

DRAFT
**Incidental Take Plan
for
Maine's Trapping Program**

Submitted to

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

Prepared by

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August 13, 2008

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1.0 Introduction and Background

1.1 Overview/Background

This Incidental Take Plan (Plan) is prepared in conjunction with an application from the Maine Department of Inland Fisheries and Wildlife (MDIFW or the Department) to the U. S. Fish and Wildlife Service (USFWS or the Service) for a Section 10 permit under the Endangered Species Act (ESA). The incidental take permitted within the scope of the Section 10 permit issued to the Department would cover lynx that are incidentally trapped and not injured, those receiving minor or major injuries, lynx killed in traps, and juvenile animals that might die indirectly of a trapping incident (i.e., from the death of an adult female). These incidental trapping incidents would occur as a result of lynx being captured in a trap during the legal trapping season in Maine.

The Department 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 Coverage

The Department seeks a Section 10 permit that would cover its agents and licensees from liability in the event of incidental take of Canada lynx (*Lynx canadensis*) in Maine that may occur as the result of otherwise lawful activities.

1.3 Permit Duration

The Department is seeking a Section 10 permit through 2023 or 15 years from this submittal of an Incidental Take Plan.

1.4 Regulatory/Legal Framework for Plan

The Endangered Species Act of 1973, administered by the Interior Department's U.S. Fish and Wildlife Service, is regarded as one of the most comprehensive wildlife conservation laws in the world. The purpose of the ESA is to conserve "the ecosystems upon which endangered and threatened species depend" and to recover listed species.

Section 9 of the ESA, as amended, prohibits the "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. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

In the 1982 amendments to the ESA, Congress added a provision in Section 10 that allows for the "incidental take" of endangered and threatened species of wildlife by non-federal entities. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Prior to 1982, parties that undertook projects involving federal funding or approval could obtain

incidental take coverage through ESA Section 7 consultations, but had no recourse under the law for exemption. Up to that time, only take occurring during scientific research and other conservation actions could be authorized under the ESA. The “incidental take permit” (ITP) process was established under Section 10(a)(1)(B) of the ESA precisely to resolve this difficulty.

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

The federal HCP program has grown rapidly in recent years. In the first 10 years of the program (1983-1992), 14 ITPs were issued. By May 2006, 448 HCP had been approved and over 718 incidental take permits had been issued. In a little over a decade, the HCP process has been transformed from a relatively little used option under the ESA to one of its most important and innovative conservation programs.

1.5 Plan Area

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

1.6 Species to be Covered by Permit

The Department is seeking a Section 10 permit for Canada lynx (*Lynx canadensis*) which is a federally threatened species and a species of special concern² in Maine.

No authority to take other federal or state-listed species is to be conferred by this permit.

The Department is not seeking Section 10 permit for bald eagles (*Haliaeetus leucocephalus*) since it was removed from the federal threatened species list on August 9, 2007.

The gray wolf (*Canis lupus*) is listed as a federal endangered species. The nearest wolf population is in Quebec but is effectively separated from Maine by metropolitan areas, such as Quebec City, the St. Lawrence Seaway, and heavy trapping pressure in rural Quebec. Very few wolves have been reported south of the St. Lawrence Seaway in Quebec, and those were killed (Villemure and Jolicoeur 2004).

One gray wolf and one wolf/coyote hybrid were killed in Maine. A gray wolf was killed near Caucomgomoc Lake in 1993. Although positively identified as a gray wolf (National Wildlife Forensic Laboratory, Ashland, OR), its behavior around people and

² The special concern status is an MDIFW administrative designation given to species of fish or wildlife whose populations are vulnerable to various threats but do not meet the criteria for state endangered or threatened status.

human dwellings (found sleeping outside a tent and drinking from a dishpan) was typical of captive wolves that have either escaped or have been released. Occasionally, wild wolves lose their fear of humans when fed or when habituated to garbage. However, there is no evidence that the wolf killed in 1993 had gradually become habituated to human food. The second animal, killed by a trapper in Aurora in 1996, was a wild canid with a genetic profile similar to the wolves in eastern Canada (*Canus lupus lycaon*), which have hybridized with eastern coyotes (National Wildlife Forensic Laboratory, Ashland, OR). Although the genetic profile of these animals may suggest a wild origin, stable isotope analyses of the carbon in the bone and hair of these animals suggest that for a good portion of their lives they lived on a diet high in corn (e.g., corn found in commercial dog food) and that these animals were likely captives that had been released in Maine (Roland Kays, New York State Museum, personal communication).

