F	A	125	Allison	Subordinate?	
694F	A	84		Subordinate	
751F	A	27	Grace	Alpha?	U.S. Military
752F	A	99		Subordinate	
753F	A	33		Subordinate	Anonymous[c]
754F	A	40	Francine	Subordinate	
755F	A	102	Elsa	Subordinate	
756F	P	12		Subordinate	Anonymous[c]
757M	A	122		Alpha	Anonymous[c]
759M	A	102		Subordinate	

APPENDIX 1. *Cont*.

Wolf No./ Sex	Age[a]	Total Radio-locations[b]	Nickname	Status	Sponsor
760F	A	99		Subordinate	
761M	A	74		Subordinate	Dale Richter[c]
763F	A	78		Alpha	
766F	A	10	Jalina	Subordinate	Dale Striegel, Zach Wilson[c]
768M	A	40		Subordinate	Mohican Nation
769M	A	47		?	Lac Court Oreilles
773M	A	96		Subordinate	
775F	A	2		Subordinate	
776F	A	91		Subordinate	
778F	A	594[d]		Subordinate	Dave Mech
779M	Y	74		Subordinate	
786F	A	4		Subordinate?	U.S. Military
787M	A	7	Disco	Subordinate	Gary Olson[c]
788F	P	24		Subordinate	U.S. Military
789F	A	25		Subordinate?	
791M	A	76		Alpha	Anonymous[c]
792F	Y	27	Spot	Subordinate	Marty Kiepke[c]
793F	A	46	Lily	Subordinate	
800F	A	16	Jop	Alpha	Ho-Chunk Nation
804M	A	1		Subordinate	Larry Brenwall[c]
805F	A	32	Pam	Subordinate	Natural Resources Foundation
806M	A	13		Alpha?	U.S. Military
807M	P	30	Eric	Subordinate	
808M	A	17		Alpha?	Bad River Tribe
809M	A	39	Night Runner	Subordinate?	Bad River Tribe
811F	P	6		Subordinate	Bob Watson[c]
815F	A	11	Yucan	Subordinate	Scott Martin[c]
819M	A	43	Alexander	Alpha	
820F	A	11		Alpha?	
825F	A	22		Subordinate	Larry Brenwall[c]

[a]Age as of 1 May 2011

[b]To 15 April 2012

[c]Trapper who captured wolf and turned it over to DNR

[d]Includes satellite locations from GPS collar.

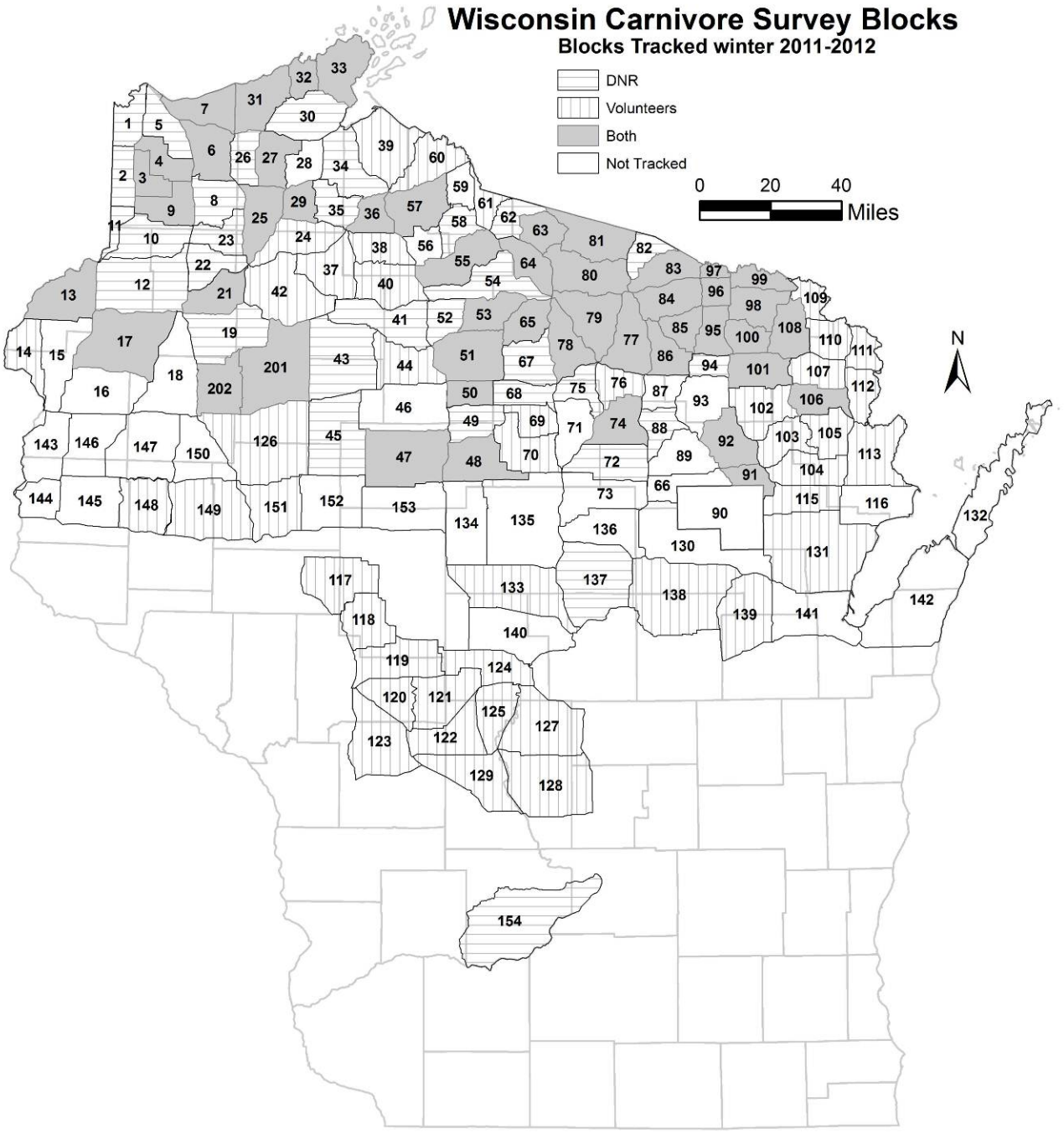
APPENDIX 2. *2011-2012 Volunteer Trackers (135 individuals participated in volunteer surveys that were turned in; * denotes regional coordinator).*

