

**An Incidental Take Plan
for Canada Lynx and
Minnesota's Trapping Program**

Submitted to

**U. S. Department of Interior
Fish and Wildlife Service**

Prepared by

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1.0 Introduction and Background

1.1 Overview/Background

This Habitat Conservation Plan (HCP) has been developed in association with an application from the Minnesota Department of Natural Resources (MNDNR or the Department) to the U. S. Fish and Wildlife Service (USFWS or the Service) for a Section 10 Incidental Take Permit (ITP) under the Endangered Species Act (ESA) of 1973 to absolve the Department and its employees from liability in the event of incidental take of Canada lynx (*Lynx canadensis*) in Minnesota that result from otherwise lawful activities. Minnesota, like other states with licensed hunting and trapping programs, believes that ITPs should not be a requisite of these programs; however, MNDNR agreed to file an ITP application with the USFWS as part of a joint stipulation in U. S. District Court, District of Minnesota, to settle a legal complaint (see Appendix 1).

Incidental take permitted within the scope of a Section 10 permit issued to the Department would include primarily direct injury or mortality of Canada lynx as the result of being captured during the legal trapping season in Minnesota and under the terms and limitations of a trapping license issued by Minnesota. Additionally, this Section 10 permit would also cover incidental take of Canada lynx resulting from trapping activities conducted by MNDNR employees as part of their position duties authorized by Minnesota Statutes (MS) 97B.655, and DNR permits issued under MS 97A.401 (Appendix 2). Some of these terms and limitations are designed to minimize the probability of taking endangered or threatened species.

The MNDNR is seeking full, statewide coverage of all aspects of "take" related to trapping under the terms and limitations of the Department's licenses. The permit

requested is for incidental take of Canada lynx and not for other listed species or species that may be listed in the future.

1.2 Permit Duration

The Department is seeking a Section 10 permit through 2028 or 20 years from the date of acceptance of this application for an ITP.

1.3 Regulatory/Legal Framework for Plan

The ESA, administered by the Department of Interior's USFWS, is considered by many to be one of the most comprehensive wildlife conservation laws worldwide. Its purpose is to conserve "the ecosystems upon which endangered and threatened species depend" and to recover populations of listed species (U. S. Congress 1988).

As amended, Section 9 of the ESA prohibits "take" of any fish or wildlife species listed under the ESA as endangered. Under Federal regulation, take of fish or wildlife species listed as threatened is also prohibited unless specifically authorized by regulation. According to the ESA, "take" includes "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

In 1982 Congress revised Section 10 via amendments to the ESA that allows for "incidental take" of endangered and threatened species of wildlife by non-federal entities. The ESA defines incidental take as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Prior to 1982, such activities by non-federal entities risked violating the Section 9 prohibition, but no legal recourse for exemption was available. Only take associated with scientific research or other conservation activities could be authorized under the ESA. The "incidental take permit"

process was established under Section 10(a)(2)(B) of the ESA to provide a legal recourse when activities occurred outside this realm.

Section 10(a)(2)(A) of the ESA requires an applicant for an ITP to submit a "conservation plan" (also known as a habitat conservation plan [HCP]) "...that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts" (MDIFW 2007).

In the first 10 years of the federal HCP program (1983–1992), 14 ITPs were issued. By May 2006, 448 HCPs had been approved and over 718 incidental take permits had been issued (MDIFW 2007). In a little over a decade, the HCP process has become one of the ESA's most important and innovative conservation programs.

1.4 Plan Area

The geographic area encompassed by this plan includes the entire state of Minnesota.

1.5 Species to be Covered by Permit

The Department is seeking a Section 10 permit for Canada lynx (*Lynx canadensis*). This species was federally listed under ESA as "threatened" in 2000. Hunting and trapping of lynx has been prohibited by the state since 1984 (M. Doncarlos, MNDNR *in litt.* 1994). No authority to take other federal or state-listed species is to be conferred by this permit.

2.0 Environmental Setting/Biological Resources

Environmental Setting

Minnesota is located at 89° 34'W to 97° 12'W longitude, 43° 34'N to 49° 23'N latitude in the north central region (Upper Midwest subregion) of the United States and is about halfway between the equator and the North Pole (Netstate.com 2006a,b). It is 400 miles

(644 km) long, 250 miles (402 km) wide, and is the 12th largest of the 50 states at 86,943 mi² (225,182 km²). Land area is 79,617 mi² (206,208 km²) and water area is 7,326 mi² (18,974 km²) or 8.4% of the total area. It is bordered by Canada to the north, Iowa to the south, Lake Superior and Wisconsin to the east, and North Dakota and South Dakota to the west. According to the U. S. Census Bureau, Minnesota is the 21st most populous state (2005 population of 5,132,799 people) in the U. S. Most of the state is sparsely populated with all but three (Rochester, Duluth, and St. Cloud) of the cities with at least 50,000 people occurring within the Twin Cities metropolitan area.

Laurentian Mixed Forest (LMF) Province covers just over 23 million acres (9.3 million ha) of the northeastern portion of Minnesota (MNDNR 2007a). It is characterized by vast areas of conifer and mixed hardwood-conifer forests, conifer bogs and swamps. The LMF includes rugged terrain of bedrock covered by thin glacial deposits and numerous lakes, undulating plains with deep glacial drift, and large flat peatlands. The Tallgrass Aspen Parklands (TAP) Province encompasses about three million acres (1.2 million ha) of northwestern Minnesota (MNDNR 2007a). The TAP is an ecotone between semi-arid landscapes historically covered by prairie and semi-humid mixed conifer-deciduous forests. The Prairie Parkland Province extends over 16 million acres (6.5 million ha) from southwestern to northwestern Minnesota, an area historically dominated by tallgrass prairie (MNDNR 2007a). Low winter precipitation, brief duration of snow cover, and desiccating westerly winds favor spring fire seasons and grasslands over forests. The Eastern Broadleaf Forest Province is a 12-million-acre (4.9 million ha) ecotone of semiarid portions of the state, historically prairie, and semi-humid mixed conifer-deciduous forests to the northeast (MNDNR 2007a). Much of the western

boundary of this province is an abrupt transition from forest and woodland to open grassland, whereas, the northeastern boundary is characterized by a gradual transition between eastern deciduous forests and the mixed conifer-hardwood forests of northern Minnesota.

Minnesota is rich in diverse natural resources with forests (14,434,482 ac [5,843,920 ha]), brushland (1,326,796 ac [537,164 ha]), bog/marsh/fen (5,728,056 ac [2,319,051 ha]), and water (3,211,643 ac [1,300,260 ha]) covering 26.7, 2.5, 10.6, and 5.9% of the state, respectively (Minnesota Department of Administration [MNDA] 2007a,b). Water includes 6,564 natural rivers and streams (69,200 mi [111,343 km]), as well as 11,842 lakes (≥ 10 ac [4.0 ha]). Cultivated land (22,694,200 ac [9,187,935 ha]) and hay, pasture, and grassland (4,977,451 ac [2,015,162 ha]) account for 42.0 and 9.2% of Minnesota's land cover, whereas urban and rural development (1,472,267 ac [596,060 ha]) and mining (147,175 ac [363,522 ha]) comprise only 2.7 and 0.3%.

Climate

According to the National Climatic Data Center, Minnesota's climate is the continental-type characterized by "frequent outbreaks of polar air" throughout the year and occasional Arctic outbreaks during winter (Boulay 2006). Warm air masses from the Gulf of Mexico and the southwestern U. S. occasionally cause periods of prolonged heat in summer, particularly in southern Minnesota. Air masses from the Pacific Ocean intermittently produce relatively mild, dry weather during all seasons. Mean annual temperatures range from 36° F (2.2° C) in the far north to 49° F (9.4° C) in the southeast. Monthly mean temperatures vary from 85° F (29.4° C) in the southwest to -11° F (-23.9°

C) in the northwest. Extreme temperatures range from -60°F (-51.1°C) to 114°F (45.6°C).

The growing season is April to October for native vegetation and May to September for row crops (Boulay 2006). Mean annual precipitation is 35" (89 cm) in extreme southeastern Minnesota and 19" (48 cm) in the northwestern corner of the state. Two-thirds of the annual precipitation occurs during May to September. Average snowfall is 70" (178 cm) along the highland of the north shore of Lake Superior in northeastern Minnesota to 40" (102 cm) along the Minnesota borders with Iowa and the Dakotas. Snow cover of at least 1" (2.5 cm) occurs on an average of 110 days annually (range = 85–140 days in the south and north, respectively).

On average, severe drought conditions (annual Palmer Drought Index of less than -3) occur once in 10, 25, and 50 years in the southwestern and western, eastern, and northern portions of the state, respectively (Boulay 2006). Minnesota receives an average of 35 tornadoes annually; over 75% of them occur during May to July. Southern Minnesota has 3 to 4 times more tornadoes than the northern half of the state.

Topography / Geology

Minnesota's current landscape and climate are primarily the result of the most recent glaciation, the Wisconsin glaciation (began about 75,000 years ago), with its 4 lobes of ice (Wadena, Rainy, Superior, and Des Moines; MNDNR 2007b). The receding glaciers left large expanses of pulverized limestone, which enriched Minnesota's soils, and numerous depressions, which subsequently developed into many of its lakes and streams of today. Mean elevation of Minnesota is 1,200 feet (366 m) above sea level. The state lies at the northern rim of the Central Plains region; most of the landscape is

characterized by gently rolling plains, but it is flattest in the Red River Valley of the northwest (<http://www.city-data.com/states/Minnesota-Topography.html>). The most rugged terrain occurs in northern Minnesota, particularly in the northeast (referred to as the Arrowhead Country) where the Vermilion and Mesabi Ranges occur with rich iron ore deposits. Rocky ridges and deep lakes are prominent. Eagle Mountain (2,301 ft [701 m]) among them is the highest point in the state. The lowest point is 699 ft (183 m). Rolling hills and deep river valleys occur in the southeastern portion of Minnesota.

Minnesota occurs at the boundary between the Laurentian Upland (coincides with the Canadian Shield), the Interior Plains, and the Lowlands. The Laurentian Upland is characterized by exposed igneous and metamorphic rocks of Precambrian age. The Interior Plains and Lowlands are covered by horizontal strata of sedimentary rocks. The rocks are mostly Paleozoic and Mesozoic in the southeastern and southwestern portions of the state, respectively. Most of Minnesota is overlain by Quaternary glacial drift, thickest in areas where pre-glacial valleys were present; however, southeastern Minnesota is “driftless” (Ojakangas and Matsch 1982; www.winona.edu/geology/MRW/bigpicture.htm).

Hydrology / Streams, Rivers, Drainages

Minnesota has more than 15,000 lakes, 11,842 of which are at least 10 acres (4 ha); this includes 962,700 acres (389,757 ha) of Lake Superior's total 20,364,800 acres (8,244,858 ha) that occur within the state's jurisdiction (MNDNR 2007c). The five largest lakes within Minnesota's borders are Red Lake (both “Upper” and “Lower,” 288,800 ac/516,410 ha), Mille Lacs Lake (132,516 ac/53,650 ha), Leech Lake (111,527 ac/ 45,153

ha), Lake Winnibigoshish (58,544 ac/23,702 ha), and Lake Vermillion (40,557 ac/16,420 ha) (MNDNR 2007c).

Within its borders are 6,564 *natural* rivers and streams coursing 69,200 miles (111,343 km), 589 miles (948 km) of which are designated state and national “Wild and Scenic Rivers” (MNDNR 2007c). In total there are over 90,000 miles of watercourses within the state. Minnesota’s waters flow north to Hudson Bay, Canada; east to the Atlantic Ocean, and south to the Gulf of Mexico. The major rivers are the Mississippi River (680 mi/1,094 km in Minnesota), Minnesota River (370 mi/595 km), Rainy River (292 mi/470 km), Red River of the North (457 mi/735 km), and the St. Croix River (129 mi/208 km).

Additionally, there are some 10.6 million acres (4,291,498 ha) of peatlands, bogs, marshes, and wet meadows (University of Minnesota 2003). Collectively, the diverse groups of surface or near-surface water features are referred to as “wetlands” and they cover 24.4% of the state. There are 8 major basins within the state: Red River of the North, Rainy River, Great Lakes, St. Croix River, Upper Mississippi River, Lower Mississippi River, Minnesota River, and Missouri River basins, as well as 84 watersheds (University of Minnesota 2003, MNDNR 2007c).

Vegetation

Historically, Minnesota was characterized by a conifer-hardwood forest in the north-central and northeastern portion of the state, a deciduous-forest woodland zone from the southeast to the northwest, and a prairie zone from the south-central and southwest, along the western boundary to the northwest (MNDNR 1993). Today, these three zones are also referred to as the forest, transition, and farmland zones, respectively. The forest

zone is characterized by forests of coniferous and mixed coniferous-deciduous, coniferous woodlands (successional communities), coniferous savanna (jack pine [*Pinus banksiana*] or black spruce [*Picea mariana*] with stunted oak or young aspen understory and openings of low-growing ericaceous shrubs, mosses, lichens, forest graminoids, or dry prairie species), bog, hardwood swamp forest, shrub swamp, and primary communities (all habitats where persistent vegetation is sparse or absent). The transition zone is where deciduous forests (oak [*Quercus spp.*], aspen [*Populus spp.*], and birch [*Betula spp.*] on dry sites and sugar maple [*Acer saccharum*], basswood [*Tilia americana*], elm [*Ulmus spp.*], and ash [*Fraxinus spp.*] on moist sites) are most prevalent, but it also includes relatively small stands of coniferous trees, mixed coniferous-deciduous forests, deciduous woodland (oak and/or aspen with a brush layer), deciduous savannas (communities of oak and aspen with a ground layer of prairie species), coniferous woodlands, hardwood swamp forest, conifer swamp forest, shrub swamp, wet meadow/fen, and primary communities. Approximately 32% of Minnesota's total area of 51,000,000 acres (20,647,773 ha) is forest land accounted for by 29% timberland, 2% reserved forestland, and 1% "other forestland." Timberland is productive forestland that produces "...a commercial crop of trees not reserved from harvesting by policy or law" (MNDNR- Division of Forestry [DOF] 2006). Harvest is prohibited by policy or law on reserved forestland and includes designated wilderness area such as the Boundary Waters Canoe Area, old growth reserves, and other specially designated areas (MNDNR-DOF 2006). Timberland ownership in Minnesota has been described as follows: private (46%), state (25%), county and municipal (15%), and USFS (12%). Timberland cover types by area include aspen (32%), northern hardwoods (14%), black spruce (9%),

lowland hardwoods (7%), birch (7%), oak (5%), tamarack (5%), northern white cedar (4%), red pine (4%), balsam poplar (3%), balsam fir (3%), jack pine (2%), cottonwood/willow (1%), white spruce (1%), eastern white pine (1%), and “other” (2%) (MNDNR-DOF 2006).

The prairie or farmland zone is uniquely identified by deciduous savannas, upland prairies and upland brush prairies, wet meadow/fen, and a small occurrence of primary communities. Floodplain forests and aquatic river communities occur along major rivers, and emergent marshes and aquatic lake communities are associated with lakes, ponds, and streams throughout Minnesota.

There are a total of 2,354 vascular plant species in Minnesota, 1,832 (78%) of which are native, 502 (21%) non-native, and 20 (1%) undetermined (MNDNR-Ecological Services Division [ESD] 2002). Approximately 57 (2.4%) of these vascular plants are listed by the state as Endangered, 66 (2.8%) as Threatened, and 133 (5.6%) as Species of Special Concern (MNDNR-ESD 1996, 2002).

Wildlife

Minnesota’s diverse vegetative communities and landscapes provide habitat for an even greater diversity of fauna, including 84 species of mammals (81 native), at least 427 bird species (312 regular, 35 casual, and 80 accidental), and 50 species of amphibians and reptiles (The Minnesota Ornithologists’ Union 2005; MNDNR 2006a; E. Harper, MNDNR, Ecological Services, *in litt.*). No mammals are listed by the state as Endangered, but 1 species, the spotted skunk (*Spilogale putorius*) is listed as Threatened and 14 are listed as Species of Special Concern, including the gray wolf (*Canis lupus*, MNDNR-ESD 2006). Currently, 7, 6, and 15 species of birds and 2, 3, and 9 species of

amphibians/ reptiles are listed by Minnesota as Endangered, Threatened, and Species of Special Concern, respectively (MNDNR-ESD 2006; E. Harper, MNDNR, Ecological Services, *in litt.*). The MNDNR has been developing and implementing rigorous management programs to recover as many of these species as possible. As of 1998, Minnesota wolves, federally listed as Threatened at the time, numbered twice the recovery goal specified in the Recovery Plan for the Eastern Timber Wolf (USFWS 1992, 2006). The most recent population estimate was higher at 3,020 wolves (winter 2003–2004; 90% confidence limits of 2,301–3,708 wolves) (Erb and Benson 2004, USFWS 2006). Likewise, the combined wolf population of Wisconsin and Michigan has exceeded the second population recovery goal for a non-isolated wolf population since 1999 and for an isolated population since 2001 (USFWS 2006). Timber wolves in the Great Lakes region were federally delisted in March 2007 (USFWS 2007a). White-tailed deer (*Odocoileus virginianus*), Minnesota's most widely sought after big game species and primary prey of its wolves (Mech et al. 1971; Nelson and Mech 1986; DelGiudice et al. 2002, 2006), numbered at an all time high in Minnesota's wolf range at the time of the 2003–2004 survey, which was 70% higher than when wolves were last surveyed previously in winter 1997–1998 (Erb and Benson 2004; M. S. Lenarz, MNDNR, personal communication). The fall 2005 and 2006 total deer harvests were 255,736 and 270,778 deer statewide (Dexter 2007).

Until recently, Minnesota's bald eagle (*Haliaeetus leucocephalus*) population was also federally listed as Threatened. However, the 2005 Known Nest Survey indicates that the population has been steadily increasing over the past 30 years (MNDNR-ESD 2005). Further, there has been a 28% statewide increase in known active nests since 2000, the

increase specifically occurring in 52 (60%) of Minnesota's 87 counties. The 2005 Random Plot Survey estimates that statewide there are 1,312 (± 220) active bald eagle nests (MNDNR-ESD 2005). These findings and similar surveys conducted in Maine, Florida, and Washington induced the USFWS to reopen (16 February 2006) the comment period on a proposal (1999) to delist bald eagles. On 9 July 2007, the Service delisted the bald eagle (USFWS 2007b).

Minnesota's ecological communities also provide habitat for 20 species of spiders, 420 species of insects, and 120 species of mollusks (including 48 mussel species) (E. Harper, MNDNR, Ecological Services, *in litt.*). However, all invertebrates are likely under-represented in numbers. Minnesota's waters are home to 160 species of fish (140 native; MNDNR 1996; Hatch and Schmidt 2004; E. Harper, MNDNR, Ecological Services, *in litt.*). Mammals, amphibians, reptiles, and birds currently listed by the MNDNR as Endangered, Threatened, or Concern Species occur in Appendix 2.

Existing Land Use

Minnesota's landscape is primarily rural with cultivated land (22,694,200 ac; 9,187,935 ha), forests (14,434,482 ac; 5,843,920 ha), bog/marsh/fen (5,728,056 ac; 2,319,051 ha), hay/pasture/grassland (4,977,451 ac; 2,015,162 ha), and brushland (1,326,796 ac; 537,164 ha) comprising 42.0, 26.7, 10.6, 9.2, and 2.5% of the land use/cover. Water (3,211,643 ac; 1,300,260 ha) and mining (147,175 ac; 59,585 ha) account for 5.9 and 0.3%, and urban and rural development cover only 2.7% (1,472,267 ac; 596,060 ha) (MNDA 2007a,b). Minnesota ranks 17th out of 50 states for forest abundance and has more publicly owned forest (52%) than any other state in the North Central region; 30% is the average. About 40% of the state's forests are non-industrial, privately owned,

whereas only about 5% is owned by forest industries. Aspen accounts for the largest component of the growing stock volume. Of the total ownership, 63% own 10 acres (4 ha) or more, and 14% own 100 acres (41 ha) or more.

2.1 Species of Concern in the Plan Area

2.1.1 Wildlife Species of Concern

Canada Lynx

Research Efforts: In 2003, a collaborative study of Canada lynx was initiated in the Superior National Forest (SNF) of northeastern Minnesota by the Natural Resources Research Institute (NRRI, Center for Water and Environment) and U. S. Geological Survey (USGS, Biological Resources Division), with contributions from the U. S. Forest Service (USFS), USFWS, and MNDNR. The only formal study in Minnesota prior to this (1972–1978) reported on the demographics, reproduction, movements, and spatial organization of lynx believed to be colonizing northeastern Minnesota (Mech 1973, 1977, 1980). The present study was designed to address primary questions of population location, distribution, persistence, and habitat use and requirements (Moen et al. 2004a) and is ongoing. Additionally, the study includes 2 surveys of the Canada lynx, one following the National Lynx Survey protocol, and the other taking a snowtrack survey approach (also documenting the presence of other mesocarnivores), as well as surveys of the lynx's primary prey, snowshoe hares (*Lepus americanus*) and red squirrels (*Tamiasciurus hudsonicus*) (Moen et al. 2004b). This Canada lynx parent project relies largely on live-capture (January–April, July–December) and very high frequency (VHF) and global positioning system (GPS) radiocollaring of lynx. Handling of chemically immobilized lynx includes sex determination, age estimation, collection of blood and hair

samples (for health assessments and genetic analyses), and measurements of body mass and other aspects of their morphology (Moen et al. 2006a). As of 2005, 33 lynx (27 yearling and adults, 5 kittens) had been captured, handled, and released with VHF (1 kitten not collared) or GPS (12) radiocollars. Thirteen of the collared lynx were males and 19 were females. The VHF-collared animals were monitored approximately biweekly; thus far, GPS-collared lynx alone have yielded over 12,000 locations (Moen et al. 2006a). Radio-telemetry is a particularly important aspect of the study as it facilitates determination of home range size and distribution, individual movement patterns, habitat use, reproduction, survival, and cause-specific mortality of lynx. Snowtracking surveys have contributed to a greater understanding of habitats used by lynx for movement and foraging. Tissue, scat, and hair samples collected at capture and during surveys are providing baseline genetic data for determination of population persistence (Moen et al. 2006a,b). Number of trap-nights (trapping effort) was 2,732; 2,066; and 1,036 for 2003 to 2005, with 0.5, 1.0, and 3.0 lynx captured per 100 trap-nights, respectively.

Of the 33 lynx monitored, Moen (2006) reported there have been 17 mortalities. Investigators were able to determine that 3 and 4 radiocollared females denned and produced kittens during 2004 and 2005 in Minnesota; these were the first years that investigators were able to monitor radiocollared females during the denning seasons (Moen et al. 2004b, Moen 2006). During 2004, 8 of at least 10 kittens were handled (weighed, morphological measurements, blood-sampled, ear-tagged), and 12 kittens were handled during 2005. Only 2 females with functioning collars had litters in 2006 in Minnesota; researchers reported 2 dead kittens (cause unknown, but canine puncture wounds indicate a "predation event" was likely) at one den (of female L31) and 2 viable

kittens at the other (of L16). Later evidence indicated that female L31 had 2 other kittens that were alive. A third female with kittens was reported by the public.

Canada Lynx – Description and Natural History: The Canada lynx is a medium-sized member of the Felidae family; males and females average 10 kg (22 lb) and 9 kg (19 lb). Lynx are similar to bobcats (*Felis rufus*) in appearance, except for 2 notable differences. Paws of the lynx are about twice the width (11–12.5 cm across) of those of the bobcat, and the tip of the lynx's tail is black all the way around, whereas the bobcat's is black only on the dorsal side. Further, the lynx's ear tufts tend to be more prominent, their coloration paler with less spotting, and their legs longer.

Lynx are specialized predators, their primary prey being snowshoe hare; however, they are opportunistic and will prey on red squirrels, ruffed grouse (*Bonasa umbellus*), and ungulates (Saunders 1963, Nellis et al. 1972, Stephenson et al. 1991). When hares are abundant, they comprise 76 to 94% of the lynx's diet (Nellis et al. 1972, Brand et al. 1976, O'Donoghue et al. 1998). Lynx have adapted to living where the snow is deep and fluffy; their large paws and lighter weight-load-on track afford them a competitive advantage over bobcat, coyotes (*Canis latrans*), and other predators in such areas. In these deep snow areas, lynx can move more easily in winter and are more energy-efficient in pursuing and catching snowshoe hares than more generalist predators. The ecological relationship between lynx and snowshoe hares is most apparent in the 10-year cycle that reflects the increases and decreases of their respective populations with the lynx lagging about 1 to 2 years behind the snowshoe hare (Elton and Nicholson 1942, Keith 1963, O'Donoghue et al. 1997, Krebs et al. 2001).

The distribution of lynx in North America includes Alaska, Canada, and the northern contiguous states of the U. S. Relative to the latter, populations currently occur in Maine, Washington, Montana, Minnesota, Wyoming, Idaho, and Colorado. Across the large geographic range of lynx in North America are pronounced gradients of climate, topography, elevation, soil conditions, vegetative communities, snow conditions, generalist-competitors, and human-caused disturbance. Generally, lynx are most common in mesic coniferous or boreal forests, sub-boreal, and western montane forests, where snowy, cold winters are typical. Specifically, in the contiguous states lynx are most commonly found in the Douglas fir, spruce-fir, and fir-hemlock forests of the western mountains (Rockies and Cascades), boreal forest and deciduous-coniferous types in the Great Lakes region, and mixed forest-coniferous forest-high tundra vegetation types of the northeastern U. S. (Aubry et al. 2000, Mowat et al. 2000). Evidence suggests that lynx prefer forest stands with the highest densities of snowshoe hares. Lynx densities have been associated with dense regenerating stands, as well as within mature stands, but the most common structural feature was heavy, tangled blow-down, deadfall, or roots of dense vegetation (reviewed by Mowat et al. 2000).

Lynx are highly mobile animals, as reflected by relatively large home ranges (particularly when snowshoe hare densities are low) and movements up to 1,000 km in northern populations and over 100 km documented for southern populations. In the southern boreal forests, such movements may be exploratory, but have been apparent dispersals cut short by mortality. Exploratory movements may be necessary to enhance the probability of dispersal success where high quality habitat is more fragmented. In the southern boreal region, none of these movements have been linked to a successful

dispersal (i.e., where a home range was established and reproduction occurred, Aubry et al. 2000). Exploratory movements have not been reported for lynx from northern Canada or Alaska

Canada Lynx – in Minnesota

Minnesota's lynx population occurs "...at the southern margin of a large, interconnected distribution whose geographic center lies in the northern taiga" (from McKelvey et al. 2000). According to historic records, lynx have been associated primarily with the mixed deciduous-coniferous forest of the Great Lakes region, specifically, the sugar maple (*Acer saccharum*), basswood (*Tilia* spp.), jack pine (*Pinus banksiana*), white pine (*P. strobus*), and red pine (*P. resinosa*) types in northeastern Minnesota, northern Wisconsin, and the western upper peninsula of Michigan (McKelvey et al. 2000). This transitional forest type, although rather extensive in northern Minnesota, is actually considered marginal habitat for snowshoe hare (and lynx), occurring on the edge of their range and supporting lower hare densities (Buehler and Keith 1982). McCann (2006) had estimated hare densities at 1 hare per hectare based on landscape composition and hare pellet deposition rates, comparable to densities in the central part of Canadian lynx range during cyclic lows (Hodges 2000, Murray et al. 2002, Mills et al. 2005). Steury and Murray (2004) consider a density of 1 hare per hectare to be approaching the threshold needed to support a lynx population. Consequently, these naturally fragmented, marginal habitats, frequently low hare densities, and the spatially-limited occurrence of snow cover deep enough to afford lynx their competitive advantage (attributed to their lighter foot-loading) over other predators (e.g., coyotes), have limited lynx numbers and persistence in Minnesota, both historically and currently (USFWS 2000). Further, experts question the

suitability of habitat in Minnesota to continuously support lynx reproduction necessary to offset emigration and natural mortality.