The Department is not seeking a Section 10 permit for wolves, because they currently do not exist in the State. If wolves were to become established in Maine, the Department would consider specific measures to protect those animals from incidental take. For approximately 11 years, the Department has provided information to trappers to help them avoid incidentally capturing any wolves that might immigrate into Maine. Efforts the Department has made to reduce the probability of incidental wolf takings include

- 1) distributing wolf identification information (track measurements [paw size, toe pad patterns, stride measurements, and track patterns], wolf size, and characteristics) to every licensed trapper in the state in the annual trapper information booklet;
- 2) working closely with nongovernmental organizations, such as the National Wildlife Federation, in following reported sightings of large canids;
- 3) conducting research into the genetic and morphological profiles of eastern coyotes and North American wolves to determine whether these animals can be readily distinguished;
- 4) requesting that the Department be notified if any coyote over 48 inches in total length is taken by a hunter or trapper; and
- 5) responding to public questions about wolves and keeping track of large canid sightings.

2.0 Environmental Setting / Biological Resources

Environmental Setting

Located at the northeast tip of the United States, the State of Maine is approximately 320 mi (515 km) long and 210 mi (338 km) wide and is about halfway between the equator and the North Pole. Among the states, it is the 39th largest (33,315 mi² [86,286

km²]), but it is almost as big as the rest of the New England states combined. The northern half of the state is sparsely populated, giving the state a relatively low human population (1.2 million people) or a density of approximately 36 people / mi² (14 people / km²).

Maine is bounded on the northwest and northeast by the Canadian provinces of Quebec and New Brunswick, respectively, and on the west by New Hampshire. The famed rocky coastline of the state is angled from southwest to northeast along the Atlantic Ocean.

The western half of Maine is part of the Warm Continental Mountain ecoregion (i.e., high mixed forests, coniferous forests, and tundra), while the eastern half of the state is divided into the Warm Continental Division (i.e., mixed deciduous and coniferous forests) and the Hot Continental Division (i.e., broadleaved forests – oceanic) (Bailey 1997). The Warm Continental Mountain ecoregion extends into New Hampshire, Vermont, and into the Adirondacks of New York. The mixed deciduous and coniferous forests of the Warm Continental Division continue to the east into New Brunswick and Nova Scotia and to the west into Quebec; finally ending in Minnesota (Bailey 1997).

Maine abounds in natural assets. Roughly 90% of the state (17.5 million acres [7.1 million hectares]) is forested, giving Maine the distinction of being the most heavily forested state in the nation. Maine has nearly 6,000 lakes and ponds, 5,000,000 acres (2,023,500 ha) of wetlands, 31,800 mi (51,179 km) of rivers and streams, 4,100 mi (6,599 km) of coastline, and more than 3,000 coastal islands and ledges.

Climate

The National Weather Service separates Maine into three distinct climatological divisions – coastal, southern interior, and northern interior. The southern and coastal regions are influenced by air masses from the south and west. North of the land dividing the St. John and Penobscot River basins, air masses moving down the St. Lawrence River Basin tend to prevail. Mean annual temperatures range from 37°F to 39°F (3°C to 4°C) in the north and from 43°F to 45°F (6 to 7°C) in the southern interior and coastal regions. Mean temperatures are about 62°F (17°C) throughout the state during the summer and 20°F (-7°C) during the winter. Cloudy days average 222 per year in the south to 206 in the north. Annual precipitation averages 36 in to 48 in (91 cm to 122 cm). Snowfall averages more than 100 in (254 cm) in the north and higher elevations.

Topography / Geology

The Appalachian Mountain chain extends into Maine from New Hampshire, terminating at Mount Katahdin, at 5,268 ft (1,606 m) the state's tallest peak. The western and northwestern borders adjoining New Hampshire and Quebec are characterized by rugged terrain with numerous glacier-scoured peaks, lakes, and valleys. South and east of mountain areas lay rolling hills, smaller mountains, and broad river valleys.

Maine's coastline consists of long sand beaches interrupted intermittently by rocky promontories in the southwest and a series of peninsulas, narrow estuaries, bays, fjords, and coves located north and east of Portland, the state's largest city. The tides

along Maine's coast are among the highest in the world, running between 12ft and 24 ft (4m and 7m). More than 3,000 islands dot the coast, some no more than rock ledges; others are vegetated and home to fulltime and seasonal residents.

Geologically, Maine is something of a youngster; the oldest rocks, found in the Chain of Ponds area in the western part of the state are only 1.6 billion years old – more than 2 billion years younger than the world's oldest rocks. The state has experienced several episodes of glaciation. The most recent was about 18,000 years ago when Maine was covered by glacial ice about a mile thick (Gawler et al. 1996). The present-day biological diversity in Maine is the result of post-glacial movements of plants, animals, and microorganisms into the state.