Name		Name	
Ben		Randy	Jurewicz
Erin		Jesse	Kahn
Kasla		Chris	Kamps
Kenny		Matthew	Kezer
Nick		Fred	Knoch
Dan	Abel	Jim	Kocinski
Reese	Aerts	Sherry	Leitner
Rebecca	Anderson	Ray	Leonard*
Dan	Anderson	Danny	Logings
Diane	Anderson	Jim	Lohff
Mary	Baade	Dianne	Lueder
Bret	Bauman	Paul	Lueders
Tim	Beissinger	Megan	Lynch
Dave	Blunk	Tom	Madden
Brian	Brost	Dennis	Marcely
Mike	Cleven	Karl	Markgraf
George	Clokey	Tom	Matthiae
Sharon	Colht	Jerry	McNally
Norma	Donovan	Joan	McNaughton
Rebecca	Dreyer	Jim	Meeker
Linda	Easley	John	Menge
Vicky	Eiben	Roy	Meyer
Joan	Elias	Warren	Meyers
Carol	Erickson	Renee	Miller
William	Erickson	Barb	Moore
Arnie	Erickson	Jim	Moore
John	Ewen	Linda	Nelson*
Jennifer	Fourrier	Carol	Nelson
Keith	Fourrier	Don	Nelson
Dean	Garny	Chris	Olson
Ken	Geurts	Donna	Onstott
Chris	Giese*	Jim	Onstott
Wayne	Gjersvig	Tad	Paavola
David	Hanselman	Dan	Parlier
Cara	Hanson	Robert	Patenaude
Ron	Harms	April	Patterson
Richard	Hartwig	Chuck	Pease
Fred	Haueter	Eric	Pease
Peggy	Haueter	Jake	Pease
Tom	Hildebrandt	Nate	Pease
Steve	Hoecker	Edward	Peters
Jeremy	Hubbard	Debbie	Pett
Barb	Jurewicz	Tom	Pfeffer*

APPENDIX 2. *Continued*

Name		Name	
Jess	Piispanen	Ann	Swift
Tom	Podlesny*	Duanne	Swift
John	Polk	Dick	Thiel
Mike	Ravet*	Scott	Thiel
Jeannie	Ravet	Keith	Thomsen
David	Reineke	Judy	Valen
Julia	Robson	Terry	Valen
Peter	Robson	Jerry	Van Cleve
Alan	Roelfs	Mike	VanderVelden
Bobbi	Rongstad*	Ron	VanderVelden*
Kay	Scharpf	John	Viste
Emily	Scheunemann*	Amanda	Walsh
Larry	Scheunemann*	Hank	Wendt
Deb	Schretenthaler	Tim	Wilder
Lenny	Seyberth	Lorna	Wilson
Joe	Seymour	Roger	Wilson
Bob	Sherman	David	Wiltrout*
Theresa	Simpson	Becky	Wintringer
Meg	Speck	Louise	Young
Tom	Staack	Karen	Young
Jim	Stampe	Jessica	Zabel
Larry	Stordahl	Mike	Zielinski
Tim	Stout	Eugene	Zopfi
Elaine	Strite	Kelly	Zopfi
		Daniel	Zwicker

APPENDIX 3.