Since 1930, trapping records have reflected annual harvests of lynx that peaked (200–400 lynx) at about 10-year intervals (e.g., 1940, 1952, 1962, 1973; Henderson 1978; McKelvey et al. 2000). These records also indicated a mean annual harvest of 103 (range = 0–400) lynx during 1930 to 1976. These data are viewed with some caution, as they are annual harvest estimates based on mail surveys conducted in later years. However, according to McKelvey et al. (2000), peaks in the lynx harvests in the 1960s and 1970s followed within 3 years of lynx irruptions in central Canada, but were not associated with increases in documented harvests of hares in Minnesota. From 1977 to 1983, 161 harvested lynx were reported by the MNDNR for an annual mean of only 23 (range = 9–42) lynx. Absence of expected increases in lynx harvests and occurrence in the early 1980s, despite increases in local hare harvests and cyclic increases of lynx in central Canada, prompted the MNDNR to close the lynx season in 1984 (Doncarlos 1994, unpublished “Lynx Fact Sheet”), and it has remained closed since then (MNDNR 2007*d*).

Based on substantial cumulative evidence from studies of lynx and hares (Wolff 1980, Buehler and Keith 1982, Koehler and Aubry 1994, Aubry et al. 2000), the USFWS (2000) concluded that historic and current lynx densities in the United States are *naturally* low relative to lynx densities in the northern boreal forests. The population dynamics of snowshoe hare and lynx (up to the early 1980s) in northern Minnesota and lynx in the central Canadian provinces suggest that the latter may have a relatively strong influence on the occurrence and fluctuation (not necessarily cycling) of lynx numbers in northern Minnesota (McKelvey et al. 2000). That population-level link is consistent with

the connectivity of boreal forests between the two regions (USFWS 2000). Long distance (e.g., >483 km) movements of lynx between northern Minnesota and Ontario in the 1970s were reported by Mech (1977). Recently, Moen et al. (2007b) also documented emigration from Minnesota to Ontario, with some individuals returning and others being legally trapped in Canada. Emigrators making these long distance movements included females that had already had litters in Minnesota, "unsettled" adult females, and adult males. Although these new data enhance our understanding of the movements of lynx, much has yet to be elucidated about their effect on the dynamics of Minnesota's lynx population.

Minnesota's lynx may be a combination of lynx immigrating from Canada when lynx further north are at a cyclic high, but snowshoe hare densities are declining or low (Mech 1973, Gunderson 1978) and members of a *resident* population (McKelvey et al. 2000), the latter indicating long-term persistence (McKelvey et al. 2000). Apparently, Minnesota's lynx population has not responded as expected to the local ups and downs of hare population cycles, but their recent highs are consistent with an influence of lynx dynamics in Canada (McKelvey et al. 2000).

Habitat alteration and fragmentation by extensive logging of softwoods beginning in the late 1800s (Jackson 1961, Barbour et al. 1980) caused replacement of late-successional conifer stands with vast tracts of early successional habitat and agricultural land, dramatically diminishing, at least initially, cover for hares and lynx (Jackson 1961, Keener 1971). Data to support the existence of an historic resident population of lynx in northeastern Minnesota have been sparse. However, during the early 1970s, when record high harvests of lynx were documented throughout Canada, and high numbers were

harvested in Minnesota as well, reproduction and home range maintenance by lynx in northeastern Minnesota were reported (Mech 1973, 1980). This, and consistent harvesting of lynx during cyclic lows of lynx (1930–1976, Henderson 1978) indicated that a resident, albeit small population, may have existed in this part of the state at that time.

Northeastern Minnesota (St. Louis, Lake, and Cook counties) still may be considered the primary range (“core area”) of lynx in the state (Figure 2.1). More specifically, experts believe that the highest quality lynx habitat in the Great Lakes region may occur in the Boundary Waters Canoe Area of northeastern Minnesota, where management policy allows naturally-ignited fires to burn and the coniferous forests that predominate there most closely resemble the boreal forests further north in Canada (Agee 1999, USFWS 2000). Such “escaped fires” and other natural processes and disturbances (e.g., disease, wind throw) likely contribute to vegetative mosaics that favor lynx foraging habitat. This apparent relationship merits further study. Nonetheless, in a recent proposal for designation of Critical Habitat for Canada lynx in Minnesota, U. S. Highway 53 was identified as the western boundary (USFWS 2005a). This may be further refined based on assessments of habitat quality for denning by lynx (Figure 2.2). Between March 2000 and November 2006 there have been 426 reported lynx sightings in Minnesota, with at least 80 outside the core area, which may be indicative of transient or dispersing individuals and/or an expanding resident population in the northeast (Figure 2.1; Moen et al. 2006b). However, only 63 of the 426 (< 15%) have been *verified* as lynx sightings. Only 7 sightings outside of the core area (St. Louis, Cook, and Lake counties) have been verified. However, in 3 snowtrack surveys completed in winter 2006 (Aitkin,

Itasca, and western St. Louis counties), no lynx tracks were documented outside of the core area over 400 km of linear survey routes (Moen 2006b). Serving as controls, lynx tracks were observed over 30 km of survey route in known lynx home ranges.

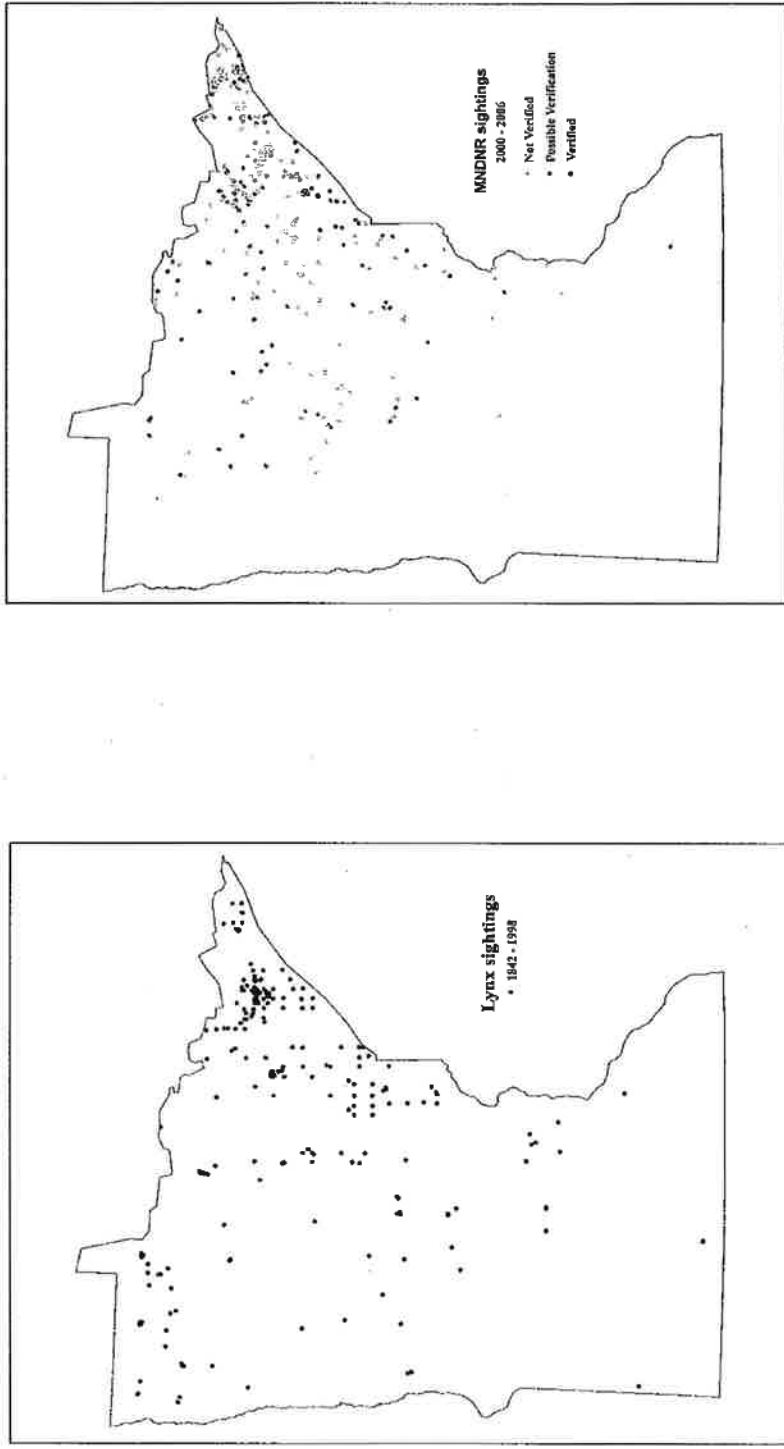


Figure 2.1. Historic (1842–1998) and current (2000–2006) distribution of Canada lynx in Minnesota. Current lynx primary (“core”) range is based on lynx sightings, snowtrack surveys, and locations of radiocollared lynx (McKelvey et al. 2000, Moen et al. 2006a,b; MNDNR 2006 *lynx sightings database*); historic range is based on records compiled by Henderson (1978, as cited in McKelvey et al. 2000).

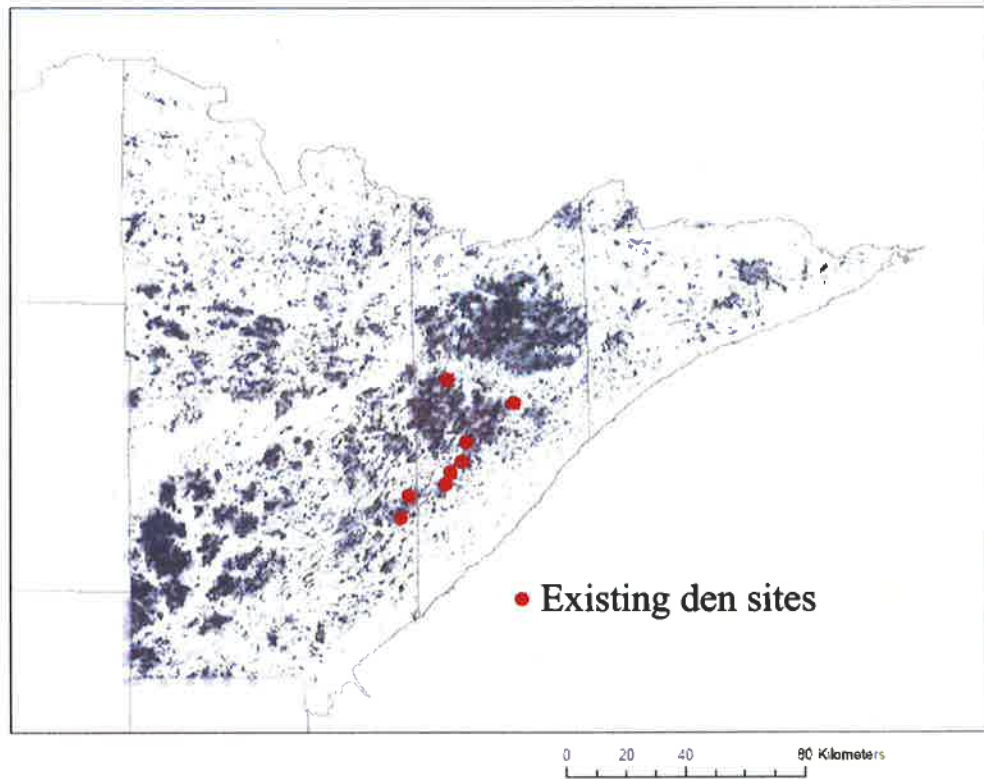


Figure 2.2. Refinement of critical habitat based on predicted suitable Canada lynx denning habitat in northeastern Minnesota. Darker colors indicate higher quality denning habitat, based on the assumption that females currently selecting den sites are selecting among the suitable habitats that are available (from Moen et al. 2007a).

Recent mean annual home range sizes of radiocollared male (160, *range* = 86–354 km², *n* = 4) and female (17, *range* = 13–21 km², *n* = 2) lynx are not directly comparable to those of other studies due to differences in methods and analyses and limited sample sizes overall (Burdett et al. 2007). But, within this Minnesota study, males had the largest home ranges; females with kittens had the smallest home ranges and showed a high fidelity for sites within all seasons. Conversely, Moen et al. (2007b) reported that some males and females made long distant movements (up to 300 km).

Canada lynx – Population Size and Status: Currently, no attempts have been made at estimating the lynx population throughout northern Minnesota. Based on the findings of the aforementioned research, lynx abundance has only been considered as the minimum number of individuals identified from DNA analysis since 2002, which is 71 (Moen et al. 2006a; J. Erb, MNDNR, personal communication). This is considered a minimum, because the probability of detecting individuals is less than 1 (or because it's not possible to completely "census" all lynx). These researchers have plans to analyze the number of individuals identified annually. Based on short-term reproduction and kitten survival evidence, it has been suggested that there is potential for persistence of lynx in Minnesota, persistence being "...the ability of a Canada lynx population present in Minnesota to persist though a complete lynx-hare cycle." Thus far, this study's genetic data analyses when complete may indicate whether the lynx population has persisted at low densities during a lynx-hare cyclic low, albeit perhaps influenced by connectivity to lynx populations in Canada. To determine *independence* of such a Canadian influence, paternity by *Minnesota* male lynx through the low phase of the cycle would have to be confirmed. And still, it is important to consider persistence through one cycle may not

mean persistence through another cycle, i.e., each hare cycle can be biotically and abiotically different.

Because snowshoe hare are the primary prey of lynx (Aubry et al. 2000), the aforementioned recent research also has included snowshoe hare fecal pellet count surveys with the intention of calibrating these counts with hare density (derived by mark-recapture population estimates) and for developing an index for estimating prey availability (Krebs et al. 1987, 2001; Murray et al. 2002; Moen et al. 2006a). Pellet counts have indicated that "hare presence is patchy" in the SNF relative to the random availability of habitats (Moen et al. 2006a). Rather consistently, about 90% of hare pellet plots have been empty, which is informative, because it suggests cover types lynx are less likely to use, and others they are more likely to use based on hare presence. Generally, what can be inferred thus far from the collective data and from accumulated sightings (verified or unverified) of the MNDNR, is that lynx probably occur in northern Minnesota at the "natural low densities" that would be expected relative to the limitations of habitat and low densities of snowshoe hares. Increased incidental take of lynx (e.g., by incidental trapping, railroad accidents) during 2001 to 2005, unrelated to lynx research activity (USFWS 2007 *lynx incidental take database*), as well as increased frequency of sightings (verified and unverified; MNDNR 2007 *lynx sightings database*) may reflect a relatively recent, but ephemeral increase in Minnesota's lynx population. However, increased sightings may be at least partly attributable to increased public awareness of lynx due to the publicity surrounding the relatively high-profile lynx study discussed.

All trapping or hunting of lynx in Minnesota has been prohibited (season closed) by the MNDNR since 1984. The Canada lynx is not listed by the state as endangered or

threatened, but lynx have been assigned a “draft status” of Species of Concern (R. Baker, Minnesota Endangered Species Coordinator, MNDNR, personal communication).

Canada Lynx – Forest Management and Limiting Factors in Minnesota: Human-caused habitat fragmentation and interspecific competition are 2 important forces that may interact and may have limiting effects on lynx populations (Buskirk et al. 2000b). Past destruction and fragmentation of lynx habitat by overzealous forest management practices for timber production, agricultural conversions, residential and recreational development, and highway construction were common within the lynx’s historic range in Minnesota (USFWS 2000). Today the abundance and distribution of lynx in northern Minnesota likely are most dependent upon maintenance of habitat quality and connectivity that facilitates movement of lynx between Canada and Minnesota, forest management programs that provide lynx denning habitat and snowshoe hare habitat in Minnesota, lynx harvest management policies in Canada, and climatic conditions and how they influence snowshoe hare populations and competitive interactions between lynx and other predators (Buskirk et al. 2000b). However, despite the relatively low density of high volume, high-speed roadways and railroad tracks, each 3-year period, a very small number of lynx mortalities caused by collisions with vehicles and trains are reported (Table 2.1).

Understanding the rate, species composition, and physical structure of successional pathways and how they vary is important to understanding habitat associations of lynx, snowshoe hares, and other prey. Typically, forest management influences successional sequences either by decreasing disturbance (e.g., fire suppression) or by increasing it (e.g., timber harvest) (Buskirk et al. 2000a). Hare

Table 2.1. Chronology of Canada lynx mortalities by collision with vehicles and trains in northern Minnesota, 2001 to 2007 (from USFWS 2007 *lynx incidental take database*).

Year	Number of lynx killed by	
	Vehicle	Train
2001	0	1
2002	1	0
2003	2	0
2004	2	0
2005	1	1
2006	0	0
2007	0	0

abundance commonly has been positively associated with densities of small-diameter woody stems. Stem density appears to be more important than species composition, because hare have a very diverse diet, and consequently, stems provide cover and food (Buskirk et al. 2000a).

In Minnesota and other areas of the Great Lakes region, conifers have been a prevalent vegetative component of lynx habitat (McKelvey et al. 2000). However, in many portions of northern Minnesota where conifers and mixed conifer-deciduous stands were once dominant, today pure deciduous stands of typically aspen (*Populus spp.*) are the management focus for pulpwood production (USFWS 2000). Presently, aspen is the dominant cover type (4,841,000 ac [1,959,919 ha] or 32%) within Minnesota's 14,794,800 acres (5,989,798 ha) of timberland. Total wood harvested annually from

Minnesota's timberland has ranged from 3.56 to 3.82 million cords during 1995 to 2004 (MNDNR-DOF 2006). Total aspen harvested in Minnesota's timberland for pulpwood and sawtimber (and "other") in 2004 and fuelwood in 2003–2004 (removed from growing stock on timberland) was 1,881,000 cords, which far exceeded all other individual species. Compared to total hardwoods harvested (2,694,500 cords) during this time, total softwoods (e.g., pine, spruce, fir, cedar, and tamarack) accounted for about one-third (888,500 cords) of the total wood harvested. Harvests on private land (1,538,000 cords) in Minnesota still exceed those on state (735,000 cords), county (654,000 cords), federal (239,000 cords), and industry (417,000 cords) lands. Species such as jack and red pine, spruce, and balsam fir are currently being harvested at estimated long-term annual sustainable harvest levels, whereas the actual annual harvests (e.g., 2004) of aspen (and balsam poplar [*Populus balsamifera*]), paper birch, oak, maple, basswood, and other hardwoods are still below the estimated sustainable harvest levels (MNDNR-DOF 2006).

Presently, clearcutting (with or without residuals) is the most common silvicultural system used on all timberland ownerships in Minnesota, accounting for 83% of the timber volume harvested as reported by Puettmann et al. (1998). Most recently, the median tract sizes reported by survey was 29 acres (1.7 ha), and the mode (i.e., most frequent) was 20 acres (8.1 ha).

From the late 1980s–early 1990s to the mid-1990s, the estimated area with logging activity (192,514 ac or 77,941 ha) had increased 11%; this was partially due to thinning activities on federal and state lands (Puettmann et al. 1998). Even though final

harvest activity declined by 19% within the national forests, thinning resulted in harvesting more area (hectares) than would have occurred with clearcutting.

In Minnesota boreal forests, on warm, mesic sites, hardwoods may be dominant throughout complete seral sequences, whereas on cooler or extremely moist sites, species composition may vary with sera. Experts have argued that hare densities may be bimodally associated with stand age: highest in early seral stages, minimal in closed-canopy mature stands, and moderate in very old or climax forests where dense understories form beneath gaps in the overstory (Buskirk et al. 2000a). The frequency of various natural disturbances (e.g., wind, insects, fire) that create gaps and favor understory development and habitat conditions for snowshoe hares varies regionally. In July 1995, several hundred thousand acres of forest in northern Minnesota were damaged severely by windstorms. About half of the blowdown timber was salvaged with an unusually large number of clearcuts of uncommonly large size (Puettmann et al. 1998).

Competition between lynx and bobcats, coyotes, or other predators may occur in the form of *exploitation* for common food resources or through *interference*, where aggression is often a component (Case and Gilpin 1974, Litvaitis 1992). The latter often involves attack, typically by a larger predator, the intent of which is to prohibit access to a resource, inflict injury, or cause death. Coyotes, as generalist predators, can impose a particularly serious threat to lynx as competitors. Their slightly larger size; heavy predation on snowshoe hares; ability to switch habitats and to other prey, including various leporids; high reproductive potential; and tolerance of humans constitute advantages that contribute to their persistence (Quinn and Parker 1987, Voigt and Berg 1987, Litvaitis 1992, O'Donoghue et al. 1998). Forest fragmentation, which can have

diminishing effects on habitat quality of snowshoe hares, and subsequently on lynx numbers, may actually enhance the predatory advantages of coyotes relative to other diverse prey. Further, coyotes have been implicated directly in declines of lynx (Keith et al. 1977, O'Donoghue et al. 1995). In lynx range, sympatric coyotes have been known to prey more heavily than lynx on snowshoe hares when hare densities are high, which can have an increasing effect on coyote densities (Todd et al. 1981, Parker 1986, O'Donoghue et al. 1998). In much of northern Minnesota, the competitive effect of coyotes on lynx certainly has been tempered by the presence of wolves, as the interference competition effect of wolves on coyotes may be one of the strongest examples documented for carnivores (Buskirk et al. 2000b). Consequently, coyotes reside at relatively low numbers (Dexter 2006). Further, there is little evidence to suggest that sympatric wolves, due to their larger size and low predatory preference for hares, are serious interference competitors of lynx (Mech 1970, Fritts and Mech 1981, Fuller 1989, Buskirk et al. 2000b). Sympatric coyotes may be more of a factor and have their greatest negative impact on lynx numbers at the southern periphery of their range, in areas where human inhabitation, and perhaps, lack of consistently deep snow in winter, also are factors.

Bobcats and lynx are often separated spatially by deep snow, where lynx have a predatory advantage (Aubry et al. 2000). However, in Minnesota, bobcats, typically of slightly larger body size, may have the most significant potential for dominating exploitative and interference competition with lynx where they are sympatric. But this may vary seasonally and spatially in winter relative to the presence of deep snow cover (Hall 1981, Parker et al. 1983, Buskirk et al. 2000b). Harvest data suggest that bobcats

are uncommon within much of the core range of lynx in northeastern Minnesota (Erb 2007a). However, south and west of this core range, where reported lynx sightings are less common, but clustered, indices of bobcat tracks and distribution have been increasing to record levels since 1999, as have modeled population estimates (~2,650 in spring 2007), which may be the result of a series of mild winters and associated increases in survival and reproductive success (Erb 2006, 2007b). Annual harvests of bobcats have increased dramatically 256% (250 to 890 bobcats) since winter 2001–2002 (Erb 2007a). Evidence has indicated that bobcats may limit the distribution and growth of lynx populations (Parker et al. 1983, Buskirk et al. 2000b). Generally, snowshoe hare track indices have been increasing since about 1994, and their distribution index has remained stable at a relatively high level since about 1996 (Erb 2006). In Maine, where lynx and bobcats were sympatric, bobcats were observed in the best habitat for snowshoe hares (Robinson 2006). This author also concluded that the presence of bobcat could be used as an independent variable to predict the presence or absence of lynx over the landscape. Hybridization of bobcats with lynx may be another means by which they may limit the lynx's range. A number of bobcat-lynx hybrids have been documented in Maine (Maine Department of Inland Fisheries and Wildlife [MDIFW], unpublished data) and 5 have been reported in Minnesota (R. Moen, NRRI, personal communication) where range of the 2 species overlap.

Fisher (*Martes pennanti*) may be a predatory competitor of lynx. In Maine, fisher have killed 6 lynx (5 adult females, 1 kitten) since their radiotelemetry study of lynx began in 1999 (W. Jakubas, MDIFW, personal communication). However, experts have concluded that there is insufficient evidence to suggest that fisher limit lynx numbers or

influence their distribution in any way. In the ongoing Minnesota lynx study, there has been evidence of 1 instance (L24; 29 January 2005) of a fisher killing a lynx (Moen 2006a; NRRI lynx study website, <http://www.nrri.umn.edu/lynx/research/index.html>). According to population modeling estimates, fisher have steadily increased in northern and central Minnesota since the late 1970s to early 1980s, as have annual harvests. Further, although harvests have been light to moderate (35–87 fisher in 2006–2007) in portions of the lynx's core range in Minnesota (Cook and Lake counties), they have been increasing and were highest (153 fisher in 1995–1996 versus 898 fisher in 2006–2007) in others (St. Louis County).

Climatic change is an uncontrollable factor with continental, even global, implications. A study in Maine that modeled climatic changes and associated potential impacts on snow depth and lynx habitat suggested that decreased snow depths may cause a northern shift of the southern boundary of lynx range and reduction in its overall area in that state (Hoving 2001). Clearly, a similar effect is possible in Minnesota and warrants study to facilitate a better understanding of the potential interaction of natural and human-associated factors on the abundance and distribution of lynx in Minnesota over time.

Mortality of radiocollared lynx in Minnesota has been documented in an ongoing NRRI study of this species since 2003 (Table 2.2; Moen 2006, Moen et al. 2006a). Of the 33 lynx radiocollared through 2006, there were a total of 17 deaths, including kittens (annual deaths were 2, 1, 11, and 3 deaths, respectively). The mean annual crude

Table 2.2. Summary of mortality factors for radiocollared or handled Canada lynx (total cohort of 33) in northeastern Minnesota from 2003 to 2006 (from Moen 2006).

Cause of deaths	N	Percentage of total mortalities	Sex ratio of of lynx that died
Legally harvested in Ontario	3	17.6	1M:2F
Human-related – Ontario – but not trapped	1	5.9	1M
Incidentally trapped in Minnesota	2	11.8	1M ^a :1F
Natural mortality – predation, specific cause unknown	3 ^b	17.6	3F
Road-kill	1	5.9	1M
Shot	1	5.9	1F
Train-kill	1	5.9	1F
Unknown	2	11.8	2F
Unknown – humans possibly involved in mortality	3	17.6	1M:2F
Total	17		5M:12F

^aL21 handled as a kitten, but not radiocollared. Incidentally taken in a snare near Cook on 28 December 2005.

^bEvidence of 1 of the 3 mortalities indicates predation and cannibalism by another radiocollared lynx.

Table 2.3. Annual crude mortality rates for adult, radiocollared Canada lynx (>1 year old) from 2003 to 2007. Annual mortality rates were not corrected for staggered entry (i.e., Kaplan-Meier staggered entry approach; Pollack et al. 1989) of animals into the study cohort (Moen 2006; unpublished data).

Year	Lynx mortalities	Number of collared lynx	Annual mortality rate (%)
2003	1	3	33.3
2004	1	14	7.1
2005	4	24	16.7
2006	4	19	21.1
2007	1	10	10.0
Mean	2.2	14	17.6

mortality rate of adults (≥ 1 year old) was 17.6%; rates ranged from 7.1 to 33.3% during 2003–2007 (Table 2.3). Specific causes of death are presented in Table 2.2. Several factors contributed to the increase in mortality in 2005, including age structure of the collared cohort. According to Moen et al. (2006a), by the end of 2004 and 2005, only 1 of 17, but then 5 of 32 collared lynx, respectively, were known to be less than 2 years old, and mortality of young lynx was high (3 of 5 were dead by the end of 2005). Additional factors were the larger collared cohort in 2005 and an annual mortality rate that was actually higher.

3.0 Project Description/Activities Covered by Permit

3.1 Project Description

The MNDNR is seeking a Section 10 permit under the ESA to absolve the Department, its agents, and licensees from liability under ESA in the event of incidental take of Canada lynx in Minnesota that may occur as the result of otherwise lawful activities.

The small amount of incidental take permitted within the scope of a Section 10 permit issued to the MNDNR would primarily include direct harassment, injury or mortality of Canada lynx as the result of being accidentally captured in a trap during the legal trapping season in Minnesota.

The MNDNR is authorized to establish open trapping seasons for furbearing animals by the Game and Fish Laws (see Appendix 3), and further regulates trapping by promulgating Rules (see Appendix 4). In Minnesota, furbearing animals that are frequently trapped include coyote, mink (*Mustela vison*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), beaver (*Castor canadensis*), fisher (*Martes pennanti*), American marten (*Martes americana*), otter (*Lontra canadensis*), badger (*Taxidea taxus*), raccoon (*Procyon lotor*), weasels (*Mustela frenata*, *M. erminea*, *M. nivalis*), striped skunk (*Mephitis mephitis*), muskrat (*Ondatra zibethica*), and opossum (*Didelphis marsupialis*). In addition, gray and fox squirrels, (*Sciurus carolinensis*, *S. niger*), porcupines (*Erethizon dorsatus*) and rabbits and hares (*Sylvilagus floridanus*, *Lepus americanus*, *L. townsendii*) may be taken by trapping, but trapping harvests of these species are not recorded, and are believed to be insignificant. Several species frequently trapped in Minnesota are “unprotected” by the Game and Fish Laws (e.g., coyote, striped skunks, weasels), but are indirectly regulated by the Game and Fish Laws

and Minnesota Rules, because the methods used to take these species are regulated methods used for other “protected” species (see Appendix 4).

Minnesota’s primary furbearer trapping seasons are generally mid-October to mid-March. Seasons for raccoons, red and gray fox, and opossum are from late October to 15 March statewide. Seasons for bobcat (late November to early January), fisher and America marten (late November to early December), and otter (late October to early January, open north of I-94 and U. S. 10 only, Figure 3.1), mink and muskrat (late October to 28 February) tend to overlap, but the season for beaver is more extended (early October to 15 May). Recently, an additional zone for trapping otter was opened in southeastern Minnesota (MNDNR 2007*d*). Mink, muskrat, and beaver also can be trapped statewide.

Furbearer trapping is highly regulated in Minnesota and is governed by the laws and rules promulgated by the state’s legislature and the MNDNR, respectively (Appendices 3 and 4). These laws and rules include requirements that all trappers born after 31 December 1989, that have not been issued a trapping license in a previous year, must complete a trapper education course (offered statewide by the non-profit Minnesota Trappers Association [MTA]) and obtain a trapper education certificate before being issued a trapping license (Appendix 3, MS 97B.025, MS 97B.026). The trapping education/certification program was initiated via a memorandum of understanding between the MNDNR and MTA, and according to MS 97B.025, must include “...a review of state trapping laws and regulations, trapping ethics, the setting and tending of traps and snares, tagging and registration requirements, and the preparation of pelts.” This course is taught by experienced, certified trapping instructors and also educates

future trappers in motivations; the history and future of trapping; the furbearer as a natural resource and its management within and outside of Minnesota; wildlife diseases; the MNDNR; equipment and tools, their preparation and care; safety and survival; fur damage, grading and marketing; tanning; carcass utilization; and about specific species of furbearers (MTA's website: <http://www.mntrappers.com/educationmanual.html>). Further, the MTA is "...responsible for all costs of conducting the education program, and shall not charge any fee for attending the course" (Appendix 3, MS97B.025).

The MNDNR's efforts to educate trappers on proper trapping techniques are supported by trapping regulations that govern the size of the trap that can be used for specific applications, where it can (or cannot) be set, and the method by which it can be set (Appendix 4, MR 6234.2200, 6234.2300, 6234.2400). To minimize trauma to individual animals caught in traps, "Any trap capable of capturing a protected animal and not capable of drowning the animal..." must be tended within 24 hours (Appendix 4, MR6234.2200). Further, "Any trap capable of drowning the captured animal and any body-gripping or conibear-type trap must be tended at least once each third calendar day, except for traps set under the ice" (Appendix 4, MR 6234.2200). Trappers must identify all traps (with a couple of exceptions) they set with their driver's license number, Minnesota identification card number, or name and address (Appendix 3, MS 97B.928). The MNDNR uses pelt-tagging records to monitor fisher, marten, bobcat, and otter populations that are trapped; pelts must be tagged by a Department agent (Appendix 3, MS 97B.901; Appendix 4, MR 6234.2600, 6234.2700). For all species, except bobcat, fisher, marten, and otter, there are no limits on the number of animals a trapper can take during the trapping season. Trappers are limited to harvesting 5 bobcats (including

hunting limit), 5 fisher and marten (combined), and 4 otters per year (except 2 otters in the new southeastern zone; Appendix 4, MR 6234.1600, 6234.1700, 6234.2000).

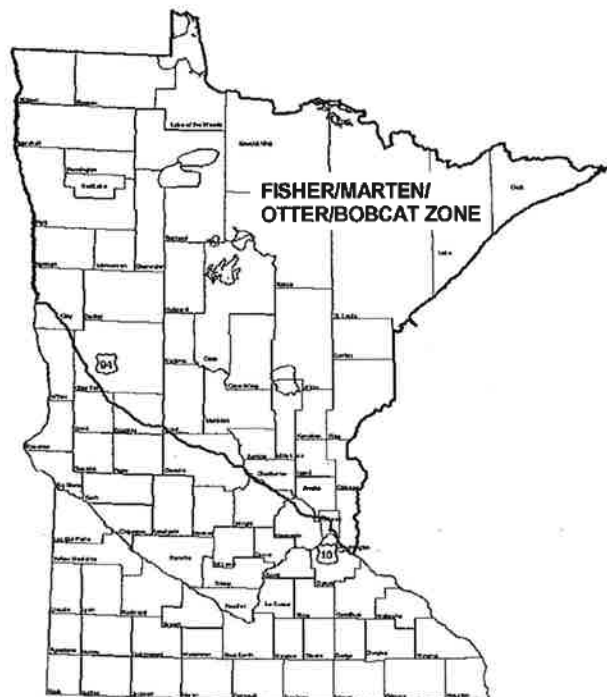


Figure 3.1. Minnesota's 2006 furbearer trapping zones. Other furbearers are trapped statewide.

Description of Minnesota's Furbearer Harvest

Annually, an estimated 264,870 furbearers are caught¹ (Table 3.1). During the last 6 trapping seasons, muskrats (82,333) accounted for the most commonly caught furbearer, followed by beaver (62,500), raccoons (56,833), mink (21,333), red fox (6,666), and coyote (3,333). Bobcats are also hunted, and the number harvested includes animals taken by trapping and hunting (Table 3.1).

Annually, a mean of 5,812 individuals acquired Minnesota trapping licenses over the 2000–2001 to 2005–2006 trapping seasons. Separate licenses were issued to juveniles (13–17 years old) and adults (≥ 18 years old). As of 3 March 2006, 6,163 licenses were sold in 2005, 11.4% (704) were issued to juveniles and 88.5% (5,456) to adults; less than 1% (3) of trapping licenses were obtained by non-resident landowners.

Minnesota's harvests of bobcat, fisher, marten, and otter have occurred across 39 counties (Figure 3.1). The highest mean harvests were in St. Louis (2, 146), Itasca (860),

¹Mean values were calculated from the annual autumn and late winter-spring trapping seasons, 2000–2001 to 2005–2006 (i.e., the 6 most recent trapping seasons for which harvest data were available). Mean harvest for muskrat, mink, short- and long-tailed weasel, raccoon, striped skunk, badger, opossum, red fox, gray fox, coyote, and beaver were based upon trappers' responses (mean = 76.0%) to mail surveys (mean = 5,756 mailed) for 6 years to capture annual variation in harvest rates. Mean harvest for otter, bobcat, fisher, and marten were based on registration of trapped animals. The annual registered harvest for bobcat includes animals taken by hunting, which annually is estimated to be a mean of 19.5% (SE = 4.9%, Dexter 2006).

Table 3.1. Mean annual statewide harvest by trapping for Minnesota furbearers, calculated from trapping seasons 2000–20001 to 2005–2006 (Dexter 2006).^a

Furbearer	Annual harvest
Muskrat	82,333
Mink	21,333
Bobcat	455
Fisher	2,318
Marten	2,584
Red fox	6,666
Grey fox	499
Coyote	3,333
Beaver	62,500
Otter	2,514

^a Mean annual harvests of muskrat, mink, red fox, gray fox, coyote, and beaver were based upon trappers' responses (mean = 76%) to mail surveys (mean = 5,756) for 6 years to capture annual variation in harvest. Mean harvests of otter, bobcat, fisher, and marten were based on registration of trapped animals. The annual registered harvest of bobcat includes animals taken by hunting, which annually is estimated to be a mean of 19.5% (SE = 4.9%, Dexter 2006).

Table 3.2. Mean annual harvests of bobcat, fisher, marten, and otter by county were calculated using pelt-tagging records for trapping seasons 2000–2001 to 2005–2006 (Dexter 2006). Harvests of these furbearers exhibit notable annual fluctuations; therefore, 6 trapping seasons were used to capture annual variation in the calculated mean harvests.

County	Bobcat ^a	Fisher	Marten	Otter	Total
Aitkin	29	102	5	99	235
Anoka		<1		19	19
Becker	21	69		103	193
Beltrami	42	74	29	145	290
Benton	0	<1		11	11
Carlton	18	38	7	38	101
Cass	49	170	2	196	417
Chisago	<1	4		21	25
Clay	<1			9	9
Clearwater	11	39	<1	49	99
Cook	1	29	280	38	348
Crow Wing	15	93	0	107	215
Douglas		2		10	12
Hubbard	21	45		64	130
Isanti	<1	1		32	33
Itasca	64	317	118	361	860
Kanabec	11	13		50	74
Kittson	6	6		2	14
Koochiching	18	175	443	131	767
Lake	<1	72	448	70	590
LOW	4	68	63	27	162
Mahnomen	2	11	<1	18	31
Marshall	13	21	2	24	60
Mille Lacs	6	13		31	50
Morrison	11	4		48	63
Norman		3		8	11
Ottertail	1	28		57	86
Pennington	2	17	<1	15	34
Pine	41	44	1	61	147
Polk	2	38		63	103
Red Lake	2	21	1	31	55
Roseau	23	135	91	51	300

St. Louis	25	625	1,089	407	2,146
Sherburne		<1		16	16
Stearns		<1		14	14
Todd	4	10		40	54
Wadena	7	29		26	62
Washington				8	8
Wright				1	1
Unknown	3	5	5	8	21
Total	382	2,319	2,584	2,514	

^aThe annual registered harvest of bobcat includes animals taken by hunting, which overall statewide, annually is estimated to be a mean of 19.5% (SE = 4.9%, Dexter 2006).

Koochiching (767), Lake (590), Cass (417), and Cook (348) counties, whereas the lowest mean harvest rates occurred in Clay (9), Benton (11), Norman (11), Douglas (12), Kittson (14), and Stearns (14) counties (Table 3.2).

3.2 Trapping and Risks to Lynx

Rabbits, Squirrels, and Porcupine

Although rabbit, squirrel, and porcupine trapping are authorized by the Game and Fish Laws, the MNDNR is not aware of any significant effort by trappers to pursue these species.

Weasels

Weasels are typically trapped with cage traps, household rat traps, or small foothold traps set in cubby boxes with openings less than 5 cm in diameter. These traps and sets are not known to be capable of restraining, holding, injuring, or killing lynx. Lynx have not been incidentally caught by trappers pursuing weasels in Minnesota (USFWS 2007 *lynx incidental take database*).

Muskrat

Muskrat are the most commonly trapped furbearer in Minnesota (Table 3.1). Muskrats are trapped with small foothold traps (e.g., #1 or #1.5), #110 body-gripping traps, and

less frequently with colony box traps. Lynx are not attracted to these trap sets, and most are probably too small to capture or hold a lynx. Minnesota's 24-hour tending requirement for all restraining traps minimizes the possibility of injury to any incidentally captured animal. Tending times are 3 days for body gripping sets. We have no knowledge of lynx ever being incidentally captured in a muskrat set.

Beaver

Beavers are Minnesota's second most commonly trapped mammal (Table 3.1); however, since most traps are set underwater or beneath the ice, beaver sets pose no known or documented risk to lynx. Beaver sets may include foothold traps (#3 and #4), large body-gripping traps (e.g., #330), or snares. Employed for beaver trapping, foothold traps are used in combination with a drowning wire or are set underwater. Consequently, nearly all traps used to capture beaver are set in such a way that they quickly kill the animal. Most typically, sets are situated underwater or ice; however, less commonly, a land set may be located near a scent mound or run using a foothold trap. Food attractants used in beaver sets, such as aspen twigs, are not of interest to lynx. We have no knowledge of lynx ever being incidentally captured in a beaver set.

Mink

Small foothold traps and #110 body-gripping traps are used to trap mink, commonly in combination with underwater and drowning sets. Use of attractants with these sets is uncommon. On land, mink sets are made in runways and expected travel paths (e.g., along a stream bank). Scent lures or baits may be used as attractants, which may be attractive to lynx; however, mink traps are usually not located in areas commonly used by lynx. Lynx have not been incidentally caught by trappers pursuing mink in Minnesota

(USFWS 2007 *lynx incidental take database*). We have no knowledge of lynx ever being incidentally captured in a mink set.

Otter

Trapping equipment used for capturing otters and beaver is similar. Otters are targeted by setting traps in otter runs, near latrines, and in specific stream situations. Because otter and beaver traps most typically are set underwater or in unbaited trail-sets, they do not pose a threat to lynx, and we have no knowledge of lynx ever being incidentally captured in an otter set.

Fox and Coyote

Foothold traps (e.g., #s 1.5, 1.75, and 2-coil spring) with scent lures are used primarily (up to 70–81% in the Midwest, Responsive Management National Office 2005) to trap fox and coyotes in Minnesota. During 2001–2007, fox or coyote were most commonly (54%, 7 of 13) the target species when lynx were incidentally taken by non-research-related trapping. Lynx can often be released from foothold traps with little or no injury when ambient temperatures do not drop significantly below freezing. When temperatures are well below freezing, the risk of frozen digits increases. Four of the nine lynx incidentally taken by non-research-related trapping were released alive; the other 5 were documented mortalities. In 2003 the MNDNR provided an information booklet to licensed trappers, “How to Avoid Incidental Take of Lynx, While Trapping or Hunting Bobcats and Other Furbearers” (USFWS and International Association of Fish and Wildlife Agencies [IAFWA] 2003). This booklet contains recommendations for coyote and fox trappers on how to avoid incidental capture of lynx. Specific steps the MNDNR

has taken to encourage trappers to minimize the risk of capturing lynx are provided in Section 5.2 of this document.

Bobcat

The MNDNR estimates that on average 80.5% of the annual harvest of bobcats is by trapping and the remainder (19.5%) are harvested by hunters. The strong similarities of lynx and bobcat and the overlap of their distributions at the southern portions of lynx range in Minnesota, make lynx vulnerable to being incidentally taken by bobcat trappers. However, of 13 incidental takes of lynx by non-research-related trapping during 2001 to 2007, only 1 (7.7%) was known to have been taken by a bobcat set, and that lynx was released alive.

Marten and Fisher

As in Maine, killing traps (e.g., #s120, 160, or 220 body-gripping traps) are most commonly used for trapping marten and fisher in Minnesota. Scent lures and meat baits are commonly used, and lynx may be attracted to these sets. These trap sets and baits are typically hidden from plain view by locating them in boxes (i.e., cubbies), which are open at one end (e.g., plastic rural newspaper box). In this sort of set, #120 body-gripping traps are most commonly used; #220 body-gripping traps can be set in larger boxes or buckets. In 2003 the MNDNR provided an information booklet to licensed trappers, "How to Avoid Incidental Take of Lynx, While Trapping or Hunting Bobcats and Other Furbearers" (USFWS and IAFWA 2003). Specific to fisher and marten trapping it recommends that sets be made on leaning poles no larger than 6" (15 cm) in diameter with the trap and bait located no less than 3 feet (91 cm) above the ground or snow. It is also recommended that trappers avoid using suspended flags or "sight-attractants" near

traps, as well as parts of rabbits or hares as bait. Trappers are encouraged to use tainted baits. If fisher or marten sets are made accessible to lynx (e.g., set on the ground), they pose a risk to lynx that may reach in to obtain the bait. When this occurs, these traps will restrain the lynx; however, if a lynx pokes its head into the trap (not likely for the smaller #120 body-gripping trap), it will be killed by the trap. During 2001 to 2007, 2 of 13 (15.4%) lynx incidentally taken by trapping were caught in body-gripping sets intended for fisher and marten. Both of these lynx were captured by the foot and released alive.

Raccoon

Raccoons are the third most abundant furbearer in the annual harvest (mean = 56,833). They are caught using small foothold, enclosed foothold (high specificity for raccoons), snares, and body-gripping traps (e.g., #220). Raccoon densities are low in the northern areas of Minnesota where lynx range, which translates into a low interest for raccoons on the part of trappers there. Consequently, the risk of incidental take of lynx from raccoon trapping is low; in Minnesota, there have been no known cases during 2001 to 2007.

4.0 Potential Biological Impacts/Take Assessment

4.1 Direct and Indirect Impacts

Canada Lynx

Lynx Trapping in North America

Canada lynx are harvested as a furbearing animal by hunting and trapping throughout most of their North American range, with the exception of their southern most range in the United States and the Maritime provinces of Canada (Bailey et al. 1986, Poole 2003, Alaska Department of Fish and Game 2004, MDIFW 2007). According to Poole (2003), lynx are legally harvested in 97–98% of their range in Canada. As snowshoe hare

populations fluctuate in 10-year cycles, sizes of associated lynx populations may fluctuate 3 to 17-fold, tracking the abundance of hares within 1 to 2 years. Consequently, annual lynx harvest rates also may vary considerably and are regulated primarily by seasons, quotas, and closures (Poole 2003). In Alaska (1998–2003) and Canada (1998–2002), mean annual lynx harvests were 2,651 and 8,986 animals, respectively (Poole 2003, Alaska Department of Fish and Game 2004). The MDIFW (2007) conservatively estimates that more than 10,000 lynx are harvested annually in North America for their fur. The MDIFW (2007) further contends that, because lynx harvests are regulated at the provincial and state level (e.g., Alaska Department of Fish and Game 2004), they do not present a threat to the persistence, viability, or distribution of the North American lynx population, which currently occupies 95 to 100% of its historic range in Canada and Alaska (Poole 2003). Biologically, the lynx's high reproductive potential and their propensity for long dispersals, allowing re-colonization of vacant habitats, are likely important factors as well (Bailey et al. 1986, Mowat et al. 2000, Poole 2003).

Legal trapping of lynx is a primary source of mortality in many lynx populations in Canada and Alaska, but annual harvests (i.e., mortality rates) may vary with regional accessibility, phase of the population cycle, pelt prices, and trapper effort (Brand and Keith 1979, Bailey et al. 1986, Mowat et al. 2000, Poole 2003). Trapping may be largely compensatory to natural mortality during the declining phase of cycles or for lynx populations in lightly trapped areas, particularly during the initial years of hare scarcity. But trapping-related mortality is likely to be additive during other phases of the cycle (when hare are abundant) and in heavily trapped areas (Brand and Keith 1979, Mowat et

al. 2000, Poole 2003). Nevertheless, additive mortality does not equate with population decline. Sex and age classes of lynx tend to be differentially affected by trapping. Bailey et al. (1986) reported that juveniles were 5 times as vulnerable to trapping as adults, and adult males were twice as vulnerable as adult females. Because kittens travel with their mothers during their first year, they are particularly vulnerable to trapping or starvation if their mothers are killed. The relative numbers of juveniles and adults trapped in a region may vary markedly over time relative to the population cycle of the lynx (Brand and Keith 1979). More adults than juveniles are trapped during cyclic declines in the population when kitten production is low; however, the reverse occurs as kitten production increases (Brand and Keith 1979). Generally, persistence of a population is favored more by a lower loss of breeding adults than of juveniles.

Hunting and Lynx

Lynx hunting is prohibited in Minnesota and the risk of lynx being illegally shot in the state is small (0.50 lynx/year in 6 years of monitoring), but historically, before the season on lynx was closed by the MNDNR, hunting accounted for a relatively large proportion of the annual harvest. Since December 2001 only 3 lynx have been shot within Minnesota (excluding 1 lynx shot on the Red Lake Indian Reservation). One lynx was shot in December 2003 (Cook County) and 2 during early November 2005 (both in St. Louis County). All were shot in what is considered core lynx range. However, 2 of the 3 lynx were shot in recognized bobcat range (includes St. Louis County) as well. It is not clear whether the shootings of these 3 lynx were deliberate poaching or incidental (accidental) take by hunters. On average 19.5% of the mean 455 bobcat harvested annually in Minnesota is by hunting. One of the lynx was shot during the bobcat harvest

(trapping and hunting) season (typically late November to early January), and the other 2 lynx were shot prior to the bobcat season, but during the deer firearm harvest season (early November).

Several factors may account for the apparently low poaching or incidental take of lynx by shooting during this 6-year monitoring period. Lynx and bobcat are similar in appearance; however, there are some distinctive, recognizable physical differences relative to pelt and tail color and the size of feet and tracks (USFWS and IAFWA 2003). A booklet, "How to avoid incidental take of lynx while trapping or hunting bobcats and other furbearers" is made available annually to all trappers and hunters emphasizing these differences and recommending that bobcat hunters not harvest an animal unless they've positively identified it as a bobcat (USFWS and IAFWA 2003). Because most bobcat hunters are likely using hounds, they are afforded the opportunity to examine the tracks of the animal they are pursuing to ascertain whether it is a bobcat or a lynx, and once the hounds have treed the animal, hunters have another opportunity to confirm its identity before harvesting.

Specific Causes of Mortality

During the past 5 years of the multi-agency, radio-telemetry or NRRI study of lynx in Minnesota, the mean annual crude mortality rate of the adults has been about 18% (Table 2.3). The leading causes of mortality were legal harvest in Canada, natural causes (predation and specific cause unknown), and unknown causes (Table 2.2; Moen 2006). Collectively, 23.5% of the deaths occurred in Ontario, either by legal trapping or some other human-related means. Slough and Mowat (1996) reported that 92% of known emigrant deaths in the south-central Yukon Territory were human-caused, mostly by

trapping. In the Minnesota study, 17.7% of the deaths were known to be due to human-related causes (i.e., train-kills, road-kills, shooting). The mortality rate of lynx in Minnesota was comparable to, or lower than, rates reported for other lynx populations; however, as indicated by MDIFW (2007), direct comparisons are hampered by small sample sizes and high variability. In Maine, the mean annual mortality rate of radiocollared adult lynx also was 18% during an eight-year period; in decreasing order of relative importance, starvation, unknown causes, and predation were the primary mortality forces (MDIFW 2007). In many areas, mortality rates of lynx vary markedly with the cyclic abundance of snowshoe hares and the level of trapping (where legal) in the area (Poole 2003). In lightly trapped and untrapped populations of the Yukon and Northwest territories, mortality rates of adult lynx have been $\leq 30\%$ and $\leq 11\%$, respectively, during the increasing and peak phases of hare cycles, but ranged from 60 to 91% during the first year of very low hare numbers, and 18 to 37% in the subsequent two years of low numbers (Poole 1994, 2003; Slough and Mowat 1996; O'Donoghue et al. 1997). However, overall, human-related mortality of lynx is most common, particularly where legal trapping of lynx occurs (Ward and Krebs 1985). Trapping mortality rates are most likely related to trapping pressure (trapper numbers and/or effort), which is influenced by fur prices (Brand and Keith 1979). However, actual harvest rates are also undoubtedly influenced by trapper access in many areas. Even nutritionally stressed lynx may first be predisposed to mortality related to humans, meaning that the trapping mortality may be largely compensatory to natural mortality in certain situations (Brand et al. 1976, Mowat et al. 2000).

In north-central Washington, Brittell et al. (1989, unpublished) reported a mean annual mortality rate of 11% (range = 0–29%) for 23 adult lynx during 1980 to 1983. In a follow-up study of 7 adult lynx, Koehler (1990) observed a 27% mortality rate in 1986 and 0% in 1987. All deaths appeared to be from natural causes. Koehler (1990) also reported low reproduction, as well as low kitten survival (i.e., mortality rate up to 88%).

Generally, survival of lynx is lowest in winter, with starvation, related to heightened metabolic requirements, the primary cause of *natural* mortality when ambient temperatures are particularly cold ($< -35^{\circ}\text{C}$) (Poole 1994, O'Donoghue et al. 1995).

In 2006, the NRRI lynx study monitored 19 adult, radiocollared lynx (Table 2.3). Two of these were legally trapped in Canada that year, which accounted for 50% of the study's annual mortality and 11% of Minnesota's radiocollared lynx population. In contrast, although we presently do not have a reliable estimate of the state's lynx population, none of its lynx (0%) were killed incidentally in traps that year or in 2007 by MNDNR-licensed, recreational trappers (Table 4.1). Indeed, if we assume a population of 100 lynx in Minnesota, during 2001 to 2007, less than 1% (5 lynx in 7 years = less than 1 lynx per year, Table 4.1) of the population has been killed annually by incidental trapping. Consequently, the impact of incidental trapping at the population level of lynx in Minnesota is orders of magnitude less than in jurisdictions where lynx trapping is a legal activity (e.g., Ontario, Canada). Although we understand the limitations of extrapolating the cause-specific mortality findings of the NRRI lynx study to all of Minnesota's lynx range, the exercise does provide a legitimate perspective of population-level implications of incidental trapping, and this is consistent with the conclusion of the Final Rule of the USFWS (2000). The MDIFW (2007) reported a similar negligible

impact of incidental trapping-related mortality on Maine's lynx population. In jurisdictions where lynx trapping is legal, the annual percent mortality experienced by lynx populations varies dramatically with the price of pelts. In Alberta, legal trapping mortalities increased from 10% to 29% when pelt prices more than doubled (Brand and Keith 1979). On the Kenai Peninsula (Alaska), about 90% of radiocollared lynx were taken during a 649-day period of high pelt prices, and in Canada, trapping is consistently the major source of annual mortality for some populations (Poole 2003). Further, it is noteworthy, that legally trapped lynx populations are largely sustainable despite evidence indicating that trapping mortality is often additive to natural mortality.

Current Population and Biological Impacts on a Declining Population

There is no accepted population estimate for lynx in Minnesota, as no attempts have been made at estimating the lynx population throughout northern Minnesota. Thus far, in Minnesota, lynx abundance has only been considered as the minimum number of individuals identified from DNA analysis since 2002, which is officially 71 (Moen et al. 2006a; J. Erb, MNDNR, personal communication); however, as explained previously, this is considered a minimum. Nonetheless, according to Mowat et al. (2003), "With few exceptions, demographic parameters reported from southern boreal forests are comparable to those occurring in the taiga during times of hare scarcity...", including "...low in-utero litter sizes, low yearling pregnancy, low yearling litter sizes, low kitten production, high kitten mortality rate, and low lynx density..." (e.g., < 3 lynx/100 km² in north-central Washington; Brittell et al., unpublished; Koehler 1990).

Moen et al. (2006a) have plans to analyze the number of individuals identified annually. Based on short-term reproduction and kitten survival evidence, it has been

suggested that there is potential for persistence of lynx in Minnesota, persistence being "...the ability of a Canada lynx population present in Minnesota to persist through a complete lynx-hare cycle" (Moen et al. 2006a). Thus far, this study's genetic data analyses when complete should indicate whether the lynx population has persisted at low densities during a lynx-hare cyclic low (*but consider discussion on page 30, "Canada lynx - Population Size and Status"*). The connectivity between the boreal forests of Minnesota and Ontario, Canada, where lynx abundance is notably greater, prompts ecologists to consider the role of dispersing lynx from Canada immigrating into Minnesota when lynx further north are at a cyclic high, but snowshoe hare densities are declining or low (Mech 1973, Gunderson 1978) versus an actual resident lynx population in Minnesota. Or, perhaps Minnesota's lynx population is a combination of immigrating and resident individuals; the evidence has been sparse and inconclusive. Apparently, in the recent past, Minnesota's lynx population has not always responded as expected to the local ups and downs of hare population cycles, but their recent highs have suggested an influence of lynx dynamics in Canada (McKelvey et al. 2000).