Wisconsin Carnivore Survey Blocks
Blocks Tracked winter 2011-2012
DNR
Volunteers
Both
Not Tracked
0 20 40
Miles
N

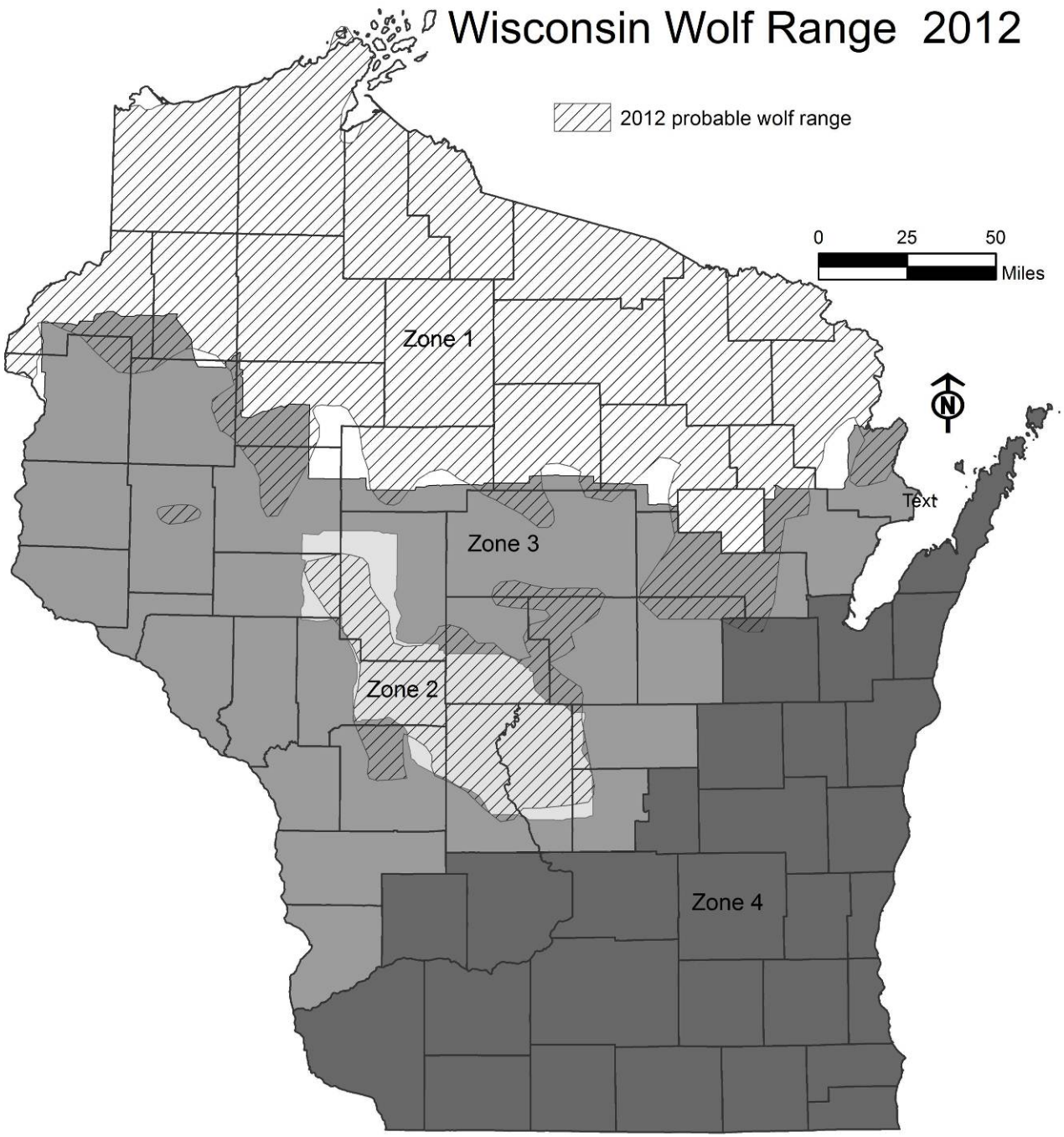


Figure 1. *Probable wolf range in Wisconsin Wolf Management Zones in 2012.*

Figure 2. Changes in Wisconsin Gray Wolf Population: 1980-2012