Within the Great Lakes region, northeastern Minnesota appears to be the area of the highest reports of lynx occurrence. However, lynx have been sighted/reported throughout the state, ostensibly due to dispersing individuals emigrating from optimum or typical habitat (Mech 1973, Gunderson et al. 1978, McKelvey et al. 2000). Increased incidental take of lynx (e.g., by incidental trapping, railroad- and vehicle-caused mortalities) during 2001 to 2005 (Table 4.1), as well as increased frequency of sightings, may reflect an increase in Minnesota's lynx population; however, the increased sightings

may be attributable to increased public awareness of lynx relative to the high-profile multi-agency study being lead by NRRI.

Evidence from Maine (MDIFW 2007) suggests that their lynx population has increased from 1999 to the present and that it can be sustained in association with an annual mortality rate similar to that (18%) in Minnesota. The lynx season in Minnesota has been closed since 1984 and was a direct result of an anticipated cyclic high of lynx not occurring in the early 1980s (M. DonCarlos, MNDNR *in litt.* 1994). Consequently, sources of lynx takings have been accidental (e.g., vehicle- or train-caused mortalities), illegal (e.g., poaching), or incidental to legal trapping since lynx were federally listed as a threatened species in 2000.

Similar to the conclusion reached by Maine biologists (MDIFW 2007), should Minnesota's lynx population decline, the incidental capture rate of lynx by trapping would probably decline proportionately. Consequently, irrespective of lynx population numbers, the proportion of lynx incidentally caught annually by legal trapping activities would remain the same. Maine biologists liken this relationship to that between the incidental trapping rate of bobcats and their corresponding densities in that state, where this rate is used as an index of population trend (MDIFW 2007). As is true of the legal proportional take of lynx from populations in certain Canadian jurisdictions, the proportion of incidentally trapped lynx in Minnesota would change as the result of minimization measures or if trapping pressure were to be altered (Brand and Keith 1979, Poole 2003), such as through varying the number of trappers over time or their effort (the number of traps set per trapper) or through improvements in our understanding of factors or trapping methods that minimize the probability of accidentally capturing lynx. Annual

harvest rates for fox and coyote, the most common target species during 2001–2006 when lynx were incidentally trapped, have exhibited a pronounced decline since the mid-1980s (Dexter 1996, 2007) and have remained at a constant low level during the past 10 to 15 years. This has been due largely to a corresponding decrease in licensed trappers, although wolf recovery in Minnesota's forest zone also may have contributed to reducing coyote numbers there (Erb and Benson 2004, Dexter 2006). Unless there is an increase

Table 4.1. Incidents of Canada lynx takings in Minnesota recorded by the U. S. Forest Service and U. S. Fish and Wildlife Service, 2001 to 2007. Takings include captures by trapping where there was no apparent injury to the animal.

Year	Number				Poaching ^c	Unknown
	incidentally trapped ^{a,b}	Trapping mortality ^{a,b}	Vehicle mortality	Train mortality		
2001	0	0	0	1	0	0
2002	2	0	0	0	0	0
2003	4	2	2	0	1	1
2004	4	2	2	0	0	0
2005	3	1	1	1	2	7
2006	0	0	0	0	0	3
2007	0	0	0	0	0	0

^aOne female and 1 male lynx were incidentally trapped and died in snares set for fox in Koochiching and Clearwater counties in 2003. Also in 2003, a radiocollared male lynx was incidentally trapped in St. Louis County and released alive; another released alive after being caught in a leghold set (for bobcat) in Cook

County, sex unknown, was uncollared. In 2004, a radiocollared female was incidentally trapped by a leghold trap set for a fox and died in Cook County, and an uncollared male died in a snare set for a fox in Lake County. Two lynx, a radiocollared male and an uncollared female, were accidentally caught in snare (set for fox/coyote) and body-gripping trap (intended for fisher) sets, respectively, in St. Louis County, but both were released alive. In 2005, in St. Louis County, 1 radiocollared male lynx died in a snare, another was released alive, and a third lynx (uncollared, unknown sex) was released alive from a body-gripping #120 trap after getting its leg caught:

^{b3} of these incidental takes were associated with violations of MNDNR trapping regulations; 2 of these resulted in the death of the lynx.

^cLynx poached included 1 of unknown sex shot and buried, exact date unknown; 1 male and 1 female were shot during the firearm season (2005) for white-tailed deer, both in St. Louis County.

in pelt prices, future trapping effort and annual harvests of fox and coyote are expected to remain low or decrease further, which would similarly affect the incidental take of lynx by trapping.

Reporting Accuracy and Incentives

The MNDNR acknowledges that all instances of incidental trapping of lynx may not be reported to one of the appropriate agencies or institutions (e.g., MNDNR, USFS, USFWS, NRRI). However, it contends that Minnesota's trapping community has largely responded in a very positive way to the agencies' collective need for such information since lynx were federally listed as threatened. The MNDNR believes that most licensed trappers recognize that it is in their best interest and in the long-term best interest of this licensed, recreational activity, to comply with trapping laws and regulations, as well as the recommendations made by the agencies to help them avoid incidental take of lynx during legal trapping. Every year copies of the state's hunting and trapping regulations,

which include warnings about the legal status of lynx, procedures for reporting incidental/accidental take, and the potential consequences of incidental take, are made available to all hunters and trappers. Additionally, the multi-agency booklet focused specifically on how to avoid incidental trapping of lynx is made available to all trappers and hunters. Personnel of the MNDNR, including the Research Unit's furbearer biologist, regularly attend annual meetings of the MTA, and focus efforts through discussion on public education, raising awareness, and open communication about sound lynx management and ways to minimize incidental take of lynx. These efforts are ongoing. There have not been any cases of incidental take of lynx by trapping where prosecution has been pursued by the USFWS. The MNDNR believes that combined with its efforts at minimizing incidental take of lynx by legal trapping activities, granting of an ITP by the USFWS will further assure trappers that they will not be prosecuted for taking a federally threatened species. That is, compliance with Minnesota's trapping laws and regulations would protect a trapper that had incidentally taken a lynx from prosecution. Further, it is hoped that such protection would serve to further encourage trappers to report incidental take of lynx, facilitating the most accurate management accounting possible.

4.2 Anticipated Take: Wildlife Species

Canada Lynx

Examination of past incidental take of lynx by trapping and what is known about surrounding circumstances provides insight into factors most likely to influence this take and assist with a reasonable prediction of anticipated take in the foreseeable future. From 2001 to 2007, annual incidental take of lynx from trapping has been low, ranging from 0

to 4, exhibiting a bell-shaped curve (Appendix 5). The total incidental take by legal trapping during this 7-year interval was 13 (mean annual = 1.9/year) involving 11 lynx; 5 of these resulted in mortality (mean annual = 0.7/year, Table 4.1). Three of the 13 incidental takes were associated with violations of MNDNR trapping regulations; 2 of these resulted in the death of the lynx. Incidental take by trapping was 0 in 2001, 2006, and 2007 (Table 4.1, Appendix 5); lethal accidental takes by trapping were 0 in these years and in 2002. Ignoring the effectiveness of proposed minimizing activities for the moment, the *proportion* of lynx incidentally captured by legal trapping activities each year should remain the same unless trapping pressure (e.g., total number of trap-days) changes (Brand and Keith 1979, Poole 2003, MDIFW 2007). Overall, estimated trapping pressure (i.e., trap-days) for species most associated with incidental take of lynx in their core range in Minnesota largely has been low and stable during 2000–2001 to 2006–2007 (Figure 4.1), indicating that the *absolute* decrease in incidental take recorded during 2005 to 2007 is not due to a decrease in trapping pressure. However, it is noteworthy that annual harvest rates for fox and coyote, most commonly the target species when lynx have been incidentally taken by trapping (54% or 7 of 13 total incidental captures), have declined dramatically since the mid to late 1980s (Dexter 1996, 2007). Harvests of fox and coyote have remained consistently low during the past 10 to 15 years, but harvest of red fox specifically exhibited a further decrease beginning in the late 1990s (Dexter 1996, 2007). The number of licensed trappers in Minnesota decreased markedly beginning in the mid to late 1980s, but has remained stable from 1990–1991 to the present (Dexter 1996, 2007). As long as pelt prices remain low, the MNDNR expects future trapping

effort and annual harvests of fox and coyote also to remain relatively low or decrease further, which would similarly affect the proportional incidental take of lynx

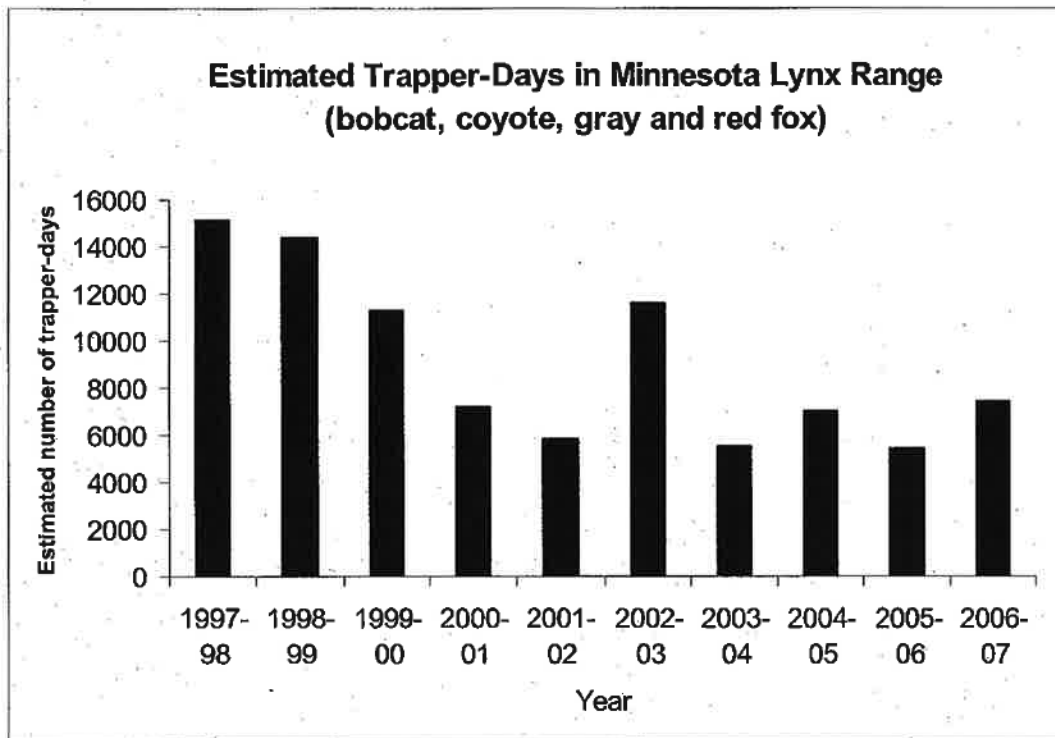


Figure 4.1. Estimated trapper-days (number of trappers X number days of trapped) for bobcats, coyote, and red and gray fox in Canada lynx range (St. Louis, Cook, and Lake counties) in Minnesota, 1997–1998 to 2006–2007 (summarized from statistics generated by J. Giudice from MNDNR’s annual trapper survey, unpublished data). *Data included only annual October to March trapping season for red fox; March to August season discontinued in 2006–2007 (MNDNR 2006b).

associated with trapping.

The USFWS (2000) concluded that incidental take of lynx by trapping does not have a negative impact at the population level (i.e., population dynamics or persistence)

in the contiguous United States DPS, and that "...the Great Lakes Region does not contribute substantially to persistence" of this DPS. Still, however, changes in the number of lynx may have an effect on the *absolute* number of lynx incidentally taken annually by trapping (i.e., decreased encounters between lynx and trappers).

Consequently, possible alternative explanations for the most recent decline in incidental take of lynx by trapping would be 1) a decrease in Minnesota's lynx population, 2) better compliance with trapping regulations and recommendations for avoiding incidental trapping of lynx (USFWS and IAFWA 2003), 3) natural stochastic variation associated with a small sample size of years (2001–2007), 4) decreased reporting of incidents of accidental capture of lynx by licensed trappers involved in legal trapping of other species, or 5) some combination of the above. It is also important to consider the types of take (e.g., trap method, with or without injury), as well as differential vulnerability of various segments of the population (e.g., sex, age) to trapping.

There has never been a formal survey conducted throughout lynx range in Minnesota, historically or recently, to estimate the size of the state's lynx population. The practicality of surveys to estimate the population and rate of change temporally is limited by 1) a low density of lynx, 2) the difficulty of sighting this elusive, forest-dwelling animal from fixed-wing, helicopter, or on the ground, and 3) the large number of personnel, abundant time and resources that would be required to accomplish a mark-recapture approach to determining lynx densities throughout potential northern lynx range in Minnesota (MDIFW 2007). Consequently, a combination of indices, such as incidental trapping rates, verified lynx sightings, train- and vehicle-caused mortalities, and snow-track surveys might be used to assess a level of change in the lynx population.

Furthermore, biological data indicative of population performance (e.g., reproductive success, survival) collected from lynx research conducted in Minnesota, and habitat availability and quality (Moen et al. 2007a), may be considered in interpreting the aforementioned indices.

Although it is difficult to verify “whether a resident population existed historically in Minnesota” (USFWS 2000), lynx occurring here may be a combination of individuals immigrating from Canada and members of a small *resident* population (McKelvey et al. 2000), the latter indicating long-term persistence. Maintenance of home ranges by lynx and reproduction in northern Minnesota were documented in the 1970s (Mech 1973, 1980). Although there are no data available to indicate that Minnesota’s lynx population has cycled since the 1970s, there is cumulative evidence to suggest that their recent population performance has been positive (Moen et al. 2006a, 2007a). Specifically, from 2003 to 2007, the mean annual crude mortality rate of radiocollared lynx was only 17.6% (Table 2.3), which translates into relatively high survival. Further, adult females were in good physical condition, all were pregnant every year (including individuals being pregnant in consecutive years) and produced litters of 2 to 5 kittens (Moen et al. 2007a). These litter sizes were lower than those occurring in northern lynx populations during cyclic peaks, but higher than those associated with northern hare populations that had crashed. Relatively low movement rates (< 1 km/24 hours 80% of the time) of females within their home range may indicate the presence of adequate prey. These rates were less than those of lynx in the Yukon Territory when hare densities were 1 to 15 per hectare (Ward and Krebs 1985) and may be related most specifically to lower lynx/hare (or total prey) ratios in Minnesota, rather than the actual density of hares.

Similar to the temporal pattern of incidental trapping of lynx during 2001 to 2007, the number of lynx mortalities by collisions with vehicles and trains and by unknown causes (Table 4.1, Appendix 5), as well as the number of verified (and probable) sightings of lynx also have exhibited bell-shaped curves with low numbers during the past 2 years (Appendix 6). The peaks in the temporal trends of these indices (including incidental take by trapping) appear to be remarkably consistent with the combined peak in the 10-year cycle of lynx in central Canada and 3-year lag that accounted for the highest correlation of northern lynx harvests with apparent numbers (i.e., historic trapping data) of lynx in Minnesota as reported by McKelvey et al. (2000). The collective evidence suggests that recent peak numbers of lynx in northern Minnesota were largely related to immigration of lynx from central Canada, and most recently, may have decreased due to emigration of lynx north to central Canada. Research data indicate that food/prey availability has been adequate to support reproduction of females still residing in Minnesota (Moen et al. 2007a). However, little is known about annual recruitment of kittens in Minnesota (R. Moen, NRRI, personal communication), which if low, may also contribute to the recent apparent declining trend in lynx numbers.

In 2006, there were 3 mortalities by unknown cause. Although the exact number of lynx in Minnesota is unknown, at the population level the total number of annual incidents of take by trapping can be expected to vary stochastically at low levels. However, the MNDNR expects the effect of minimizing activities (discussed in the **Measures to Minimize** section) to reduce the annual number of mortalities from these incidental takes in the future to 0.

Since the Canada lynx was federally listed as "threatened" in 2000 (MNDNR 2000), the MNDNR has included a visually prominent warning in its annual "Minnesota Hunting and Trapping Regulations Handbook" that reads: "Important! The Canada lynx is listed as a threatened species under the Endangered Species Act. Any taking or possession of lynx, including accidental taking, is a violation of federal law." Since September 2003, the "How to Avoid Incidental Take of Lynx (While Trapping or Hunting Bobcats and Other Furbearers)" booklet, a combined effort of the USFWS and the IAFWA, was made widely available (free) at MNDNR fur registration stations and wildlife offices in the northern region of the state and at trapping conventions. Fisher, marten, and bobcat harvest is restricted to a specified region in northern Minnesota, and most trappers pursuing these species are also likely to trap red fox and/or coyotes in northern Minnesota during some portion of the open season. In 2003, using the registered furbearer harvest database, the booklet also was sent to 1,520 Minnesota licensed trapper who had registered fisher, marten, or bobcat at MNDNR fur registration stations in the previous year (J. Erb, MNDNR, personal communication). This useful guide instructs persons on identification of lynx, and specifically how to distinguish them from bobcats based on physical characteristics, sign (e.g., tracks), behavior, and habitat. It is informative with respect to life history, distribution, habitat preferences, and other aspects of lynx background. A primary focus of this booklet is to inform the reader of specific hunting and trapping methods useful to avoiding the capture of lynx. Finally, it provides helpful information on how to reduce the risk of injury and mortality of incidentally captured lynx. In 2007, the MNDNR made the booklet available on its website at <http://www.dnr.state.mn.us/hunting/smallgame/index.html>.

According to Dr. J. Erb (personal communication), furbearer research biologist for the MNDNR, who has frequent professional interactions and discussions with members of the MTA, most trappers are vigilant in monitoring for the presence of lynx in areas they trap, and are cognizant of lynx avoidance recommendations expressed within the "How to Avoid..." booklet. Further, MNDNR conservation officers spend an average of 21,838 person-hours per year (calculated from approximately 65,516 person-hours during the 2005–2007) monitoring and enforcing compliance by public citizens with Minnesota's small game (including trapping) laws and regulations throughout the state. MNDNR Conservation Enforcement contends that the vast majority of trappers consistently comply with these regulations and follow the aforementioned recommendations (A. Heidebrink, MNDNR, personal communication), which likely accounts in large part for the low annual incidental take numbers. This is consistent with the existing lynx incidental take data set presently maintained by the USFWS (P. Delphey, USFWS, personal communication). Using the the MNDNR's 2006–2007 trapper survey, research biologist J. Erb (2007, Affidavit in Support of State Defendant's Motion for Summary Judgment) estimated that trappers pursuing terrestrial furbearers in 6 northern counties (where most lynx observations have been confirmed) annually deploy traps for 766,000 trap-nights (the number of traps set multiplied by the number of nights the traps are left set with the intention of capturing a furbearer). Given the mean of approximately 1 lynx per year accidentally killed in a trap (actual mean = 0.7 lynx/year), an average of 1 lynx has been trapped and killed per 766,000 trap-nights, which reflects an extremely low risk and a limited impact of trapping on Minnesota's lynx.

Of the 13 incidents of recorded accidental takes of 11 lynx by trapping during 2001 to 2007, not a case has been prosecuted (P. Delphey, USFWS, personal communication). Consistent with the majority of trappers complying with trapping regulations and following published recommendations (USFWS and IAFWA 2003) on how to avoid incidental take of lynx while trapping, and the low risk of trapping a lynx, the MNDNR believes there is little incentive on the part of the licensed trapper to not report the incidental take of lynx. The MNDNR believes that most trappers recognize that complying with regulations, following trapping recommendations to minimize incidental take of lynx, but reporting the rare incident of such take helps to ensure the long-term persistence of recreational trapping in Minnesota.

Categories of Incidental Take and Predictions

Most of the lynx incidentally trapped in Minnesota during 2001 to 2007 were caught in snares, followed by foothold traps and body-gripping sets (Table 4.2). About 57% of the lynx incidentally trapped in snares died, and these mortalities accounted for 4 of 5 (80%) mortalities associated with incidental trapping (Table 4.2). In at least 4 of the 7 cases of incidental take of lynx by snaring, reported evidence indicated that either Minnesota trapping laws were violated or recommendations in the USFWS and IAFWA (2003) booklet were not followed ("Defendant Intervenors' Consolidated Response...to Stay" 11 October 2007). (1) In the snaring incident of January 2003, the trapper set the snare in that month and did not return to check the snare. Minnesota Rule 6234.2400, subpart 10 requires that snare sets be checked every calendar day. A dead lynx was found in the trap in March 2003. (2) In the snaring incident of 28 December 2003, the snare loop was set by the trapper at about 22" (56 cm) above the ground. This violated Minnesota Rule

6234.2400, subpart 7, which states that snares can not be set more than 16" (41 cm) above the ground or snow surface). (3) In the snaring incident of 10 October 2004, it was reported that the snare loop used was 6" (15 cm) in diameter; the USFWS and IAFWA (2003) guidelines recommend a loop of at least 8" (20 cm). (4) In the snaring incident of 28 December 2005, the trapper used a 1/16" thick snare cable with a 6" (15 cm)-diameter loop. The USFWS and IAFWA (2003) guidelines recommend a snare cable of at least 5/64" thick (so more visible to lynx) and a loop of at least 8" (20 cm).

Only 1 lynx mortality was associated with a foothold trap in Minnesota, while no serious injuries or deaths have been associated with body-gripping sets (Table 4.2). The report of the lynx mortality explains that the trapper did not stake the foothold trap with a tethering chain of up to 18" (46 cm) in length with 2 swivels on it, as recommended by the USFWS and IAFWA (2003) guidelines, but left it unstaked ("Defendant Intervenor's Consolidated Response...to Stay" 11 October 2007). The lynx dragged the set from its original location, whereupon it was not found by the trapper, and consequently was not released. In both (2) instances of incidental take of lynx by body-gripping traps (28 November 2004 and 28 November 2005), the traps were set on or very near to ground level. The USFWS and IAFWA (2003) guidelines suggest that body-gripping traps set on a leaning (at least 45°) pole (< 6" [15 cm] in diameter) 3–4' (91–122 cm) above the ground will discourage lynx from approaching them, thus reducing the risk of incidental take. In Maine, where trapping with snares has been suspended by the state since October 2003 (R. Martin, Commissioner, MDIFW, 2003, personal communication), the risk of serious injury or death to lynx incidentally captured by foothold trap also was low (1999–2006, MDIFW 2007). A total of only 2 lynx deaths have been associated with

incidental trapping during this period in Maine. In both cases, the lynx were caught by a body-gripping trap (MDIFW 2007). However, both occurred before the MDIFW (2007) promulgated rule changes on the use of body-gripping traps that should eliminate mortalities and reduce major injuries to lynx. In Minnesota, of the

Table 4.2. Categorization of incidentally trapped lynx by trap type in northern Minnesota, 2001 to 2007 (USFWS 2007 *lynx incidental take database*).

Trap type	Number incidentally caught			
	Released	Killed	Total	(%)
Snare	3	4	7	(53.8)
Foothold	3	1	4	(30.8)
Body-gripping trap (#120Ü)	2	0	2	(15.4)
Total	8	5	13	(100.0)

8 incidents of lynx accidentally trapped and released, none were seriously injured and none received rehabilitation or veterinary care (Table 4.3). All were either uninjured or incurred only minor injuries. As a precautionary measure 1 lynx was examined by a veterinarian, observed for 24 hours in a zoo, and released healthy and without injury (R. Moen, NRRI, personal communication). Two of the 8 incidents of incidentally trapped lynx that were released with no injuries were radiocollared NRRI study animals (L05, L10/25). L05 was incidentally caught by a snare 96 days after being live-trapped and radiocollared; this lynx lived at least (last live radio location) 2.63 years beyond being

incidentally trapped. L10/25 was incidentally trapped 3 times (first by foothold, then twice by snare) from 7 November 2002 to 8 January 2005, and once in a research box trap. Its last radio-location alive was 23 May 2005, 2.54 and 0.37 years (135 days) after its initial and last capture by incidental trapping, respectively.

In Minnesota, of the 13 incidental takes of lynx by trapping during 2001 to 2007, 6 were males, 3 were females, and the sex of 4 was unknown. Consequently, from this small sample size it is difficult to determine whether either sex is particularly vulnerable to taking by incidental trapping. In Maine, data suggest that males and females have an equal probability of being incidentally trapped (MDIFW 2007), whereas, Bailey et al. (1986) reported that adult male lynx were twice as vulnerable as adult females to harvest by *legal* trapping. However, a direct comparison of take by incidental versus legal trapping is probably invalid due to obvious differences in factors affecting these respective activities. Sex ratios of regional populations also would likely have a strong effect on the numbers of males and females taken annually by trapping, whether incidentally or by legal harvest. The MNDNR is not compelled to pursue the potential of a sex bias relative to incidental take and potential implications on the probability of kitten survival (relative to mortality of incidentally taken adult females), because the agency anticipates 0 mortality associated with incidental take by trapping once minimization activities are implemented, and further, it agrees with the assertion of the USFWS (2000) that the low level of annual incidental take that has occurred in Minnesota and elsewhere in the northern Great Lakes Region has a negligible impact on the performance and persistence of lynx at the population level.

Incidental take data for lynx maintained by the USFS during 2001 to 2007, then transferred to the USFWS, indicate that the incidental capture of lynx by trapping in northern Minnesota has been minimal, and associated mortality even less (Table 4.3). Based on documentation of these data and projected effectiveness of proposed trapping regulation changes, the MNDNR requests an ESA, Section 10, Incidental Take Permit, valid for 20 years, covering an annual incidental take of lynx by *legal* trapping, averaged over 5 years, of no more than 4 total takes. Of those takes, we project no more than 1 serious injury and 0 mortalities in any 5-year period. If more than 1 mortality of a lynx associated with incidental take by legal trapping occurs in any 5-year period, we will

Table 4.3. The annual number of Canada lynx incidentally trapped in Minnesota categorized by the animal's injury status, 2001 to 2007.

Year	Lynx Incidentally caught ^a	Trapped & released, no injury or minor	Trapped, injury required rehab, & released	Trapped & released, injury status unknown	Trapping mortality ^a
2001	0	0	0	0	0
2002	2	2	0	0	0
2003	4	2	0	0	2 ^b
2004	4	2	0	0	2 ^c
2005	3	2	0	0	1 ^d
2006	0	0	0	0	0
2007	0	0	0	0	0

^aThree of the 13 incidental takes by trapping were associated with known violations of MNDNR trapping regulations; such violations were associated with 2 of the 5 mortalities.

^bBoth of these lynx were incidentally trapped in snares; fox were the target species for both.

^cOne of these lynx was incidentally caught in a snare, and the other in a leghold trap; fox was the target species in both cases.

^dThis lynx was incidentally trapped in a snare, and fox was the target species.

Table 4.4. Projected annual incidental capture associated with *legal* trapping activities and associated injuries and mortalities for Canada lynx in Minnesota. Numbers are presented as average annual estimates calculated over 5-year period, 5-year totals, and totals for the duration (2008–2028) of the proposed Incidental Take Permit.

Capture event	Average annual incidental take	5-year total take	Total over life of permit (20 yr)
Lynx incidentally trapped ^a	4	20	80
Trapped & released, minor or no injury ^b	4	20	80
Trapped & released, major injury ^c		1	4
Trapping mortality ^d		1	4

^aThe highest incidental take of lynx by trapping during 2001 to 2007 occurred in 2003 (4) and 2004 (4). As discussed above (p. 68), this peak in incidental take appeared to correspond to a peak in the number of lynx

in northern Minnesota, associated with a combined peak in the lynx population of Canada and a 3-year lag.

We expect that the incidental capture rate would fluctuate around 4 lynx per year in the future.

^bThis rate is based on documentation of all incidental captures of lynx during 2001 to 2007 (when recorded) being associated with no injuries or only minor injuries.

^cDuring 2001 to 2007, no incidental captures of lynx in Minnesota were associated with major injuries or required veterinary care. However, based on documentation of incidental capture of lynx by foothold trap in Maine (MDIFW 2007), we expect that a very low rate of serious injury is possible by this method.

^dWith promulgation of proposed trapping regulation changes as the MNDNR's primary minimization activity (see **Measures to Minimize Impacts**), the agency expects mortality of lynx associated with incidental trapping to be 0 when regulation compliance occurs.

consult with the USFWS to discuss alternative regulation changes to further minimize circumstances contributing to non-lethal and lethal incidental take of lynx (Table 4.4).

5.0 Measures to Minimize for Impacts

5.1 Biological Goals

According to the MNDNR (2007, "Draft Strategic Plan"), the official mandate of the state of Minnesota is "...that fish and wildlife are renewable natural resources to be conserved and enhanced through planned scientific management, protection, and use (M.S. 84.941)." In 1998, this policy was underscored by Minnesota's citizens when more than 77% of voters in the general election approved Constitutional Amendment 13, Section 12, which states:

"Hunting and fishing and the *taking* of game and fish are a valued part of our heritage that shall be forever preserved for the people and shall be managed by law and regulation for the public good." In this vein, "the *mission* of the (MNDNR's) Division of Fish and

Wildlife is to work with the people of Minnesota to conserve aquatic and terrestrial habitat to manage fish and wildlife populations and habitat, to provide fisheries and wildlife related recreation, and to preserve Minnesota's outdoor heritage." The Division's *vision* for Minnesota's future includes "High quality and abundant fishing, hunting, trapping, and wildlife recreation opportunities and access for current and future generations."

The USFWS (2000) has concluded that "...the Great Lakes Region does not contribute substantially to the persistence of the contiguous United States DPS" of lynx. As of January 2008, the USFWS had not established *formal recovery goals* for Canada lynx (P. Delphey, USFWS, personal communication) in the contiguous U. S. However, in a recovery outline (distributed 15 September 2005), the USFWS proposed as its recovery goal to "...address threats to the lynx so that protection of this species under the Endangered Species Act is no longer required, and delisting is warranted" (USFWS 2005b). As expressed by the MDIFW (2007), "...this is the ultimate recovery goal of any listed species." Even though no specific goals for lynx have yet been established by the USFWS for the contiguous U. S., the MNDNR's goals in concordance with guidelines for the incidental take permit and the ESA's prohibitions on taking, reflect pursuance of all practical measures to limit the incidental take of lynx in Minnesota (see box below).

Section 10 Permit Goals:

To ensure that Minnesota's trapping program does not pose a threat to lynx, the MNDNR proposes the following goals for its plan:

- limit the incidental take of lynx associated with *legal* trapping activities during the State's furbearer trapping seasons to the greatest extent possible, while maintaining recreational trapping opportunities;
- where incidental takes occur, minimize injuries and mortalities to the greatest extent that is practical;
- employ an adaptive management strategy, which includes implementation of new trapping regulations and enhanced educational and communication tactics/strategies; monitoring the success of these efforts through investigation of incidental takings; evaluation of minimization activities/strategies; and if necessary, implementation of new, additional tactics/strategies to decrease the incidental take of lynx by *legal* trapping activities.

5.11 Biological Objectives

The USFWS has not yet established *formal recovery objectives* for Canada lynx, and in their current recovery outline, the USFWS (2005b) did not present recovery objectives relative to achieving a certain population goal, because "...development of demographic criteria for delisting is not possible at this time." In reality, attempting to achieve a pre-determined population number would be highly difficult to confirm and monitor over time (MDIFW (2007). Consequently, the USFWS (2005b) proposed 4 preliminary objectives, the first 3 of which address maintaining adequate habitat of sufficient quality

to ensure the long-term persistence of lynx populations within the contiguous United States. The minimal incidental take of lynx associated with Minnesota's trapping program relate most closely to the USFWS's fourth objective, "Ensure that threats have been addressed so that lynx populations will persist in the contiguous United States for at least the next 100 years," except that in its Final Rule, the USFWS (2000) had already concluded, based on extensive evidence, that incidental take of lynx by legal trapping activities does not have a negative impact at the population level (i.e., population dynamics or persistence) in Minnesota. Nonetheless, it is incidental take of lynx as a source of mortality that the MNDNR addresses in its conservation plan (see box below), and the Department's objectives for lynx recovery will not hamper the USFWS's preliminary recovery goals and objectives or the sustainability and long-term persistence of lynx in Minnesota.

Section 10 Permit Objectives:

- Limit incidental captures of lynx by licensed trappers associated with *legal* trapping activities to no more than 4 per year, averaged over a 5-year period (i.e., running average).
- Limit lynx mortalities directly related to *legal* trapping to 1 over any 5-year period.
- Limit serious injuries directly related to legal trapping to 1 in any 5-year period.
- Provide appropriate veterinary care for lynx incurring a debilitating injury associated with incidental trapping.

Performance of an animal population is the direct result of the countering influences of mortality and reproduction on its dynamics. Because the MNDNR's Section 10 permit objectives include 0 annual mortality associated with incidental capture by licensed trappers, it could not be more consistent with the USFWS's proposed recovery goal "...addressing threats to lynx..." Lynx populations in Canada continued to increase rapidly despite annual trapping mortalities ranging from 3 to 15% (Slough and Mowat 1996), while increasing trends in bobcat populations were maintained until 20% of the population was removed by trapping and hunting (Knick 1990).

5.12 Adaptive Management Strategy

Monitoring and Evaluation

Central to the MNDNR's adaptive management strategy are continued monitoring and investigation of incidents of accidentally trapped lynx. Essential components include continued communication and outreach to individual trappers and the MTA to encourage and emphasize the importance of reporting incidents of accidentally captured lynx, which will be required by MNDNR trapping regulations (Appendix 7), and documenting as many of the circumstances as possible, maintaining Minnesota's hotline for reporting trapped lynx (described in Section 5.2), and investigations into all incidental captures by MNDNR biologists and conservation enforcement officers. Together these monitoring tactics will help assure that incidentally trapped lynx receive quick attention and appropriate care when needed and that biologists maximize what can be learned from each incident relative to minimizing further future incidental take.

The MNDNR is confident that the changes to State trapping regulations that it adopts will substantially reduce the already low incidental take of lynx by trapping

(Appendix 7, "Rule Changes Adopted by the MNDNR to Reduce the Incidental Take of Canada Lynx by Trapping"). However, the Department will continue to review the circumstances of each incidental take and inform the USFWS of the specific details. At least once per year, the Department will consult with the USFWS to determine together if there were similarities in the circumstances contributing to the captures that may be prevented in the future. The Department will use the information generated to evaluate the effectiveness of its regulatory and educational efforts to further limit incidental captures by trapping. In the event it is apparent that additional specific practical measures can be implemented or current measures revised, the Department will work with the USFWS and MTA to formulate recommendations that further protect lynx and continue to afford trapping opportunities to Minnesota's trappers. The MNDNR will initiate a consultation with the USFWS when more than 4 lynx are incidentally taken or more than 1 mortality associated with incidental capture occurs in a 5-year period.

Specific Circumstances

Changes in Trapping Effort

The area-specific rate or proportion of lynx removed from a population by incidental take from legal trapping should remain constant as long as trapping pressure (e.g., number of trap-days) remains constant. If trapping pressure that most specifically affects the incidental take of lynx increases markedly (i.e., number of trap-days targeting fox, coyote, fisher, marten), then the proportion of lynx incidentally trapped also will likely increase. If such trapping pressure increases by 50% (estimated annually by the MNDNR) and the incidental capture of lynx appears to be increasing, the Department will consult with the USFWS and MTA to determine what the most effective alternative

might be for tempering this increase. The MNDNR has a number of effective management alternatives for regulating trapping (e.g., rules affecting trapping methods, season length, harvest limits, and emergency closures). Further, these rules can be modified as deemed necessary relative to specific circumstances.

5.2. Measures to Minimize Impacts

The MNDNR has a wide variety of existing effective management programs and policies, which include strategies, measures, and activities specifically focused on minimizing the impact of trapping on lynx in Minnesota. These programs, policies, and measures will be continued, but augmented or modified where deemed necessary to strengthen their effectiveness at preventing the incidental take of lynx.

The MNDNR's approach to further minimizing the incidental take of lynx by legal trapping will include a 2-prong approach, one being *informational* and the other *regulatory*. This Department agrees with the MDIFW (2007) in that communication of reliable information or education by a variety of means is one of the most effective means of promoting cooperation and compliance by resource users. As similarly expressed by MDIFW (2007), the intention of the MNDNR's informational approach is 1) to permit the resource user to participate in the effort to overcome a specific resource management challenge; 2) to reduce the probability of a contentious, adversarial relationship developing between the resource user and the regulatory agency over this resource issue (i.e., incidental take of lynx by legal trapping); 3) to limit the burden on the regulatory and legal process; and 4) to promote and maintain a higher "...level of trust and respect between resource users and the agency." Following is a description of the new measures

that the MNDNR will propose to minimize the incidental take of lynx by legal trapping, as well as some of the existing management efforts with this focus.

New Regulatory Measures

Regulatory measures described below will apply to the lynx management zone, which is that portion of Minnesota north and east of a line beginning on U.S. Highway 53 at the east boundary of the state; then along U.S. Highway 53 to the north boundary of the state (USFWS 2008, Appendix 7). Because HCP guidelines mandate that organizations (and other ITP applicants) minimize incidental take to the maximum degree that is practical, the MNDNR will use an expedited rule-making process to make regulatory changes for trapping that will be adopted before the 2008 trapping seasons and which will further reduce the overall incidental take of lynx, and eliminate mortalities associated with incidental take (Appendix 7).

Snaring has accounted for just over half of the overall incidental take of lynx by trapping in Minnesota during the 7-year period (2001–2007) of documentation (albeit a low number of total takes) and 4 of the 5 associated mortalities during this same period (Table 4.2). Additionally, because annually snaring probably accounts for most of the trapping effort targeting fox and coyote (over 100,000 trap-nights) in St. Louis, Cook, and Lake counties (J. Erb, MNDNR, unpublished data), it is a core issue for the MNDNR relative to pertinent regulatory changes. Prohibiting snaring would largely eliminate fox and coyote trapping in this area. However, the Department will adopt rule changes that require snare cables of at least 5/64" in diameter, not to exceed 1/8," and loops of 8"–10" (20–25 cm) side to side (USFWS and IAFWA 2003), except for snares used in watersets (Appendix 7). These actions should reduce incidental take, as well as mortality of lynx

by snaring, while still allowing capture of fox and coyote. The MNDNR will monitor incidental take relative to these changes and adaptively adjust.

Foothold traps accounted for a small number of incidents of accidental capture of lynx (4 total) in Minnesota during 2001 to 2007; however, 1 of these was lethal (Table 4.2). As the USFWS and IAFWA's (2003) booklet ("How to avoid incidental take of lynx...") recommends anchoring foothold sets by staking rather than with drags, the Department will adopt rule changes that require all traps, except for watersets, must be staked or otherwise secured by tethering chains or cables not more than 18" long, in a manner that prevents captured animals from removing the trap from the trap site (Appendix 7). Further, the Department's rule changes will require, except for watersets, that all foothold or leghold traps have 2 or more swivels in the tethering chain or cable (Appendix 7).

Overall, there were only minor or no injuries of lynx associated with the 3 non-lethal incidental captures in foothold traps. As described previously, the 1 lynx mortality associated with incidental take by a foothold trap (anchored by a drag) was attributed to the lynx dragging the trap so that it could not be found by the trapper; consequently, the lynx was not released and died. Trappers are required to check their foothold traps once every 24 hours (MR 6234.2200) to minimize the probability of a serious injury developing or mortality to nontarget species. In Maine (1999–2006), for 11 lynx incidentally captured by foothold trap *and whose injury status was known*, 10 (90%) had either minor or no injuries, and 1 lynx had a major injury (i.e., broken leg); there were no mortalities. The major injury was associated with a trap set on a drag, and with rehabilitation, this animal was subsequently released into the wild and lived an additional

5.5 years. The MDIFW (2007) also reported that most (17 of 24, or 71%) incidental captures of lynx by foothold traps were anchored by drags, whereas fewer (29%) were staked. Of 6 lynx incidentally trapped by foothold traps *anchored by drags specifically, and of known injury status*, only 1 incurred a major injury (described above), whereas 5 had minor or no injuries. But, importantly, for 16 of the 17 (94%) sets anchored by drags (*but specific injury status not known for all, other than major or mortality*), there was no major injury or mortality documented. Consequently, the evidence is not strongly convincing that use of drags contributed to the taking. However, in an effort to maximize efforts to reduce potential incidental take of lynx The Department will require by rule change that all traps must be staked or otherwise secured by tethering chains or cables not more than 18" long (Appendix 7).

Body-gripping traps (#s120 and 220) accounted for only 2 incidents of accidental trapping of lynx in Minnesota; neither involved a serious injury (USFWS 2007 *lynx incidental take database*)). However, in Maine, 4 lynx were incidentally captured by body-gripping traps during 1999 to 2006, 2 of which required rehabilitation and 2 others died (#s120 and 220 body-gripping traps). The USFWS and IAFWA (2003) booklet recommends that body-gripping traps in lynx range be set at least 3-4 feet (91-122 cm) above the ground or surface of the snow on a pole no more than 6" (15 cm) in diameter and that stands at an angle of at least 45° from the ground. According to the USFWS and IAFWA (2003), such an angle and small pole or tree diameter are very effective at preventing the incidental capture of lynx. Neither trap in which the lynx were killed in Maine was set according to these specifications, nor were those where the serious injuries occurred. The MNDNR will adopt a rule change that requires body-gripping traps with

an opening of 5" (13 cm) to 7-1/2" (19 cm), unless set as a waterset, be set at least 3 feet (91 cm) above the ground or surface of the snow on a leaning pole or in a tree no more than 6" (15 cm) in diameter (Appendix 7). The exception will be if such traps, otherwise legal in Minnesota, are set in a cubby box on the ground with the trap recessed at least 7" (18 cm) into the cubby entrance, which must be no more than 50 square inches (6.25 x 6.25 cm). The MNDNR believes that the rule changes described above will essentially eliminate incidental take of lynx by body-gripping traps.

Consistent with the USFWS and IAFWA's (2003) recommendations, the Department will adopt rule changes that prohibit the use of rabbits, hares, or their parts, as bait, and that prohibit the use of suspended flags or other sight attractants within 20' of a trap. Finally, the Department also will adopt a rule change that requires a person to report any incidental taking of a Canada lynx to the local MNDNR conservation officer.

Protection from Trapping, Hunting, and Road Mortality

Take of lynx by hunting activities, whether purposeful (i.e., poaching) or accidental (i.e., incidental), is not covered by this ITP. But to minimize the effect on lynx of incidental take by trapping, the MNDNR considers all forms of human-related mortality (including by vehicle collisions) that may be altered by various management measures to reduce the total number of mortalities. The Department's efforts of fulfilling its goal of minimizing the impact of incidental take on lynx in Minnesota have included research on aspects of the population performance of lynx, law enforcement activities, and education of licensed trappers and hunters.

Lynx in Minnesota are protected from deliberate trapping and hunting under state statute (Appendix 2, MS 97B.641), and by the Endangered Species Act. In 1984, the

Department closed the season on lynx in Minnesota (Doncarlos 1994, unpublished "Lynx Fact Sheet"). Further, the MNDNR's biologists work closely with the Department's Conservation Enforcement Division and USFWS Special Agents to investigate all lynx mortalities resulting from intentional (i.e., poaching) and incidental take. As previously described (see **Hunting and Lynx in Section 4.1 Direct and Indirect Impacts**), hunting poses a very small threat to lynx in Minnesota. However, the Department will add to its Hunting and Trapping Regulations Handbook an explicit, concise description of lynx distribution in the state, and where bobcats are uncommon, in an effort to increase hunter awareness and attempt to reduce the probability of hunters inadvertently shooting a lynx instead of their target species (e.g., bobcat or coyote).

Reporting Incentives

The MNDNR agrees with the MDIFW's (2007) contention that the most effective means of maximizing the reporting of incidental capture of lynx (and other threatened or endangered species) by trapping is by maintaining a respectful, cooperative relationship with the trapping community of the state. Similar to MDIFW's (2007) approach towards this end, the MNDNR will 1) consult with the trapping community (e.g., MTA) concerning proposed changes in trapping regulations; 2) to the maximum practical extent possible, attempt to maintain trapping opportunities when changing regulations to minimize the incidental take of lynx by trapping; and 3) continue information exchange and education efforts addressing the biology of lynx and other furbearing species, as well as methods for avoiding the incidental take of lynx. These measures are critical to maximizing the Department's long-term ability to effectively monitor and reduce the incidental take of lynx.

Trapper Education and Information Exchange

Trapper education in Minnesota is directed at both experienced and inexperienced trappers using various means. Before being issued a trapping license, all trappers born after 31 December 1989, that have not been issued a trapping license in a previous year, must complete a trapper education course and obtain a trapper education certificate (see a detailed description of course in **Section 3.1 Project Description**). Further, an annually updated edition of the Minnesota Hunting and Trapping Regulations Handbook is widely available statewide to all trappers and hunters. These handbooks provide diverse helpful information not just addressing trapping and hunting regulations and species-specific seasons, but include information on equipment, releasing accidentally captured (protected) species back into the wild, wildlife diseases, public lands and wildlife management areas, and a hotline for notifying the Department of illegal or potentially detrimental activities. Further, there is a prominent warning to trappers and hunters that the taking of a lynx should be avoided, and should it occur, is a violation of federal law. Additionally, the MNDNR has made available on its website (www.dnr.state.mn.us) a link to the booklet "How to Avoid Incident Take of Lynx, while Trapping and Hunting Bobcats and Other Furbearers" (USFWS and IAFWA 2003), the production of which MNDNR furbearer biologists cooperated. This important source of information is also available at MNDNR field offices within lynx range. A new regulation change made by the Department will *require* that a person report any incidental taking of a Canada lynx to the local MNDNR conservation officer (Appendix 7). The MNDNR will continue to update and provide information on how to avoid incidental take of lynx in Minnesota.

Further, in an effort to disseminate information about lynx to trappers, hunters, and other parties, the Department's website provides an updated distribution of lynx sightings in Minnesota, and shares concise general information on lynx identification, reproduction, food, and predators. There are also links providing access to more detailed information addressing diverse aspects of lynx ecology in Minnesota (e.g., NRRI Canada lynx research project), as well as phone numbers for reporting sightings or incidental capture of lynx.

Because some trappers may not be aware of, or agree with regulation changes that the MNDNR makes to minimize incidental take of lynx by trapping, the Department will continue to pursue opportunities to effectively share and discuss associated issues and new information with Minnesota trappers (e.g., MTA). As previously stated, the MNDNR believes that education and information exchange are essential to maintaining a high level of trust and reporting of incidental takes of lynx.

Hotline for Trapped Lynx

New regulation changes made by the Department will *require* that a person report any incidental taking of a Canada lynx to the local conservation officer (Appendix 7). The MNDNR publicizes (e.g., "Minnesota Hunting and Trapping Regulations Handbook") its hotline or "Tipline," which is available 24 hours per day, 7 days per week year-round. An incidental take of a lynx can be reported by calling this number, and the information is passed on to the appropriate MNDNR conservation officer to expeditiously address the situation. The NRRI lynx research project also provides 2 phone numbers (listed on its website) that the public also is encouraged to call to report an incidental capture or sighting of a lynx. When available, biologists from the Department or the research

project will respond to assist a trapper with the care and release of an incidentally captured lynx. Some of these lynx have been eartagged or radiocollared, and subsequently provided information useful to enhancing the Department's (and public's) understanding of lynx movements, survival, and other aspects of their ecology. When biologists or conservation officers are unavailable, the trapper may refer to the USFWS and IAFWA (2003) booklet for a description of appropriate techniques for safely releasing an incidentally captured lynx from a trap. The Department will maintain this hotline, and include it with lynx information in the Hunting and Trapping Regulations Handbook, so that more trappers are aware of it and use it with the effect of further minimizing injuries associated with incidental take by trapping.

Injured Lynx and Rehabilitation

When biologists or conservation officers have been involved in the handling and release of incidentally trapped lynx, the animals are routinely examined for injuries, which may range from no apparent injuries (or minor) to injuries serious enough to affect survival once released. For the 8 incidents when the lynx were released alive in Minnesota, authorities were present for 7 of the releases; in only 1 incident was only the trapper present. None of these animals experienced serious injuries or required rehabilitation. DNR anticipates hiring a Wildlife Veterinarian in 2008, and will include incidental trapping injury response and management duties in the position description. Incidentally trapped lynx that require care beyond that which a biologist or conservation officer can provide in the field, will be transported under the direction of the wildlife veterinarian to a facility that can provide specialized medical assessments, treatment and rehabilitation. If the MNDNR does not hire a wildlife veterinarian as anticipated, we will contract for

services with another agency or private entity to provide veterinary care, oversight, and rehabilitation of any incidentally trapped lynx that require medical care beyond that which a biologist or conservation officer can provide in the field.

Conferring with Other Jurisdictions

Periodic communication with other jurisdictions (e.g., provincial and state natural resource management agencies) to facilitate information exchange has the potential to be a very effective means of most efficiently advancing the MNDNR's efforts to minimize the incidental take of lynx (MDIFW 2007). Review of other agencies' (e.g., MDIFW) trapping programs and efforts (successful and unsuccessful) at limiting incidental take of lynx actually expands the capacity of our Department's adaptive management approach to minimizing incidental take. Personal contact between our furbearer biologists and those of other jurisdictions will be facilitated in part by professional annual meetings. The MDIFW (2007) listed several states and provinces and briefly described some of their efforts to minimize incidental take of lynx by trapping.

5.3 Monitoring and Reporting

The MNDNR will monitor and assess its progress in fulfilling the Section 10 Incidental Take Permit objectives annually. We will make these evaluations in consultation with the USFWS.

The Department will continue to monitor incidental take of lynx by trapping via voluntary reporting of trappers, information gathered from the agency's Tipline, law enforcement checks of trappers sets and pelts, and by thorough investigation of incidents when they occur or are suspected to have occurred. The Department also plans to conduct more frequent follow-up calls to the trappers that incidentally trap lynx and to

increase its diligence in collecting data and circumstances surrounding reported incidental takes of lynx by trapping. The more complete data and information associated with incidental takes that are gathered, the greater the opportunity for the agency and the trapping community to gain greater insight and knowledge on how to successfully avoid such take. Although the MNDNR expects its minimization measures to limit mortalities of lynx associated with incidental take by trapping to 0, it will report all incidents of accidental take of lynx and mortalities, should they occur, to the USFWS within 24 hours from the time the Department's Division of Fish and Wildlife learns about them. If the MNDNR is granted an Incidental Take Permit, it will file an annual report with the USFWS as required by guidelines of Section 10 of the Endangered Species Act.

6.0 Funding

6.1 Funding for Minimization Measures

The minimization measures to reduce incidental take of lynx, described in **Section 5**, will be jointly administered by MNDNR's Enforcement and Fish & Wildlife Divisions. These divisions are collectively supported by revenues from trapping, hunting and fishing licenses (Minnesota Game and Fish Fund), and general funds from the Minnesota Legislature. Funding (and resulting field Conservation Office positions) have increased in recent years for the Division of Enforcement, resulting in an increased Enforcement presence within Minnesota's lynx core area. Although funding in recent years has been relatively flat for the Division of Fish and Wildlife, and may actually slightly decrease in future years, this is the normal pattern observed in the Game and Fish Fund, which requires periodic license fee adjustments by the Legislature to remain solvent. Despite possible future decreases in the Game and Fish Fund, we expect MNDNR Division of

Fish and Wildlife funding to be more than sufficient to support the minimization measures described in Section 5. We have reallocated staff time within the Wildlife Section to prepare this document, and will continue to reallocate professional staff time as needed to implement this HCP. The Department will hire a wildlife veterinarian in 2008, in part to address the lynx injury and rehabilitation tasks included in Section 5. With this staff addition, we will have sufficient professional staff resources to fully implement all aspects of this HCP.

The MNDNR does not intend to prepare a budget specific to this HCP, because all of the HCP program needs are simply additional tasks to be incorporated into existing MNDNR programs and professional staff duties, by reallocation of program and position responsibilities and duties. However, should specific unanticipated funding needs arise as the program is implemented, the Department has more than sufficient funding available within the Divisions of Enforcement and Fish & Wildlife to meet those needs, and the authority to reallocate any additional required funds.

7.0 Alternatives

7.1 Discontinue Trapping Statewide

The alternative measure of discontinuing trapping statewide would result in no incidental take of Canada lynx by state licensed trappers. However, the USFWS (2000) has already concluded, and the MNDNR fully agrees, that both historically and more recently, incidental take by trapping has no impact on lynx in Minnesota at the population level or on this species' potential for long-term persistence within the state or within the distinct population segment of the contiguous U. S. Further, increased information (e.g., range, identification) about lynx has been made readily available (e.g., MNDNR and NRRI

Canada lynx research project websites) to trappers, hunters, and the general public, as have specific recommendations on how to avoid the incidental take of lynx by trapping (USFWS and IAFWA 2003). Associated with these combined efforts, incidental take, and most important, mortality associated with such take, have decreased to 0 during the past 2 years (2006 and 2007). Consequently, any benefit of this alternative would be relatively minor or negligible.

Additionally, there is no substitute for trapping as an effective mechanism for harvesting furbearers or that would provide a similar outdoor recreational experience. Open seasons for trapping furbearers in Minnesota were mandated by the state legislature as early as 1867, and have been continuously authorized since. Discontinuing trapping statewide would be contrary to legislative intent, likely require legislative action, and be contrary to the stated mission of the MNDNR and vision of its Division of Fish and Wildlife (MNDNR 2007, "Draft Strategic Plan"). The small number of lynx that were incidentally captured by trapping during 2001 to 2007, were caught primarily in traps set for fox and coyote, and less in those targeting fisher, marten, and bobcat (USFW 2007 *lynx incidental take database*). Lynx have not been incidentally trapped in sets targeting beaver, muskrat, mink, raccoons, otter, weasels, or a number of other species. Discontinuing legal trapping for species that have not been associated with the incidental take of lynx would not contribute to further minimizing of such take, and thus would not be reasonable.

Given the aforementioned considerations, the MNDNR does not consider this an acceptable alternative.

7.2 Discontinue Trapping Selectively

The alternative measure of discontinuing trapping selectively would focus on those species that were targeted by legal trapping activities when lynx were incidentally captured in areas where lynx occur (e.g., lynx core range). Again, these targeted species would include fox and coyote primarily, and to a lesser degree, fisher, marten, and bobcat. Lynx occur primarily in St. Louis, Cook, and Lake counties of northeastern Minnesota (Figure 2.1); however, expanding their range to encompass Carlton, Aitkin, and Koochiching counties as well would include areas of additional, but less frequent sightings. Discontinuing trapping for these species in these 6 counties would reduce the statewide harvest for these species as follows: fox (red and gray) – at least 15% (mean annual harvest rates by trapping is 7,165 [6,666 for red & 499 for gray]), coyote – 9% (mean annual harvest rate by trapping is 3,333), fisher – 45%, marten – 88%, and bobcat – 24% (Table 3.2; Dexter 2006; from statistics generated by J. Giudice from MNDNR's annual trapper survey, unpublished data [for fox and coyote]). The mean annual rate of incidental take of lynx by trapping during 2001 to 2007 was 1.9 lynx, and the mean annual mortality rate of lynx associated with incidental trapping was less than 1 lynx (0.7 lynx/year or 5 lynx over 7 years). The highest number of lynx killed by incidental trapping in any year was 2 (2004 and 2005), but no lynx were killed in 2001, 2002, 2006, or 2007. Because such a low annual incidental trapping rate of lynx, and even lower associated mortality rate, would not affect lynx at the population level (USFWS 2000), the Department does not believe it is reasonable to discontinue legal trapping of the aforementioned targeted species in primary or core lynx range. A more desirable alternative would be to increase the Department's efforts toward increasing awareness

among trappers of the presence of lynx and of practical methods to apply to avoid capturing them. Further, the MNDNR believes that promulgating regulations that decrease the probability of take and injury of lynx would be most effective. Given these considerations, the Department did not consider discontinuing trapping selectively a reasonable or acceptable option.

7.3 Existing Program Modifications

7.3.1 The alternative action considered was to eliminate snaring in areas where lynx occur.

Snaring was used in 7 of the 13 incidental takes by trapping during 2001 to 2007 in Minnesota and was associated with 4 of the 5 mortalities during this period.

In at least 4 of the 7 cases of incidental take of lynx by snaring, reported evidence indicated that either Minnesota trapping regulations were violated or recommendations in the USFWS and IAFWA (2003) booklet were not followed ("Defendant Intervenor's Consolidated Response...to Stay" 11 October 2007). This included a trapper not checking his trap as frequently as required by law, a snaring loop set higher above the ground or surface of the snow than required by law, a snaring loop smaller than recommended, and a snaring cable narrower than recommended (USFWS and IAWFWA 2003).

Foothold traps are used to trap fox and coyote; however, because sets for canids are dug and set into the ground and covered with a fine soil or other medium, they are not only far less effective or efficient than snares during cold temperatures or when snow accumulates, but they become non-functional. In Minnesota winter conditions predominate during most of the trapping season (20 October–15 March) for fox and

when pelt conditions are prime for both fox and coyotes (MNDNR 2007). Prohibiting snaring would largely eliminate fox and coyote trapping in this primary lynx range, which may have consequences for lynx should coyote numbers increase, as they can be a serious competitor of lynx (Keith et al. 1977, O'Donoghue et al. 1998). Prohibiting snaring could also have an effect on trapping of other competitors, like bobcat, which may become important if bobcat range increases (J. Erb, MNDNR, personal communication).

By promulgating regulation changes associated with snaring (e.g., increasing thickness of snaring cable, increase size of snaring loop) and increasing the awareness of trappers for lynx and methods of avoiding incidental trapping of this species, the MNDNR believes that the opportunity for trapping fox, coyotes, and other species by snaring can be maintained, while minimizing the overall incidental take of lynx and eliminating mortality associated with the very rare take. Further, trapping regulations require that snares must be tended at least once each calendar day, thus minimizing the risk of a serious injury of lynx.

Given these considerations, the Department did not consider eliminating snaring as an acceptable or reasonable alternative.

7.3.2 The alternative action considered was to eliminate #120 and #220 body-gripping traps, or eliminate all body-gripping trapping in areas where lynx occur.

Only 2 lynx were incidentally trapped by body-gripping sets (#s120 and 220) targeting marten and fisher) in Minnesota during 2001 to 2007, and neither resulted in serious injury or death. Additionally, in both cases, the trapper was not following

recommendations of the USFWS and IAFWA (2003) on how to avoid incidentally taking lynx when using body-gripping traps. Importantly, as part of its measures to minimize the incidental take of lynx by body-gripping traps, the Department will adopt rule changes formulating regulations from the recommendations of the USFWS and IAFWA (2003) associated with body-gripping traps (see Appendix 7). Body-gripping sets are the most commonly used trap for fisher and marten in Minnesota (J. Erb, MNDNR, personal communication). The Fur Institute of Canada certified #s120 and 220, as well as the #s126, 160, and magnum series of these body-gripping traps as fulfilling International Humane Trapping Standards (AIHTS; see <http://www.fur.ca/index-e/index.asp>; MDIFW 2007). Certification was the result of rigorous testing by the Fur Institute of Canada "in response to a 1997 agreement between Canada, Russia, and the European Union to set trap performance requirements for 19 wild species" (MDIFW 2007). Through this testing, the Institute "...determined that specific body-gripping traps humanely dispatched fisher and marten" (MDIFW 2007).

Footholds (most often #1.5) also can be used to trap marten and fisher; however, they are less functional under snow and freezing rain conditions. Additional disadvantages of foothold traps include: 1) foothold traps, whether used on elevated running poles or on the ground, are less humane than body-gripping traps (i.e., which humanely kill target species such as fisher, marten, and bobcat). Should a lynx be incidentally caught in such a set, frozen digits and hypothermia are additional risks. 2) They must be tended or checked at least once each calendar day, whereas body-gripping traps must be tended at least once each third calendar day. For trappers restricted to using foothold traps in remote areas of Minnesota (i.e., where lynx might range), it would

impose a logistic and economic disincentive for trapping fisher and marten (MDIFW 2007). 3) As explained by MDIFW (2007), forcing trappers to switch from body-gripping to foothold traps would impose an unnecessary financial penalty on trappers. 4) Finally, the Department believes that imposing such equipment limitations on trappers would not only be very unpopular, but it would prompt trappers to question the Department's commitment to promote humane trapping standards (MDIFW 2007). Consequently, it would degrade, rather than reinforce, the cooperative relationship between the trapping community and the MNDNR that, as explained previously, is critical to maintaining or improving future monitoring and assessment efforts focused on the incidental take of lynx by trapping. The importance of this cannot be overstated.

Given the above considerations, the MNDNR did not consider eliminating body-gripping traps as an acceptable or reasonable alternative.

7.3.3 The alternative action considered was to propose rule or laws to require more frequent tending of body-gripping traps.

In Minnesota, all restraining traps (e.g., foothold, snares) not capable of drowning, must be tended each calendar day to minimize the potential for stress and injury to captured animals. Body-gripping traps, designed to humanely kill target animals instantly, must be tended at least once each third calendar day. The focus of this alternative measure is to increase the frequency with which trappers must tend their body-gripping sets with the intent of maximizing the probability of survival and minimizing the risk of debilitating injury to a lynx incidentally captured (most likely by the forelimb). During 2001 to 2007, only 2 lynx in Minnesota were incidentally captured by a body-gripping trap; both were released alive without having incurred a serious injury. The 3-day tending time for traps

capable of killing target animals immediately, was instituted into Minnesota's trapping regulations in 1995 for the purpose of affording trappers logistical flexibility.

The MNDNR addresses the concern of minimizing the risk of serious injury and maximizing the probability of survival by proposing promulgation of regulation changes that will reduce the likelihood of incidental capture. These include requiring elevated sets as previously described and recommended by the USFWS and IAFWA (2003) booklet on "How to Avoid Incidental Capture of Lynx While Trapping ...," or if set on the ground, with traps recessed at least 7" (18 cm) into cubbies. Placement of the trap as described is considered very effective at discouraging investigation and capture of the lynx in a body-gripping trap. In the 2 incidents of accidental capture involving body-gripping trap the recommendations of the USFWS and IAFWA (2003) were not followed.

The benefit derived from shortening the body-gripping trap tending time would depend on a number of factors, including weather conditions, how the animal was caught in the trap, and its condition before being captured. In cold winter weather, constricted blood circulation could lead to frostbite in less than 24 hours for animals captured by the foot (MDIFW 2007). Certainly, under cold conditions, the probability of frostbite and hypothermia will increase with the length of time the lynx is restricted by the trap. However, due to the variability of influential conditions, it is uncertain as to whether shortening the tending time would diminish the likelihood of serious injury or death. Neither of the 2 animals captured by the foot in body-gripping traps showed signs of serious injury. In Minnesota, tending time is already at least once each third calendar

day, whereas, in Maine, "most lynx occur in unorganized towns," where the tending time is 5 days.

In Minnesota, the probability of incidental take of lynx by body-gripping trap when targeting fisher or marten is very small. In core lynx range (i.e., Lake, Cook, and St. Louis counties), during 2001 to 2007, an annual mean of 6,945 and 8,353 trap-days for fisher and marten, respectively, was estimated; certainly, body-gripping traps were used for most of these trap-nights. There likely was some overlap in these numbers for the 2 species. Nonetheless, during this 7-year period, only 2 lynx were accidentally caught during an estimated total of 48,612 and 58,472 trap-days spent by trappers pursuing fisher and marten, respectively. Thus, the range of the rate at which lynx were being incidentally caught in body-gripping traps was 1 lynx per 26,236 trap-days (assuming complete overlap between fisher and marten trap-nights) to 1 per 53,542 trap-days (assuming no overlap between fisher and marten trap-days), with no serious injuries and no mortalities. With the promulgation of regulation changes so that elevated sets are required or body-gripping traps are recessed 7" (18 cm) into cubbies if set on the ground, we expect the already very low incidental trapping rate by body-gripping traps will be reduced further.

Given these considerations, the MNDNR did not consider the shortening of tending time to be an acceptable or reasonable alternative.

8.0 Plan Implementation / Changed and Unforeseen Circumstances

8.1 Plan Implementation

Public Participation

In due course, we expect the USFWS will facilitate the required public review/comment period of 30 days for the MNDNR's HCP and ITP application. Based on the comments expressed, the MNDNR and USFWS jointly will consider changes to the Department's HCP or ITP proposal.

Plan Implementation

Lynx research and conservation, including efforts focused on minimizing the incidental take of this species, have been part of the MNDNR's program for many years. A significant part of the Department's proposed HCP will be to increase and expand its informational and educational efforts on avoiding incidental taking of lynx by trapping, hunting, and other human-related causes. Regulatory changes proposed to further minimize the incidental take of lynx should be effective prior to the 2008 trapping season.

8.2 Changed Circumstances

The Department does not foresee any circumstance, including natural disasters, which will influence implementation of this plan.

8.3. Unforeseen Circumstances

As expressed in the Section 10 amendments to the U. S. Endangered Species Act, because relevant circumstances and information may change with time, applicants for long-term ITPs must include a procedure whereby original Incidental Take Plans (i.e., HCPs) will be revised to specifically address "unforeseen circumstances." Examples of

such circumstances may include situations where the permittee seeks modification(s) of the original plan (e.g., change of trapping regulations), apparent deficiency in the original plan becomes apparent, biologically significant changes, or federal listing of new species within the original Plan Area.

The Department is confident that the adaptive management strategy (outlined in **Section 5.12**) will be effective for addressing unforeseen circumstances related to the biology of lynx (e.g., poor condition of incidentally taken lynx) or to changes in the risk posed by incidental trapping (e.g., spatial/temporal concentration of incidental takes or particular trap type). The monitoring, investigation, evaluation and review aspects of the Department's adaptive management strategy should be key to ongoing assessments of the circumstances surrounding incidental takes and the effectiveness of measures implemented to limit them to the proposed minimum. Further, the MNDNR's furbearer management and research programs should support the Department's efforts to limit incidental take of lynx by legal trapping of other species. Specifically, the trapper survey statistics and other supplemental information generated from the furbearer management program include documenting annual species-specific harvests by county, spatial distribution and intensity of trapping effort by species, and field survey-generated population trends across northern Minnesota. Collectively, these efforts should enable the Department and the USFWS to detect significant changes that might influence the Department's HCP. Should it be determined that modifications of Minnesota's trapping program are required to further limit incidental take under changing circumstances, the Department possesses flexibility in rule changing to influence trapping methods, season length, and emergency closures. Further, a number of options are available to the

Department for expeditiously disseminating educational and other important information to trappers (e.g., website, press releases, pamphlets).

The Department and USFWS's annual joint review of the ongoing relevancy of the MNDNR's HCP and the effectiveness of its implementation would be an appropriate forum for discussion of a variety of unforeseen circumstances, problems, and potential solutions. Should any action by the Department inadvertently violate its implementation agreement with the USFWS, the Department will attempt to resolve the violation via an acceptable agreement with the USFWS and avoid suspension or revocation of the ITP.

Should a new species be listed as federally threatened or endangered, the Department, in consultation with the USFWS, would review whether trapping posed any potential threat to that species. If we concluded that incidental trapping did pose a significant risk to this species, the Department would consider and take immediate steps to minimize incidental take (e.g., increasing trapper awareness, specific regulatory measures).

Other Measures as Required by Director

If the Director requires additional measures, MNDNR will respond as appropriate.

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**Appendix 1. The Humane Society of the United States and
Help Our Wolves Live *versus* the Minnesota Department of
Natural Resources**

Joint Stipulation and Order of Dismissal

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA**

The Humane Society of the United States
and Help Our Wolves Live,

Plaintiffs,

vs.

Gene Merriam, as Commissioner of the
Minnesota Department of Natural Resources,
and Dave Schad, as Director of the Division
of Fish and Wildlife of the Minnesota
Department of Natural Resources,

Defendants,

Minnesota Trappers Association,
U.S. Sportsmen's Alliance Foundation,
Fur Takers of America, National Trappers
Association, Todd Roggenkamp, and
Cory Van Driel,

Intervenor-
Defendants.

**JOINT STIPULATION
AND
ORDER OF DISMISSAL**

Civ. No. 06-2922 (PJS/RLE)

Plaintiffs initiated this action on July 5, 2006, seeking declaratory and injunctive relief against state officials of the Minnesota Department of Natural Resources (collectively "Defendants") and alleging ongoing violations of the Endangered Species Act ("ESA"), 16 U.S.C. § 1531 *et seq.*, arising from Defendants' authorization of trapping and snaring activities that Plaintiffs allege have caused the illegal take of the

Canada lynx, which is listed under the ESA as a threatened species. On July 25, 2006, Defendants filed their Answer, denying that their actions have caused the illegal take of Canada lynx or that they have violated the ESA. Without making any concession as to the correctness of the legal positions taken by the Plaintiffs or Defendants (collective "Parties"), and in consideration of the terms outlined below, the Parties believe that it is in their mutual interests to enter into this Stipulation and Order of Dismissal.

Accordingly, it is hereby agreed that:

1. Defendants shall file an incidental take permit ("permit") application with the U.S. Fish and Wildlife Service ("Service"), pursuant to section 10 of the ESA, 16 U.S.C. § 1539, concerning Defendants' trapping program as it relates to the take of lynx;
2. Defendants shall request that the Service complete the application process and issue a final permit decision as soon as possible;
3. On the same date that Defendants submit their completed permit application package to the Service, Defendants shall also send, by overnight mail, courtesy copies of the permit application form, the proposed habitat conservation plan, the draft National Environmental Policy Act analysis, the Implementing Agreement, and any other supporting materials to Plaintiffs;
4. Plaintiffs' claims shall be dismissed without prejudice upon the Court's acceptance and entry of this Stipulation and Order of Dismissal;
5. The Parties agree to settle all of Plaintiffs' claims for costs and attorneys' fees in the above-captioned litigation, through and including this Stipulation, for a total of twenty-five thousand dollars (\$25,000). Defendant Minnesota Department of Natural

Resources will provide a check made payable in that amount to The Humane Society of the United States, 2100 L Street, NW, Washington, DC 20037. Plaintiffs agree to accept payment of the above-described sum in full satisfaction of any and all claims for attorneys' fees and costs of litigation to which Plaintiffs are entitled in the above-captioned litigation, through and including the date of this Stipulation. Plaintiffs' claims for attorneys' fees and costs in this matter up to and including the date of this Stipulation;

6. The Parties agree that Plaintiff The Humane Society of the United States shall contribute a grant in the amount of twelve thousand five hundred dollars (\$12,500) to the Minnesota Nongame Wildlife fund as described in Minnesota Statutes section 290.431 (2004) to be used for Canada lynx conservation efforts undertaken or otherwise supported by Minnesota Department of Natural Resources, including programs for habitat improvement, acquisition, and management;

7. Nothing in this Stipulation and Order of Dismissal shall be construed to be an admission or concession of liability on the part of either of the Parties; and

8. The Parties have caused this Stipulation and Order of Dismissal to be executed by their duly authorized representatives on this 12th day of January, 2007.

DATED: January 12, 2007

Respectfully submitted,

s/Rebecca G. Judd

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**Admitted Pro Hac Vice*

**Appendix 2. Current List of Mammals, Amphibians &
Reptiles, and Bird Species Listed by the State of Minnesota
as Endangered, Threatened, or as a Species of Concern
(MNDNR 2008)**

Endangered

Mammals:

Amphibians & Reptiles:

Acris crepitans – Green northern cricket frog

Sistrurus catenatus (Rafinesque) – massasauga

Birds:

Ammodramus bairdii (Audubon) – Baird's sparrow

Ammodramus henslowii (Audubon) – Henslow's sparrow

Anthus spragueii (Audubon) – Sprague's pipit

Calcarius ornatus (Townsend) – chestnut-collared longspur

Charadrius melodus Ord. – piping plover (T)

Rallus elegans (Audubon) -- king rail

Speotyto cunicularia (Molina) – burrowing owl

Threatened

Mammals:

Spilogale putorius (Linnaeus) – eastern spotted skunk

Amphibians & Reptiles:

Clemmys insculpta (LeConte) – wood turtle

Crotalus horridus Linnaeus – timber rattlesnake

Emydoidea blandingii (Holbrook) – Blanding's turtle

Birds:

Cygnus buccinator Richardson – trumpeter swan

Falco peregrinus Tunstall – peregrine falcon

Lanius ludobivianus Linnaeus – loggerhead shrike

Phalaropus tricolor (Vieillot) – Wilson's phalarope

Podiceps auritus (Linnaeus) – horned grebe

Sterna hirundo Linnaeus – common tern

Species of Concern

Mammals:

Canis lupus (Linnaeus) – gray wolf

Cervus elaphus Linnaeus – elk

Cryptotis parva (Say) – least shrew

Species of Concern (continued)

Felis concolor Linnaeus – mountain lion

Microtus ochrogaster (Wagner) – prairie vole

Microtus pinetorum (Le Conte) – woodland vole

Mustela nivalis Linnaeus – least weasel

Myotis septentrionalis (Merriam) – northern myotis

Perognathus flavescens Merriam – plains pocket mouse

Phenacomys intermedius Merriam – heather vole

Pipistrellus subflavus (F. Cuvier) – eastern pipistrelle

Sorex fumeus G.M. Miller – smokey shrew

Synaptomy borealis (Richardson) – northern bog lemming

Thomomys talpoides (Richardson) – northern pocket gopher

Amphibians & Reptiles:

Apalone mutica (LeSueur) – smooth softshell

Chelydra serpentina (Linnaeus) – snapping turtle

Coluber constrictor Linnaeus – racer

Elaphe obsoleta (Say) – rat snake

Eumeces fasciatus (Linnaeus) – five-lined skink

Hemidactylium scutatum (Temminck & Schlegel) – four toed salamander

Heterodon nasicus (Baird & Girard) – western hognose snake

Pituophis catenifer (Blainville) – gopher snake

Tropidoclonion lineatum (Hallowell) – lined snake

Species of Concern (continued)

Birds:

Ammodramus nelsoni Allen Nelson's – sharp-tailed sparrow

Asio flammeus (Pontoppidan) – short-eared owl

Buteo lineatus (Gmelin) – red-shouldered hawk

Coturnicops noveboracensis (Gmelin) – yellow rail

Dendroica cerulea (Wilson) – cerulean warbler

Empidonax virescens (Vieillot) – Acadian flycatcher

Gallinula chloropus (Linnaeus) – common moorhen

Haliaeetus leucocephalus (Linnaeus) – bald eagle

Larus pipixcan (Wagler) – Franklin's gull

Limosa fedoa (Linnaeus) – marbled godwit

Pelecanus erythrorhynchos Gmelin – American white pelican

Seiurus motacilla (Vieillot) – Louisiana waterthrush

Sterna forsteri Nuttall – Forster's tern

Tympanuchus cupido (Linnaeus) – greater prairie-chicken

Wilsonia citrina (Boddaert) – hooded warbler

Appendix 3. Minnesota Game and Fish Laws Chapters 97A and 97B

Minnesota Statutes 2006

Chapter 97A. Game And Fish

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97A.0454

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97A.0455

Submission of proposed emergency rule to attorney general.

97A.0456

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97A.0457

Publication of approval.

97A.0458

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97A.157

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97A.510
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Sale of inedible portions of big game animals, fur-bearing animals,
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97A.515
Pelts, skins, and hides taken on indian reservations.

97A.521
Transportation of wild animals; generally.

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Shipment of wild animals taken in Canada.

97A.535
Possession and transportation of deer, bear, elk, and moose.

97A.541
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Transportation of game birds.

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97A.552
Fishing regulations; executive order.

Cited and relevant statutes:

97A.011 CITATION.

This chapter and chapters 97B and 97C may be cited as the "game and fish laws."

97A.015 DEFINITIONS.

Subdivision 1. Applicability. The terms defined in this section apply to this chapter and chapters 97B and 97C.

Subd. 2. Angling. "Angling" means taking fish with a hook and line. An "angler" is a person who takes fish by angling.

Subd. 3. Big game. "Big game" means deer, moose, elk, bear, antelope, and caribou.

Subd. 3a. Bonus permit. "Bonus permit" means a license to take and tag deer by archery or firearms, in addition to deer authorized to be taken under regular firearms or archery licenses.

Subd. 4. Buy. "Buy" includes barter, exchange for consideration, offer to buy, or attempt to buy.

Subd. 5. Camp. "Camp" means the temporary abode of a person fishing, hunting, trapping, vacationing, or touring, while on a trip or tour including resorts, tourist camps, and other establishments providing temporary lodging.

Subd. 6. Chub. "Chub" means shortnose cisco, shortjaw cisco, longjaw cisco, loater, kiyi, blackfin cisco, and deepwater cisco.

Subd. 7. Cisco. "Cisco" means *Coregonus artedii* and includes lake herring and tullibee.

Subd. 8. Closed season. "Closed season" means the period when a specified protected wild animal may not be taken.

Subd. 9. Commercial fishing. "Commercial fishing" means taking fish, except minnows, for sale.

Subd. 10. Commissioner. "Commissioner" means the commissioner of natural resources.

Subd. 11. Condemnation. "Condemnation" means the exercise of the power of eminent domain in the manner provided under chapter 117.

Subd. 12. Contraband. "Contraband" means: (1) a wild animal taken, bought, sold, transported, or possessed in violation of the game and fish laws, and all instrumentalities and devices used in taking wild animals in violation of the game and fish laws that are subject to confiscation; and (2) wild rice and other aquatic vegetation harvested, bought, sold, transported, or possessed in violation of chapter 84.

Subd. 13. Conviction. "Conviction" means: (1) a final conviction after a trial or a plea of guilty; (2) a forfeiture of cash or collateral deposited to guarantee an appearance of a defendant in court, if the forfeiture has not been vacated or the court has not reinstated the trial within 15 days after the forfeiture; or (3) a breach of a condition of release without bail.

Subd. 14. Dark house. "Dark house" means a structure set on the ice of state waters that is darkened to view fish in the water beneath the structure.

Subd. 14a. Deer. "Deer" means white-tailed or mule deer.

Subd. 15. Designated trout lake; designated trout stream. "Designated trout lake" or "designated trout stream" means a lake or stream designated by the commissioner as a trout lake or a trout stream under section 97C.005.

Subd. 16. Director. "Director" means the director of any or all of the Divisions of Enforcement, Fisheries, Wildlife, and Ecological Services unless a specific division is identified.

Subd. 17. Division. "Division" means any or all of the Divisions of Enforcement, Fisheries, Wildlife, and Ecological Services unless a specific division is identified.

Subd. 18. Enforcement officer. "Enforcement officer" means the commissioner, the director of the Enforcement Division, or a conservation officer.

Subd. 19. Firearm. "Firearm" means a gun that discharges shot or a projectile by means of an explosive, a gas, or compressed air.

Subd. 20. Firearms safety certificate. "Firearms safety certificate" means the certificate issued under section 97B.015 or an equivalent certificate issued by another state or other evidence that meets with the requirements of section 97B.020.

Subd. 21. Fish house. "Fish house" means a structure set on the ice of state waters to provide shelter while taking fish by angling.

Subd. 22. Fur-bearing animals. "Fur-bearing animals" means mammals that are protected wild animals, except big game.

Subd. 23. Game. "Game" means big game and small game.

Subd. 24. Game birds. "Game birds" means migratory waterfowl, pheasant, ruffed grouse, sharp-tailed grouse, Canada spruce grouse, prairie chickens, gray partridge, bob-white quail, turkeys, coots, gallinules, sora and Virginia rails, mourning dove, American woodcock, and common snipe.

Subd. 25. Game fish. "Game fish" means walleye, sauger, yellow perch, channel catfish, flathead catfish; members of the pike family, Esocidae, including

muskelunge and northern pike; members of the sunfish family, Centrarchidae, including largemouth bass, smallmouth bass, sunfish, rock bass, white crappie, black crappie, members of the temperate bass family, Percichthyidae, including white bass and yellow bass; members of the salmon and trout subfamily, Salmoninae, including Atlantic salmon, chinook salmon, coho salmon, pink salmon, kokanee salmon, lake trout, brook trout, brown trout, rainbow (steelhead) trout, and splake; members of the paddlefish family, Polyodontidae; members of the sturgeon family, Acipenseridae, including lake sturgeon, and shovelnose sturgeon. "Game fish" includes hybrids of game fish.

Subd. 25a. Guardian. "Guardian" means a legal guardian of a person under age 16, or a person 18 or older who has been authorized by the parent or legal guardian to supervise the person under age 16.

Subd. 26. Hunting. "Hunting" means taking birds or mammals.

Subd. 26a. In-the-round. "In-the-round" means fish with heads, tails, fins, skins, and scales intact.

Subd. 26b. Intensive deer area. "Intensive deer area" means an area of the state where taking a deer of either sex is allowed and where multiple bonus permits are authorized.

Subd. 27. License. "License" means a license or stamp issued under the game and fish laws.

Subd. 27a. License identification number. "License identification number" means a verification number issued under the authority of the commissioner in conjunction with the electronic purchase of a license or stamp and valid until the license is received by the purchaser.

Subd. 27b. Lottery deer area. "Lottery deer area" means an area of the state where taking antlerless deer is allowed only by either-sex permit and where no bonus permits are authorized.

Subd. 27c. Managed deer area. "Managed deer area" means an area of the state where taking a deer of either sex is allowed and where one bonus permit is authorized.

Subd. 28. Migratory waterfowl. "Migratory waterfowl" means brant, ducks, geese, tundra swans, trumpeter swans, and whooper swans.

Subd. 29. Minnows. "Minnows" means: (1) members of the minnow family, Cyprinidae, except carp and goldfish; (2) members of the mudminnow family, Umbidae; (3) members of the sucker family, Catostomidae, not over 12 inches in length; (4) bullheads, ciscoes, lake whitefish, goldeyes, and mooneyes, not over seven inches long; (5) leeches; and (6) tadpole madtoms (willow cats) and stonecats.

Subd. 30. Minnow dealer. "Minnow dealer" means a person taking minnows for sale, buying minnows for resale, selling minnows at wholesale, or transporting minnows for sale.

Subd. 31. Minnow retailer. "Minnow retailer" means a person selling minnows at retail from an established place of business.

Subd. 32. Motor vehicle. "Motor vehicle" means a self-propelled vehicle or a vehicle propelled or drawn by a self-propelled vehicle that is operated on a highway, on a railroad track, on the ground, in the water, or in the air.

Subd. 32a. Muzzle-loader season. "Muzzle-loader season" means the firearms deer season option open only for legal muzzle-loading firearms, as prescribed by the commissioner.

Subd. 33. Nonresident. "Nonresident" means a person who is not a resident.

Subd. 34. Open season. "Open season" means the period when a specified protected wild animal may be taken.

Subd. 35. Person. "Person" means an individual only if used in reference to issuing licenses to take wild animals, but otherwise means an individual, firm, partnership, joint stock company, association, or public or private corporation.

Subd. 36. Possession. "Possession" means both actual and constructive possession and control of the things referred to.

Subd. 37. Predator. "Predator" means a gray wolf, coyote, fox, lynx, or bobcat.

Subd. 37a. Processing. "Processing" means rendering a species of aquatic life for food, bait, or other purposes so that it is no longer alive.

Subd. 38. Protected birds. "Protected birds" means all birds except unprotected birds.

Subd. 39. Protected wild animals. "Protected wild animals" are the following wild animals: big game, small game, game fish, rough fish, minnows, leeches, alewives, ciscoes, chubs, and lake whitefish, and the subfamily Coregoninae, rainbow smelt, frogs, turtles, clams, mussels, gray wolf, mourning doves, and wild animals that are protected by a restriction in the time or manner of taking, other than a restriction in the use of artificial lights, poison, or motor vehicles.

Subd. 40. Public access. "Public access" means an access that is publicly owned and accessible to the public without charge.

Subd. 41. Public waters. "Public waters" means waters defined in section 103G.005, subdivision 15.

Subd. 41a. Regular firearms season. "Regular firearms season" means any of the firearms deer season options prescribed by the commissioner that begin in November, exclusive of the muzzle-loader season.

Subd. 42. Resident. "Resident" means: (1) an individual who is a citizen of the United States or a resident alien, and has maintained a legal residence in the state at least the immediately preceding 60 days; (2) a nonresident under the age of 21 who is the child of a resident; (3) a domestic corporation; or (4) a foreign corporation authorized to do business in the state that has conducted a licensed business at a location within the state for at least ten years.

Subd. 42a. Restitution value of the wild animals. "Restitution value of the wild animals" means the total value of the wild animals taken in a violation based on: (1) the values established under section 97A.345; or (2) the values determined by the court under section 97A.341, subdivision 4, if the values are not established under section 97A.345.

Subd. 43. Rough fish. "Rough fish" means carp, buffalo, sucker, sheepshead, bowfin, burbot, cisco, gar, goldeye, and bullhead.

Subd. 44. Sale. "Sale" means an exchange for consideration, and includes barter, offer to sell, and possession with intent to sell.

Subd. 45. Small game. "Small game" means game birds, gray squirrel, fox squirrel, cottontail rabbit, snowshoe hare, jack rabbit, raccoon, lynx, bobcat, red fox

and gray fox, fisher, pine marten, opossum, badger, cougar, wolverine, muskrat, mink, otter, and beaver.

Subd. 46. Sunfish. "Sunfish" means bluegill, pumpkinseed, green sunfish, orange spotted sunfish, longear sunfish, and warmouth. "Sunfish" includes hybrids of sunfish.

Subd. 47. Taking. "Taking" means pursuing, shooting, killing, capturing, trapping, snaring, angling, spearing, or netting wild animals, or placing, setting, drawing, or using a net, trap, or other device to take wild animals. Taking includes attempting to take wild animals; and assisting another person in taking wild animals.

Subd. 48. Transport, transportation. "Transport, transportation" means causing or attempting to cause wild animals to be carried or moved by a device and includes accepting or receiving wild animals for transportation or shipment.

Subd. 49. Undressed bird. "Undressed bird" means: (1) a bird, excluding migratory waterfowl, pheasant, Hungarian partridge, turkey, or grouse, with feet and feathered head intact; (2) a migratory waterfowl, excluding geese, with a fully feathered wing and head attached; (3) a pheasant, Hungarian partridge, turkey, or grouse with one leg and foot or the fully feathered head or wing intact; or (4) a goose with a fully feathered wing attached.

Subd. 50. Undressed fish. "Undressed fish" means fish with heads, tails, fins and skins intact, whether entrails, gills, or scales are removed or not.

Subd. 51. Unloaded. "Unloaded" means, with reference to a firearm, without ammunition in the barrels and magazine, if the magazine is in the firearm. A muzzle loading firearm with a flintlock ignition is unloaded if it does not have priming powder in a pan. A muzzle loading firearm with percussion ignition is unloaded if it does not have a percussion cap on a nipple.

Subd. 52. Unprotected birds. "Unprotected birds" means English sparrow, blackbird, starling, magpie, cormorant, common pigeon, chukar partridge, quail other than bob-white quail, and mute swan.

Subd. 53. Unprotected wild animals. "Unprotected wild animals" means wild animals that are not protected wild animals including weasel, coyote (brush wolf), gopher, porcupine, striped skunk, and unprotected birds.

Subd. 54. Waters of this state; state waters. "Waters of this state" and "state waters" include all boundary and inland waters.

Subd. 55. Wild animals. "Wild animals" means all living creatures, not human, wild by nature, endowed with sensation and power of voluntary motion, and includes mammals, birds, fish, amphibians, reptiles, crustaceans, and mollusks.

97A.021 CONSTRUCTION.

Subdivision 1. Code of Criminal Procedure. A provision of the game and fish laws that is inconsistent with the Code of Criminal Procedure or of penal law is only effective under the game and fish laws.

Subd. 2. Authority of commissioner. A provision of the game and fish laws is subject to, and does not change or modify the authority of the commissioner to delegate powers, duties, and functions under section 84.083.

Subd. 3. Parts of wild animals. A provision relating to a wild animal applies in the same manner to a part of the wild animal.

Subd. 4. Dates and open seasons. The dates specified in the game and fish laws and time periods prescribed for certain activities or as open season are inclusive, unless otherwise specified.

97A.025 OWNERSHIP OF WILD ANIMALS.

The ownership of wild animals of the state is in the state, in its sovereign capacity for the benefit of all the people of the state. A person may not acquire a property right in wild animals, or destroy them, unless authorized under the game and fish laws, sections 84.091 to 84.15, or sections 17.47 to 17.498.

97A.037 HUNTER, TRAPPER, AND ANGLER HARASSMENT PROHIBITED.

Subdivision 1. Interference with taking wild animals prohibited. A person who has the intent to prevent or disrupt another person from taking or preparing to take a wild animal or enjoyment of the out-of-doors must not disturb or interfere with that person if that person is lawfully taking or preparing to take a wild animal.

"Preparing to take a wild animal" includes travel, camping, and other acts that occur on land or water where the affected person has the right or privilege to take lawfully a wild animal.

Subd. 2. Disturbing wild animals prohibited. A person who has the intent to prevent or disrupt a person from lawfully taking the animals may not disturb or engage in an activity that will tend to disturb wild animals.

Subd. 3. Persons intending to harass hunters, trappers, and anglers may not remain on land. A person who has intent to violate subdivision 1 or 2 may not enter or remain on public lands, or on private lands without permission of the owner.

Subd. 4. Peace officer order; penalty. A person must obey the order of a peace officer to stop the harassing conduct that violates this section if the officer observes the conduct. For purposes of this subdivision, "harassing conduct" does not include a landowner's or lessee's action to enforce the Trespass Law. Violation of this subdivision is a misdemeanor.

97A.045 COMMISSIONER, GENERAL POWERS AND DUTIES.

Subdivision 1. Duties; generally. The commissioner shall do all things the commissioner determines are necessary to preserve, protect, and propagate desirable species of wild animals. The commissioner shall make special provisions for the management of fish and wildlife to ensure recreational opportunities for anglers and hunters. The commissioner shall acquire wild animals for breeding or stocking and may dispose of or destroy undesirable or predatory wild animals and their dens, nests, houses, or dams.

Subd. 2. Power to protect wild animals. (a) The commissioner may protect a species of wild animal in addition to the protection provided by the game and fish laws, by further limiting or closing seasons or areas of the state, or by reducing limits in areas of the state, if the commissioner determines the action is necessary to prevent unnecessary depletion or extinction, or to promote the propagation and reproduction of the animal.

- (b) The commissioner may protect a species of wild animal in the state by emergency rule adopted under section 84.027, subdivision 13, by prohibiting or allowing taking of the animal whether or not the animal is protected under the game and fish laws. The commissioner must make findings of the necessity of a rule authorized under this paragraph and may authorize taking by special permit with or without fee under conditions prescribed in the rule by the commissioner. (c) The commissioner may protect a species of wild animal in the state by emergency rule adopted under section 84.027, subdivision 13, by allowing importation, transportation, or possession of the wild animal or prohibiting these activities except by special permit with or without fee under conditions prescribed in the rule by the commissioner.

Subd. 3. Power to modify dates of seasons. If the statutory opening date of a season for taking protected wild animals, except a season prescribed under federal regulations, is not on a Saturday, the commissioner may designate the nearest Saturday to the statutory date as the opening day of the season. If the statutory closing date falls on a Saturday, the commissioner may extend it through the following day.

Subd. 4. Boundary waters. The commissioner may regulate the taking, possession, and transportation of wild animals from state and international boundary waters. The rules may include: (1) special seasons for taking fish; and (2) restrictions on the limits of fish that may be taken, possessed, or transported from international boundary waters by a person possessing both a Minnesota angling license and an angling license from an adjacent Canadian province.

Subd. 5. Power to prescribe the form of permits and licenses. The commissioner may prescribe the form of permits, licenses, and tags issued under the game and fish laws.

Subd. 6. Duty to disseminate information. The commissioner shall collect, compile, publish, and disseminate statistics, bulletins, and information related to conservation.

Subd. 7. Duty to encourage stamp design and purchases. (a) The commissioner shall encourage the purchase of:

- (1) Minnesota migratory waterfowl stamps by nonhunters interested in migratory waterfowl preservation and habitat development;
 - (2) pheasant stamps by persons interested in pheasant habitat improvement;
 - (3) trout and salmon stamps by persons interested in trout and salmon stream and lake improvement; and
 - (4) turkey stamps by persons interested in wild turkey management and habitat improvement.
- (b) The commissioner shall make rules governing contests for selecting a design for each stamp, including those stamps not required to be in possession while taking game or fish.

Subd. 8. Hunting and fishing license reciprocity with Wisconsin. The commissioner may enter into an agreement with game and fish licensing authorities in the state of Wisconsin under which Wisconsin residents owning real property in Minnesota are allowed to purchase annual nonresident game and fish licenses at fees required of Minnesota residents, provided Minnesota residents owning real

property in Wisconsin are allowed to purchase identical nonresident licenses in Wisconsin upon payment of the Wisconsin resident license fee. The commissioners of natural resources in Minnesota and Wisconsin must agree on joint standards for defining real property ownership. The commissioner shall present the joint standards to the senate and house committees having jurisdiction over environment and natural resources matters.

Subd. 9. Notice of rulemaking. In addition to notice requirements under chapter 14, the commissioner shall attempt to notify persons or groups of persons affected by rules adopted under the game and fish laws by public announcements, press releases, and other appropriate means as determined by the commissioner.

Subd. 10. Reciprocal agreements on violations. The commissioner, with the approval of the attorney general, may enter into reciprocal agreements with game and fish authorities in other states and the United States government to provide for: (1) revocation of the appropriate Minnesota game and fish licenses of Minnesota residents for violations of game and fish laws committed in signatory jurisdictions which result in license revocation in that jurisdiction; (2) reporting convictions and license revocations of residents of signatory states for violations of game and fish laws of Minnesota to game and fish authorities in the nonresident's state of residence; and (3) release upon signature without posting of bail for residents of signatory states accused of game and fish law violations in this state, providing for recovery, in the resident jurisdiction, of fines levied if the citation is not answered in this state. As used in this subdivision, "conviction" includes a plea of guilty or a forfeiture of bail.

Subd. 11. Power to prevent or control wildlife disease. (a) If the commissioner determines that action is necessary to prevent or control a wildlife disease, the commissioner may prevent or control wildlife disease in a species of wild animal in addition to the protection provided by the game and fish laws by further limiting, closing, expanding, or opening seasons or areas of the state; by reducing or increasing limits in areas of the state; by establishing disease management zones; by authorizing free licenses; by allowing shooting from motor vehicles by persons designated by the commissioner; by issuing replacement licenses for sick animals; by requiring sample collection from hunter-harvested animals; by limiting wild animal possession, transportation, and disposition; and by restricting wildlife feeding.

(b) The commissioner shall restrict wildlife feeding within a 15-mile radius of a cattle herd that is infected with bovine tuberculosis.

(c) The commissioner may prevent or control wildlife disease in a species of wild animal in the state by emergency rule adopted under section 84.027, subdivision 13.

97A.051 PUBLICATION OF RULES AND LAWS.

Subdivision 1. [Repealed, 2003 c 28 art 1 s 20]

Subd. 2. Summary of fish and game laws. (a) The commissioner shall prepare a summary of the hunting and fishing laws and rules and deliver a sufficient supply to county auditors to furnish one copy to each person obtaining a hunting, fishing, or trapping license.

- (b) At the beginning of the summary, under the heading "Trespass," the commissioner shall summarize the trespass provisions under sections 97B.001 to 97B.945, state that conservation officers and peace officers must enforce the trespass laws, and state the penalties for trespassing.
- (c) In the summary the commissioner shall, under the heading "Duty to Render Aid," summarize the requirements under section 609.662 and state the penalties for failure to render aid to a person injured by gunshot.
- Subd. 3.** [Repealed, 1989 c 155 s 5]
- Subd. 4. Rules have force and effect of law.** When a rule is effective, it has the force and effect of law. Violation of a rule has the same penalty as a violation of the law under which the rule was adopted.

Minnesota Statutes 2006

Chapter 97B. Hunting

97B.0001

Application of laws 2005, chapter 56, terminology changes.

HUNTING RESTRICTIONS AND REQUIREMENTS

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97B.002

Civil trespass.

97B.005

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97B.011

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97B.015

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97B.020

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97B.021

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97B.025

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97B.026

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97B.031

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97B.035

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97B.041

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97B.045

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97B.051

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97B.055

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97B.061

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97B.065

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SUBSTANCE.

97B.066

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97B.071

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97B.075

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97B.081

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97B.085

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97B.091

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97B.095

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97B.101

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97B.105

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97B.1055

Hunting by persons with developmental disability.

97B.106

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97B.111

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97B.112

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97B.115

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97B.201

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97B.205

Use of dogs and horses to take big game prohibited.

97B.211

Hunting big game by archery.

97B.22

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97B.301

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97B.305

Commissioner may limit number of deer hunters.

97B.311

Deer seasons and restrictions.

97B.312
Repealed.

97B.315
Repealed.

97B.318
Arms use areas and restrictions; regular firearms season.

97B.321
Snare, traps, set guns, and swivel guns prohibited.

97B.325
Deer stand restrictions.

97B.326
Stands and blinds on public lands.

97B.327
Report; deer other than white-tailed or mule.

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97B.401
Bear license required.

97B.405
Commissioner may limit number of bear hunters.

97B.411
Bear season and restrictions.

97B.415
Taking bear to protect property.

97B.421
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97B.425
Baiting bears.

97B.431
Bear hunting guides.

MOOSE

97B.501

Moose license required.

97B.505

Moose season and restrictions.

97B.511

Moose stand restrictions.

ELK

97B.515

Elk; license required, seasons, restrictions.

97B.516

Elk management plan.

SMALL GAME

97B.601

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97B.603

Taking small game as a party.

97B.605

Commissioner may restrict taking of certain small game animals.

97B.611

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97B.615

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97B.621

Raccoons.

97B.625

Bobcat.

97B.631

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97B.635

Fisher; badger; opossum; and pine marten.

97B.641

Cougar, lynx, and wolverine.

97B.645

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97B.646

Gray wolf management plan.

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97B.655

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97B.701

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97B.705

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97B.711

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97B.715

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97B.716

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97B.721

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AND REGISTRATION REQUIREMENTS.

97B.723

Commissioner may limit number of turkey hunters.

97B.725

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97B.731

Migratory birds.

MIGRATORY WATERFOWL

97B.801

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97B.802

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97B.803

Migratory waterfowl seasons and limits.

97B.805

Restrictions on method of taking waterfowl on water.

97B.811

Decoys and blinds on public lands and waters.

FUR-BEARING ANIMALS, TRAPPING

97B.901

Registration and tagging of fur-bearing animals.

97B.905

Fur dealer's licenses.

97B.911

Muskrat seasons.

97B.915

Mink seasons.

97B.921

Otter seasons.

97B.925

Beaver seasons.

97B.926

Pine marten and fisher zone.

97B.928

Identification of traps and snares.

97B.931

Tending traps.

97B.935

Repealed.

97B.941

Tampering with traps.

97B.945

Setting of traps near water restricted.

97B.951

Use of snares to take unprotected mammals.

Cited and relevant statutes:

97B.025 HUNTER AND TRAPPER EDUCATION.

(a) The commissioner may establish education courses for hunters. The commissioner shall collect a fee from each person attending a course. A fee, to include a \$1 issuing fee for licensing agents, shall be collected for issuing a duplicate certificate. The commissioner shall establish the fees in a manner that neither significantly overrecovers nor underrecovers costs, including overhead costs, involved in providing the services. The fees are not subject to the rulemaking provisions of chapter 14 and section 14.386 does not apply. The commissioner may establish the fees notwithstanding section 16A.1283. The fees, except for the issuing fee for licensing agents under this subdivision, shall be deposited in the game and fish fund and the amount thereof, except for the electronic licensing system commission established by the commissioner under section 84.027, subdivision 15, is appropriated annually to the Enforcement Division of the Department of Natural Resources for the administration of the program. In addition to the fee established by the commissioner for each course, instructors may charge each person up to the established fee amount for class materials and expenses. School districts may cooperate with the commissioner and volunteer instructors to provide space for the classroom portion of the training.

- (b) The commissioner shall enter into an agreement with a statewide nonprofit trappers association to conduct a trapper education program. At a minimum, the program must include at least six hours of classroom, electronic, or correspondence instruction and in the field training. The program must include a review of state trapping laws and regulations, trapping ethics, the setting and tending of traps and snares, tagging and registration requirements, and the preparation of pelts. The association shall issue a certificate to persons who complete the program. The association shall be responsible for all costs of conducting the education program, and shall not charge any fee for attending the course.

97B.026 TRAPPER EDUCATION CERTIFICATE REQUIREMENT.

A person born after December 31, 1989, and who has not been issued a trapping license in a previous license year, may not obtain a trapping license unless the person has been issued a trapper education certificate under section 97B.025, paragraph (b).

97B.601 SMALL GAME LICENSES.

Subdivision 1. Requirement. A person may not take small game without a small game license except as provided in subdivision 4.

Subd. 2. Trapping small game. A person may not take small game with traps without a trapping license and a small game license except as provided in subdivision 4.

Subd. 3. Nonresidents: raccoon, bobcat, fox, coyote. A nonresident may not take raccoon, bobcat, fox, or coyote by firearms without a separate license to take that animal in addition to a small game license.

Subd. 3a. Nonresidents; trapping small game. A nonresident may take small game by trapping only on land owned by the nonresident, if the nonresident possesses a trapping license and a small game license.

Subd. 4. Exception to license requirements. (a) A resident under age 16 may take small game without a small game license, and a resident under age 13 may trap without a trapping license, as provided in section 97A.451, subdivision 3.

(b) A person may take small game without a small game license on land occupied by the person as a principal residence.

(c) An owner or occupant may take certain small game causing damage without a small game or trapping license as provided in section 97B.655.

(d) A person may use dogs to pursue and tree raccoons under section 97B.621, subdivision 2, during the closed season without a license.

(e) A person may take a turkey or a prairie chicken without a small game license.

97B.605 COMMISSIONER MAY RESTRICT TAKING OF CERTAIN SMALL GAME ANIMALS.

The commissioner may prescribe restrictions on and designate areas where gray and fox squirrels, cottontail and jack rabbits, snowshoe hare, raccoon, bobcat, red fox and gray fox, fisher, pine marten, opossum, and badger may be taken and possessed.

97B.611 SQUIRRELS.

Subdivision 1. Seasons for gray and fox squirrels. The statewide open season for gray and fox squirrels may be prescribed by the commissioner between October 15 and December 31. The commissioner may prescribe areas with additional open seasons.

Subd. 2. Fire and smoke prohibited. A person may not set fire to a tree or use smoke to take squirrels.

97B.615 RABBIT AND HARE SEASON.

The statewide open season for cottontail, jack rabbits, and snowshoe hare may be prescribed by the commissioner between September 16 and March 1.

97B.621 RACCOONS.

Subdivision 1. Season. The statewide open season for raccoon may be set by the commissioner.

Subd. 2. Period for treeing raccoons. Notwithstanding subdivision 1 and section 97B.005, subdivision 1, a person may use dogs to pursue and tree raccoons without killing or capturing the raccoons during the closed season and a license is not required.

Subd. 3. Nighttime hunting restrictions. To take raccoons between sunset and sunrise, a person:

- (1) must be on foot;
- (2) may use an artificial light only if hunting with dogs;
- (3) may not use a rifle other than one of a .22 inch caliber with .22 short, long, or long rifle, rimfire ammunition; and
- (4) may not use shotgun shells with larger than No. 4 shot.

Subd. 4. Prohibited methods of taking. A person may not take a raccoon:

- (1) in a den or hollow tree;
- (2) by cutting down a tree occupied by raccoon; or
- (3) by setting fire to a tree or using smoke.

97B.625 BOBCAT.

Subdivision 1. Season. Based upon population estimates, the commissioner may set the open season for bobcat.

Subd. 2. Use of a snare. A person may use a snare to take bobcat, as prescribed by the commissioner, without a permit.

97B.631 FOX.

Subdivision 1. Restrictions on taking. A person may not remove a fox from a den or trap fox within 300 feet of a fox den from April 1 to August 31.

Subd. 2. Use of a snare. A person may use a snare to take fox, as prescribed by the commissioner, without a permit.

97B.635 FISHER; BADGER; OPOSSUM; AND PINE MARTEN.

Based upon population estimates, the commissioner may set the open season for fisher, badger, opossum, and pine marten.

97B.641 COUGAR, LYNX, AND WOLVERINE.

There is no open season for cougar, lynx, or wolverine.

97B.651 UNPROTECTED MAMMALS AND BIRDS.

Mammals that are unprotected wild animals and unprotected birds may be taken at any time and in any manner, except with artificial lights, or by using a motor vehicle in violation of section 97B.091. Poison may not be used to take unprotected mammals or unprotected birds unless the safety of humans and domestic livestock is ensured. Unprotected mammals and unprotected birds may be possessed, bought, sold, or transported in any quantity.

97B.655 TAKING ANIMALS CAUSING DAMAGE.

Subdivision 1. Owners and occupants may take certain animals. A person may take mink, squirrel, rabbit, hare, raccoon, bobcat, fox, opossum, muskrat, or beaver on land owned or occupied by the person where the animal is causing damage. The person may take the animal without a license and in any manner except by poison, or artificial lights in the closed season. Raccoons may be taken under this subdivision with artificial lights during open season. A person that kills mink, raccoon, bobcat, fox, opossum, muskrat, or beaver under this subdivision must notify a conservation officer or employee of the Wildlife Division within 24 hours after the animal is killed.

Subd. 2. Special permit for taking protected wild animals. The commissioner may issue special permits under section 97A.401, subdivision 5, to take protected wild animals that are damaging property or to remove or destroy their dens, nests, houses, or dams.

97B.901 REGISTRATION AND TAGGING OF FUR-BEARING ANIMALS.

- (a) The commissioner may, by rule, require persons taking, possessing, and transporting fur-bearing animals to tag the animals. The commissioner shall prescribe the manner of issuance and the type of tag, which must show the year of issuance. The commissioner shall issue the tag, without a fee, upon request.
- (b) The pelt of each bobcat, fisher, pine marten, and otter must be presented, by the person taking it, to a state wildlife manager designee for registration before the pelt is sold and before the pelt is transported out of the state, but in no event more than 48 hours after the season closes for the species.

97B.911 MUSKRAT SEASONS.

The commissioner may establish open seasons and restrictions for taking muskrat.

97B.915 MINK SEASONS.

The commissioner may establish open seasons and restrictions for taking mink.

97B.921 OTTER SEASONS.

The commissioner may establish open seasons and restrictions for taking otter.

97B.925 BEAVER SEASONS.

The commissioner may establish open seasons and restrictions for taking beaver.

97B.926 PINE MARTEN AND FISHER ZONE.

Where a combined pine marten and fisher trapping zone exists, the commissioner must provide an option of a combined limit of fisher and marten.

97B.928 IDENTIFICATION OF TRAPS AND SNARES.

Subdivision 1. Information required. (a) A person may not set or place a trap or snare, other than on property owned or occupied by the person, unless the following information is affixed to the trap or snare in a manner that ensures that the information remains legible while the trap or snare is on the lands or waters:

- (1) the number and state of the person's driver's license;
 - (2) the person's Minnesota identification card number; or
 - (3) the person's name and mailing address.
- (b) The commissioner may not prescribe additional requirements for identification of traps or snares.

Subd. 2. Provisions not to apply. From April 1 to August 31, the trap identification provisions of subdivision 1 do not apply to traps set for the taking of unprotected wild animals.

Subd. 3. Penalty. A person who violates subdivision 1, paragraph (a), is guilty of a petty misdemeanor.

97B.931 TENDING TRAPS.

Subdivision 1. Restrictions. A person may not tend a trap set for wild animals between 10:00 p.m. and 5:00 a.m. Between 5:00 a.m. and 10:00 p.m. a person on foot may use a portable artificial light to tend traps. While using a light in the field, the person may not possess or use a firearm other than a handgun of .22 caliber.

Subd. 2. Body-gripping traps. A body-gripping, conibear-type trap need not be tended more frequently than once every third calendar day.

97B.941 TAMPERING WITH TRAPS.

A person may not remove or tamper with a trap legally set to take fur-bearing animals or unprotected wild animals without authorization. Authorized persons include the commissioner and the owner or lessee of the land where the trap is located.

97B.945 SETTING OF TRAPS NEAR WATER RESTRICTED.

A person may not set a trap within 50 feet of any water other than temporary surface water within 30 days before the open season for mink and muskrat without a special permit by the commissioner.

97B.951 USE OF SNARES TO TAKE UNPROTECTED MAMMALS.

A snare set for an unprotected mammal may not be left in place after March 31 except as authorized by the commissioner for the predator control program under section 97B.671.

Appendix 4. Minnesota Rules

Chapter 6234

MINNESOTA RULES CHAPTER 6234

DEPARTMENT OF NATURAL RESOURCES

SMALL GAME

6234.0100	General restrictions for taking small game.
6234.0200	Taking ruffed grouse and spruce grouse.
6234.0300	Taking sharp-tailed grouse.
6234.0400	Taking pheasants.
6234.0500	Taking gray partridge.
6234.0600	Taking jack rabbits, cottontail rabbits, and snowshoe hares.
6234.0700	Taking gray squirrels and fox squirrels.
6234.0800	Hunting by falconry.
6234.0900	Scope and definitions.
6234.1000	Description of furbearer zones.
6234.1100	Taking mink and muskrats.
6234.1200	Taking raccoon.
6234.1300	Taking red fox and gray fox.
6234.1400	Taking badger and opossum.
6234.1500	Taking lynx.
6234.1600	Taking bobcat.
6234.1700	Taking fisher and pine marten.
6234.1800	[repealed, 30 sr 613]
6234.1900	Taking beaver.
6234.2000	Taking otter.
6234.2100	Special provisions for taking beaver and otter.
6234.2200	Use of traps.
6234.2300	General restrictions on use of snares.
6234.2400	Special restrictions on use of snares.
6234.2500	Use of snares by predator controllers.
6234.2600	Pelt tagging and registration.
6234.2700	Special restrictions on taking and possession of furbearers.

6234.2800	Payment of pelting fees.
6234.2900	Pelting fee restrictions.
6234.3000	Certification for predator control.
6234.3100	Designated control areas and dates of operation.
6234.3200	Use of snares for predator control.
6234.3300	Prohibited methods of predator control.
6234.3400	Compensation for predator control.
6234.3500	Take a kid hunting.

6234.0100 GENERAL RESTRICTIONS FOR TAKING SMALL GAME.

Subpart 1. **Use of handguns.** All species of small game which may lawfully be taken with a rifle may also be taken with a handgun, subject to the same caliber restrictions that apply to rifles.

Subp. 2. **Unattended electronic devices prohibited.** A person may not use an unattended electronic device for the purpose of taking small game, except game birds.

Subp. 3. **Wounded game included in bag limit.** Wounded or captured game reduced to possession must be killed before being removed from the site where taken, and once reduced to possession must be included in a person's daily bag limit.

Subp. 4. **Shooting at grouse prohibited near motor vehicle.** A person in the vicinity of a motor vehicle may not discharge a firearm or an arrow from a bow at a grouse, or at a decoy of a grouse placed by an enforcement officer, unless the person is at least 20 yards from the vehicle and the vehicle's engine is shut off. This subpart does not apply to a person with a disability permit under Minnesota Statutes, section

97B.055, subdivision 3. "Motor vehicle" as used in this subpart has the meaning given in Minnesota Statutes, section 97A.015, subdivision 32.

STAT AUTH: MS s 97B.031; 97B.605; 97B.711; 97B.911; 97B.915; 97B.921; 97B.924; 97B.925; and others at 19 SR 6

6234.0600 TAKING JACK RABBITS, COTTONTAIL RABBITS, AND SNOWSHOE HARES.

Subpart 1. **Open season.** Jack rabbits, cottontail rabbits, and snowshoe hares may be taken by legal firearm, bow and arrow,

and traps from the Saturday nearest September 16 to the last day in February.

Subp. 2. **Bag limits.** A person may not take more than ten cottontail rabbits, jack rabbits, and snowshoe hares, combined, per day or possess more than 20 cottontail rabbits, jack rabbits, and snowshoe hares, combined, at a time.

STAT AUTH: MS s 97A.045; 97B.605; 97B.615

6234.0700 TAKING GRAY SQUIRRELS AND FOX SQUIRRELS.

Subpart 1. **Open season.** Gray squirrels and fox squirrels may be taken by legal firearm, bow and arrow, and traps from the Saturday nearest September 16 to the last day in February.

Subp. 2. **Bag limits.** A person may not take more than an aggregate of seven gray squirrels and fox squirrels per day or possess more than an aggregate of 14 gray squirrels and fox squirrels at a time.

STAT AUTH: MS s 97A.045; 97B.605; 97B.611

6234.0900 SCOPE AND DEFINITIONS.

Subpart 1. **Scope.** The provisions of parts 6234.0900 to 6234.2300 apply to the use of traps or snares capable of taking a wild animal protected under provisions of Minnesota Statutes, sections 97B.601 to 97B.671 or 97B.901 to 97B.945.

Subp. 2. **Terms.** The terms used in parts 6234.0900 to 6234.3500 have the meanings given them in this part.

Subp. 3. **Authorized agent.** "Authorized agent" means a person authorized by a trapper, in writing, who possesses all necessary licenses to check, pick up, or reset traps set by the trapper.

Subp. 4. **Bait.** "Bait" means any animal or animal parts, including live or dead fish, except that small aggregates of fur and feathers used for flagging purposes are not bait.

Subp. 5. **Waterset.** "Waterset" means any body-gripping trap or snare set in which the body-gripping portion of the jaws or the snare loop, when set, is at least half-submerged in water. A completely submerged waterset is any set in which the

body-gripping portions of the jaws or the snare loop, when set, is completely submerged in water.

STAT AUTH: MS s 97B.605; 97B.911; 97B.915; 97B.921; 97B.925

6234.1000 DESCRIPTION OF FURBEARER ZONES.

Subpart 1. Forest Furbearer Zone. That portion of the state lying within the following described boundary is known as the Forest Furbearer Zone.

Beginning on U.S. Highway 59 at the north boundary of the state; thence along U.S. Highway 59 to U.S. Highway 10; thence along U.S. Highway 10 to State Trunk Highway (STH) 210; thence along STH 210 to STH 18; thence along STH 18 to U.S. Highway 169; thence along U.S. Highway 169 to STH 23; thence along STH 23 to STH 65; thence along STH 65 to STH 70; thence along STH 70 to the east boundary of the state; thence along the east and north boundaries of the state to the point of beginning.

Subp. 2. Farmland Furbearer Zone. That portion of the state lying outside of the Forest Furbearer Zone is known as the Farmland Furbearer Zone.

Subp. 3. North Mink/Muskrat/Beaver/Otter Zone. That portion of the state lying within the following described boundary is known as the North Mink/Muskrat/Beaver/Otter Zone.

Beginning on State Trunk Highway (STH) 200 at the west boundary of the state; thence along STH 200 to U.S. Highway 2; thence along U.S. Highway 2 to STH 73; thence along STH 73 to STH 27; thence along STH 27 to Interstate Highway 35 (I-35); thence along I-35 to the Carlton-Pine County line; thence east along the Carlton-Pine County line to the east boundary of the state; thence along the east, north, and west boundaries of the state to the point of beginning.

Subp. 4. South Mink/Muskrat/Beaver/Otter Zone. That portion of the state lying outside of the North Mink/Muskrat/Beaver/Otter Zone is known as the South Mink/Muskrat/Beaver/Otter Zone.

STAT AUTH: MS s 97B.605; 97B.911; 97B.915; 97B.921; 97B.925

6234.1100 TAKING MINK AND MUSKRATS.

Subpart 1. **Open season in North Zone.** Mink and muskrats may be taken by trapping from 9:00 a.m. on the Saturday nearest October 26 to the last day in February in the North Zone.

Subp. 2. **Open season in South Zone.** Mink and muskrats may be taken by trapping from 9:00 a.m. on the Saturday nearest October 30 to the last day in February in the South Zone.

Subp. 3. **Bag limits.** Mink and muskrats may be taken and possessed without limit.

Subp. 4. **Special provisions.** The special provisions in items A to C apply to taking mink and muskrats.

A. Taking by the use of dogs or by digging is prohibited.

B. Openings may be made in any muskrat house for the purpose of trapping if they are plugged by replacing all materials removed and wetting the materials down to prevent freezing within the structure. Traps may be set at natural entrances to muskrat runways and bank burrows.

C. A person may not damage any muskrat house, muskrat runway, or muskrat bank den, except as provided by this part.

STAT AUTH: MS s 97B.911; 97B.915; and others at 19 SR 6

6234.1200 TAKING RACCOON.

Subpart 1. **Open season.** Raccoons may be taken statewide with legal firearms, bow and arrow, and by trapping from 9:00 a.m. on the Saturday nearest October 22 to March 15.

Subp. 2. **Bag limits.** Raccoons may be taken and possessed without limit.

Subp. 3. **Special provisions.** A person may use an artificial light to locate, attempt to locate, or shoot a raccoon only if the raccoon has been treed or put at bay by dogs. The use of dogs and lights to take raccoon is regulated as provided by Minnesota Statutes, sections 97B.081, 97B.621, and 97B.931.

STAT AUTH: MS s 97A.541; 97B.605; 97B.621; and others at 19 SR 6

6234.1300 TAKING RED FOX AND GRAY FOX.

Subpart 1. **Open season.** Gray and red fox may be taken statewide with legal firearms, bow and arrow, and by trapping from 9:00 a.m. on the Saturday nearest October 22 to March 15.

Subp. 2. **Bag limits.** Red fox and gray fox may be taken and possessed without limit.

Subp. 3. [Repealed, 19 SR 2222]

Subp. 4. **Special provisions.** The special provisions in items A and B apply to taking red fox and gray fox.

A. Fox may be run without being taken by the use of dogs at any time during the year except from March 16 to July 14 or under permit.

B. Dogs may be used for hunting fox during the open season.

STAT AUTH: MS s 97A.045; 97A.541; 97B.605; 97B.631; and others at 19 SR 6

6234.1400 TAKING BADGER AND OPOSSUM.

Subpart 1. **Open season.** Badgers and opossums may be taken statewide with legal firearms, bow and arrow, and by trapping from 9:00 a.m. on the Saturday nearest October 22 to March 15.

Subp. 2. **Bag limits.** Badgers and opossums may be taken and possessed without limit.

STAT AUTH: MS s 97B.605; 97B.635; and others at 19 SR 6

6234.1500 TAKING LYNX.

Taking lynx is prohibited statewide.

STAT AUTH: MS s 97B.605; 97B.625

6234.1600 TAKING BOBCAT.

Subpart 1. **Open season.** Bobcats may be taken with legal firearms, bow and arrow, and by trapping from the first Saturday following Thanksgiving to the Sunday nearest January 6.

Subp. 2. **Open area.** Bobcats may be taken only in that area of the state lying north of Interstate Highway 94 (I-94) beginning at the west boundary of the state; thence along I-94 to U.S. Highway 10; and thence along U.S. Highway 10 to the east boundary of the state.

Subp. 3. **Bag limits.** A person may not take more than five bobcats per season by either hunting or trapping or both. A person may not possess more than five bobcats at a time, except that a person may possess additional pelts that the person lawfully took, tagged, and registered during previous seasons.

Subp. 4. **Tagging bobcats.** Pelts and skinned carcasses are subject to the provisions of part 6234.2600.

STAT AUTH: MS s 97A.541; 97B.605; 97B.625; and others at 19 SR 6

6234.1700 TAKING FISHER AND PINE MARTEN.

Subpart 1. **Open season.** Fisher and pine marten may be taken by trapping from the first Saturday following Thanksgiving to the Sunday nearest December 12.

Subp. 2. **Bag limits.** The combined limit for fisher and pine marten is five per season, in aggregate. A person may not take more than five fisher and pine marten, combined, per season or possess more than five fisher and pine marten, combined, at a time, except that a person may possess additional pelts that the person lawfully took, tagged, and registered during previous seasons.

Subp. 3. **Tagging.** Pelts and skinned carcasses of fisher and pine marten are subject to the provisions of part 6234.2600.

Subp. 4. **Open area.** Fisher and pine marten may be taken only in that area of the state lying north of Interstate Highway 94 (I-94) beginning at the west boundary of the state; thence along I-94 to U.S. Highway 10; and thence along U.S. Highway 10 to the east boundary of the state.

STAT AUTH: MS s 97B.605; 97B.635; 97B.901; and others at 19 SR 6

6234.1900 TAKING BEAVER.

Subpart 1. **Open season and bag limits for beaver in North Zone.** Beaver may be taken and possessed without limit by

trapping from 9:00 a.m. on the Saturday nearest October 26 to May 15.

Subp. 2. **Open season and bag limits for beaver in South Zone.** Beaver may be taken and possessed without limit by trapping from 9:00 a.m. on the Saturday nearest October 30 to May 15.

STAT AUTH: MS s 97B.925

6234.2000 TAKING OTTER.

Subpart 1. **Open season for otter in North Zone.** Otter may be taken by trapping from 9:00 a.m. on the Saturday nearest October 26 to the Sunday nearest January 6.

Subp. 2. **Open season and area for otter in South Zone.** Otter may be taken by trapping from 9:00 a.m. on the Saturday nearest October 30 to the Sunday nearest January 6 only in that portion of the zone lying north of Interstate Highway 94 beginning at the west boundary of the state; thence along Interstate Highway 94 to U.S. Highway 10; and thence along U.S. Highway 10 to the east boundary of the state.

Subp. 3. **Bag limits.** A person may not take more than four otter per season, or possess more than four otter at a time, except that a person may possess additional pelts that the person lawfully took, tagged, and registered during previous seasons.

Subp. 4. **Tagging otter.** Pelts are subject to the provisions of part 6234.2600.

STAT AUTH: MS s 97B.605; 97B.901; 97B.921; 97B.925

6234.2100 SPECIAL PROVISIONS FOR TAKING BEAVER AND OTTER.

Subpart 1. **Setting of traps.** Traps of any kind may not be set inside a beaver house or above the water line on the outside of a beaver house.

Subp. 2. **Damage to beaver house or dam.** A person may not damage a beaver house or dam, except as otherwise authorized by law or permit or by employees of the department in the performance of their official duties.

Subp. 3. Use of snowmobiles and all-terrain vehicles.

Snowmobiles and all-terrain vehicles may be used statewide to transport or check beaver or otter traps and to transport beaver or otter carcasses.

Subp. 4. Taking in wildlife management areas. Beaver and otter may be taken by licensed trappers in wildlife management areas by permit issued by the appropriate state wildlife manager.

Subp. 5. Taking in federal waterfowl production areas.

Waterfowl production areas are open to the trapping of beaver and otter during established seasons.

Subp. 6. Taking in national wildlife refuges. Within the Agassiz, Minnesota Valley, Rice Lake, Sherburne, Tamarac, and Upper Mississippi National Wildlife Refuges, beaver may be taken by licensed trappers by permit issued by the appropriate refuge manager. All other national wildlife refuges are closed to beaver trapping. All national wildlife refuges are closed to otter trapping.

STAT AUTH: MS s 97B.605; 97B.921; 97B.925; 97B.935

6234.2200 USE OF TRAPS.

Subpart 1. Trap-tending hours and use of lights.

Trap-tending hours and use of lights are regulated as provided by Minnesota Statutes, section 97B.931.

Subp. 2. Trap-tending interval; nondrowning sets. Any trap, except a body-gripping or "conibear" type trap, capable of capturing a protected wild animal and not capable of drowning the animal must be tended at least once each calendar day and any animal captured must be removed from the trap. A body-gripping or "conibear" type trap need not be tended more frequently than once every third calendar day and any animal captured must be removed from the trap.

Subp. 3. Trap-tending interval; drowning sets. Except for traps set under the ice, any trap capable of drowning the captured animal must be tended at least once each third calendar day and any animal captured must be removed from the trap.

Subp. 4. Exposed bait. A person may not set or maintain any leghold trap within 20 feet of bait located in such a manner

that it may be seen by soaring birds.

Subp. 5. Size restriction on body-gripping traps. A person may not set, place, or operate, except as a waterset, any body-gripping or "conibear" type trap that has a maximum jaw opening, when set, of greater than 7-1/2 inches measured from the inside edges of the body-gripping portions of the jaws.

Subp. 6. Size restriction on leghold traps. A person may not set, place, or operate any leghold trap that has a maximum jaw opening, when set, of greater than 8-3/4 inches measured from the inside edges of the jaws.

Subp. 7. Placement of body-gripping traps. A person may not set, place, or operate in or within three feet of a culvert, except as a completely submerged waterset, any body-gripping or "conibear" type trap that has a maximum jaw opening, when set, of greater than 6-1/2 inches measured from the inside edges of the body-gripping portions of the jaws.

Subp. 8. [Repealed, 22 SR 292]

Subp. 9. Preemption of trapping site. Prior to the opening of the trapping season for any protected species of wild animal, no trap, either set or unset, may be placed or staked and no flag, stake, or other device may be placed for the purpose of marking or preempting a trapping site.

Subp. 10. Removal of traps. A trap placed for a protected wild animal may not be left in place, either set or unset, after the close of the applicable trapping season.

Subp. 11. [Repealed, 22 SR 292]

Subp. 12. Authorized agent. A trapper may authorize, in writing, an agent who possesses all necessary licenses to check, pick up, and reset, at the same site, traps set by the trapper. Authorized agents may remove trapped animals and, if the animal removed from the trap is required to be tagged as provided by part 6234.2600, must affix their own tag to the animal as prescribed.

STAT AUTH: MS s 97B.605; 97B.611; 97B.615; 97B.621; 97B.625; 97B.631; 97B.635; 97B.911; 97B.915; 97B.921; 97B.925

6234.2300 GENERAL RESTRICTIONS ON USE OF SNARES.

Subpart 1. **Regulation of snares as traps.** Unless otherwise specified, snares may be used for taking all species of protected wild animals that may be taken by the use of traps. The use of snares is subject to all rules for the use of traps that are consistent with parts 6234.2300 to 6234.2500.

Subp. 2. [Repealed, L 2005 c 146 s 52]

Subp. 3. [Repealed, L 2005 c 146 s 52]

STAT AUTH: MS s 97A.045; 97B.605; 97B.911; 97B.915; 97B.921; 97B.925

6234.2400 SPECIAL RESTRICTIONS ON USE OF SNARES.

Subpart 1. **Scope.** The provisions of parts 6234.2300 to 6234.2500 apply to the use of snares capable of taking a wild animal protected under provisions of Minnesota Statutes, sections 97B.601 to 97B.671 or 97B.901 to 97B.945.

Subp. 2. **Farmland Furbearer Zone restrictions.** In the Farmland Furbearer Zone, a person may use snares as follows:

A. from April 1 to November 30, a person may not set, place, or operate any snare except as a waterset;

B. from December 1 to March 31, a person may not set, place, or operate any snare on public lands, on road rights-of-way, or in fencelines along road rights-of-way, except as a waterset.

Subp. 3. **Snaring in culverts.** A person may not set, place, or operate a snare in a culvert, except as a completely submerged waterset.

Subp. 4. **Removal of snares.** A snare set for a protected mammal may not be left in place after the close of the applicable trapping season.

Subp. 5. **Prohibition on snares placed in deer trails.** Snares may not be set in deer trails.

Subp. 6. **Use of spring poles.** Snares may not be used with spring poles or other devices where an animal caught in the snare will be wholly or partly lifted from the ground.

Subp. 7. **Snare height.** A snare may not be set so that the

top of the loop is more than 16 inches above the ground or, when the ground is snow-covered, more than 16 inches above the bottom of a person's footprint made in the snow beneath the snare with full body weight on the foot.

Subp. 8. **Snare loop diameter.** The diameter of a snare loop may not exceed ten inches.

Subp. 9. **Snare cable diameter.** Snare cable or wire may not exceed one-eighth inch in diameter.

Subp. 10. **Tending snares.** All snares not capable of drowning the captured animal must be tended at least once each calendar day and any animal captured must be removed from the snare.

STAT AUTH: MS s 97B.605; 97B.911; 97B.915; 97B.921; 97B.925

6234.2600 PELT TAGGING AND REGISTRATION.

Subpart 1. [Repealed, 30 SR 613]

Subp. 2. [Repealed, 30 SR 613]

Subp. 3. **Registration of pelts.** The pelt of each bobcat, fisher, pine marten, and otter and the whole carcass of each bobcat must be presented, by the person taking it, to a state wildlife manager designee for registration before the pelt is sold and before the pelt is transported out of the state, but in no event more than 48 hours after the season closes for each species, respectively. The entire carcass of bobcat and the entire head of pine marten must be surrendered to the state wildlife manager designee. The pelt of bobcat, otter, fisher, and pine marten must have been removed from the carcass.

Subp. 4. **Prohibition on tagging animals not personally taken.** A person may not affix any tag or seal to the pelt or carcass of any animal that the person did not take or is not authorized to take.

Subp. 5. **Requirement for tags and seals to remain affixed.** Registration tags or seals must remain affixed to the raw pelt until the pelt is tanned or mounted.

STAT AUTH: MS s 97B.605; 97B.625; 97B.635; 97B.901; 97B.911; 97B.915; 97B.921; 97B.925

6234.2700 SPECIAL RESTRICTIONS ON TAKING AND POSSESSION OF FURBEARERS.

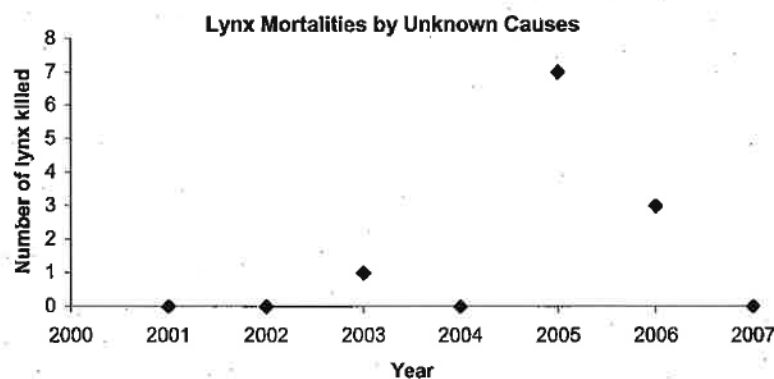
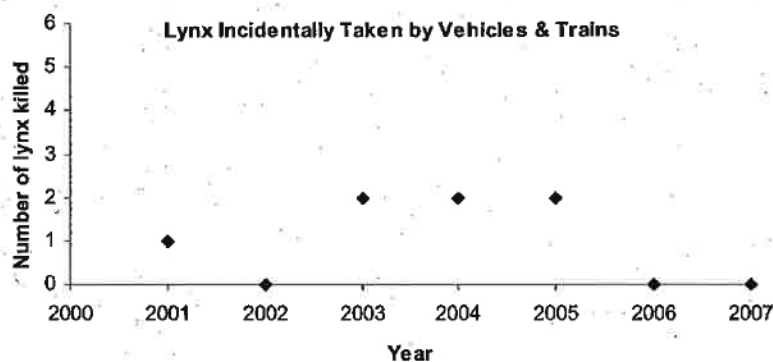
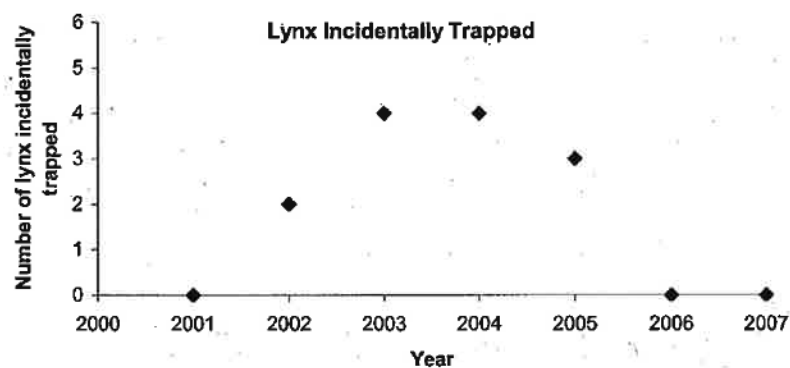
The restrictions in items A and B apply to the possession and transportation of accidental captures.

A. A person may not possess or transport a fisher, otter, pine marten, fox, bobcat, lynx, or gray wolf that was accidentally killed or was lawfully killed while causing or threatening injury or damage until the person notifies the local conservation officer, other authorized department employee, or regional enforcement office, of the killing and receives authorization to possess, transport, or skin the animal.

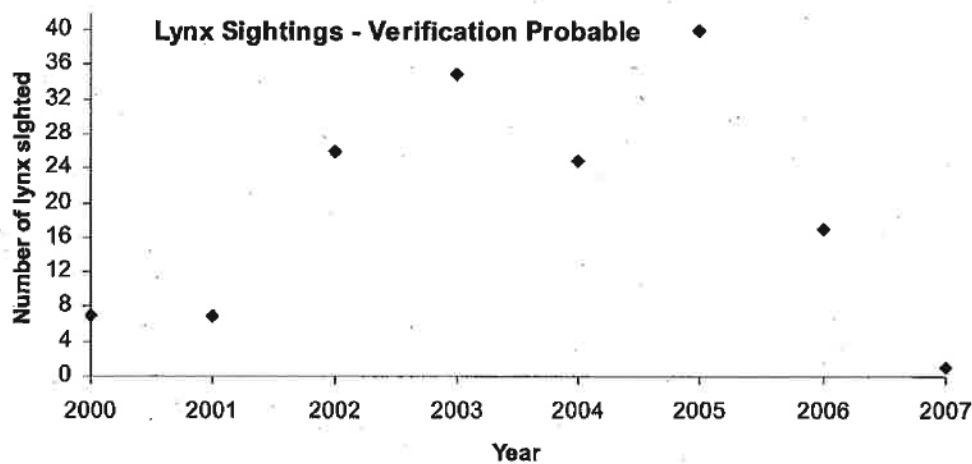
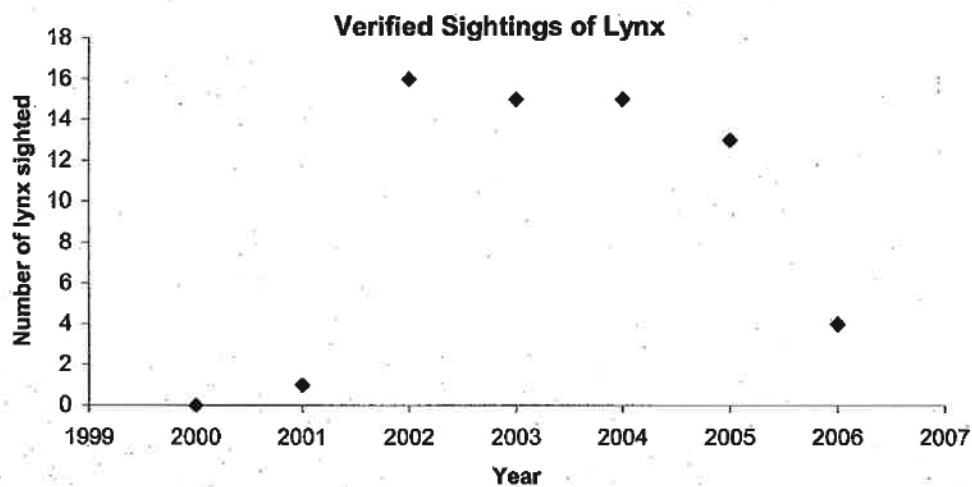
B. A person may possess or transport mink, muskrat, beaver, badger, opossum, or raccoon accidentally killed or lawfully killed while causing or threatening injury or damage, only if the local conservation officer or other authorized employee of the department is notified within 24 hours of such killing and before any skinning has begun.

STAT AUTH: MS s 97B.605; 97B.911; 97B.915; 97B.921; 97B.925

Appendix 5. Annual Incidental Take of Canada Lynx by Trapping, Vehicle and Train Collision, and by Unknown Causes in Minnesota, 2001 to 2007



Appendix 6. Verified Sightings of Canada Lynx in Minnesota, 2000 to 2007



Appendix 7. Rule Changes Proposed by the Minnesota Department of Natural Resources to Reduce Incidental Take of Canada Lynx by Trapping

(new rule language underlined)

6234.1000 DESCRIPTION OF FURBEARER ZONES.

[For text of subs 1-4, see M.R.]

Subp. 5. Lynx management zone. That portion of the state lying north and east of a line beginning on U.S. Highway 53 at the east boundary of the state; thence along U.S. Highway 53 to the north boundary of the state.

6234.2200 USE OF TRAPS.

[For text of subs 1-4, see M.R.]

Subp. 5 Size restriction on body-gripping traps A person may not set, place, or operate, except as a waterset, any body-gripping or "conibear" type trap that has a maximum jaw opening, when set, of greater than 7-1/2 inches measured from the inside edges of the body-gripping portions of the jaws.

Subp. 5a Body-gripping traps in the lynx management zone. In the lynx management zone, a person may not set, place, or operate, except as a waterset, any body-gripping or "conibear" type trap that has a maximum jaw opening, when set, of greater than 5 inches and less than 7-1/2 inches measured from the inside edges of the body-gripping portions of the jaws, unless the trap is set at least 3 feet above the ground or snow level in a tree or on a leaning pole 6 inches or less in diameter, or in a cubby box recessed at least 7 inches from the box opening, which must be less than 50 square inches in opening size. A cubby box may be constructed of any material, but must be constructed and set in a manner that only allows an animal to enter through the cubby box opening.

[For text of subs 6-12, see M.R.]

Subp. 13 Trap staking and tethering in the lynx management zone. In the lynx management zone, except for watersets, all traps must be staked or otherwise secured by tethering chains or cables not more than 18 inches long, in a manner that prevents captured animals from removing the trap from the trap site.

Subp. 14 Trap tether swivels. In the lynx management zone, except for watersets, all leghold traps must have two or more swivels in the tethering chain or cable.

Subp. 15 Bait restrictions. In the lynx management zone, the use of rabbits or hares, or their parts, is prohibited.

Subp. 16 Sight attractant restrictions. In the lynx management zone, the use of suspended flags or other sight attractants within 20 feet of a trap is prohibited.

6234.2400 SPECIAL RESTRICTIONS ON USE OF SNARES.

[For text of subs 1-7 see M.R.]

Subp. 8 Snare loop diameter. The diameter of a snare loop may not exceed ten inches.

In the lynx management zone, the diameter of a snare loop must be at least 8 inches, when set on land.

Subp. 9 Snare cable diameter. Snare cable or wire may not exceed 1/8 inch in diameter.

In the lynx management zone, snare cable or wire must be at least 5/64 inch in diameter, when set on land.

6234.2700 SPECIAL RESTRICTIONS ON TAKING AND POSSESSION OF FURBEARERS.

The restrictions in items A and B apply to the possession and transportation of accidental captures.

A. A person may not possess or transport a fisher, otter, pine marten, fox, bobcat, lynx, or gray wolf that was accidentally killed or was lawfully killed while causing or threatening injury or damage until the person notifies the local conservation officer, other authorized department employee, or regional enforcement office, of the killing and receives authorization to possess, transport, or skin the animal.

B. A person may possess or transport mink, muskrat, beaver, badger, opossum, or raccoon accidentally killed or lawfully killed while causing or threatening injury or damage, only if the local conservation officer or other authorized employee of the department is notified within 24 hours of such killing and before any skinning has begun.

C. A person must report any incidental taking of a Canada lynx to the local conservation officer.