Hydrology / Streams, Rivers, Drainages

Maine has more than 5,000 rivers and streams comprising 31,800 mi (51,179 km) of flowing waters that provide nearly half of the watershed for the Gulf of Maine. More of these rivers and streams are undeveloped and free flowing than in any other state in the northeastern United States (Bennett 1988). The major rivers are the Penobscot (350 mi [906 km]), the St. John (211 mi [546 km]), the Androscoggin (175 mi [453 km]), the Kennebec (150 mi [388 km]), the Saco (104 mi [269 km]), and the St. Croix (75 mi [194 km]).

Maine also boasts nearly 6,000 lakes and ponds, most of which can be linked to a single cause -- glaciation. The state has the second largest number of natural glaciated

lakes of any state east of the Mississippi River – 3,000 lakes and ponds more than 10 acres (4 ha) in size and another 2,000 between 1 and 10 acres (0.4 to 4 ha) (Bennett 1988).

Northwestern Maine's Moosehead Lake, covering about 117 mi² (303 km²), is the state's largest – in fact, the largest lake in New England to lie wholly within the boundaries of a single state. Sebago Lake in southern Maine is second to Moosehead in size, with a surface area of over 44 mi² (114 km²). However, it holds the distinction of being the deepest at 316 ft (96 m), and its deepest point is 40 ft (12 m) below sea level.

Vegetation

Sixty-seven woody plant species reach their range limits in south-central Maine, and an additional 44 woody plant species define a coastal-inland transition zone, reaching their western range limits in a southwest-northeast belt bisecting the state (McMahon 1990).

There are approximately 1,432 native and 643 introduced species of vascular plants in Maine. The state's vascular plants include both typically Appalachian representatives at the northern edge of their range and typically boreal representatives at the southern limit of their range (Gawler et al. 1996). Seventeen percent of Maine's native flora (254 species) are considered rare, threatened or endangered (Gawler et al. 1996).

Wildlife

Maine's geographical location, physical relief, and present and past land use practices result in a diversity of vegetation and climatic conditions, and a diverse and unique assemblage of wildlife. The state is a transition area, and its wildlife resources represent a blending of species that are at or approaching the northern or southern limit of their range.

Invertebrates are the most diverse group of organisms in Maine (and globally), exceeding vertebrate species by several orders of magnitude. Yet, knowledge even of which species occur in Maine is very incomplete. Only basic information on the distribution and general habitat preferences for a few groups such as butterflies (Lepidoptera), mayflies (Ephemeroptera), and dragonflies (Odonata) is available (Gawler et al. 1996).

Presently, 7 invertebrates are listed as endangered under the MESA: Roaring Brook mayfly (*Epeorus frisoni*), Hessel's hairstreak (*Satyrium edwardsii*), Clayton's copper (*Lycaena dorcas claytoni*), Edwards' hairstreak (*Callophrys hesseli*), Katahdin Arctic (*Oeneie polixenes katahdin*), Juniper hairstreak (*Callophrys gryneus*), and Rapids clubtail (*Gomphus quadricolor*). Likewise, 10 species are listed as threatened: tidewater mucket (*Leptodea ochracea*), yellow lampmussel (*Lampsilis cariosa*), Brook floater, (*Alasmidonta varicosa*), Ringed boghaunter (*Williamsonia lintneri*) Tomah mayfly (*Siphonisca aerodromia*), twilight moth (*Lycia rachelae*), Pine barrens zanclognatha (*Zanclognatha martha*); Purple lesser fritillary (*Boloria chariclea grandis*), Sleepy

duskywing (*Erynnis brizo*), and Boreal snaketail (*Ophiogomphus colubrinus*) (§12803; Appendix 1).

There are 34 amphibian and reptile species (18 and 16 respectively) in Maine, and their distribution in the state is relatively well known. Maine lists the eastern box turtle (*Terrapene Carolina*), Blanding's turtle (*Emydoidea blandingii*), and black racer (*Coluber constrictor*) as endangered, and spotted turtle (*Clemmys guttata*) and loggerhead turtle (*Caretta caretta*) as threatened (§12803; Appendix 1).

Boone and Krohn (1998) listed 56 mammal species as extant in Maine. Only one, the northern bog lemming (*Synaptomys borealis*), is listed as threatened in the state. The Canada lynx, federally threatened under the ESA, was listed as a species of special concern in Maine. The USFWS considers the New England cottontail (*Sylvilagus transitionalis*) as warranting listing as a threatened or endangered species under the ESA but is precluded from doing so at this time because of other listing priorities (U.S. Department of Interior 2006). However, in 2007 the New England cottontail was listed as a state endangered species in Maine (§12803; Appendix 1).

There are more than 218 species of birds that have been documented as breeding regularly in Maine (Gawler et al. 1996). Of these, 198 species breed at inland sites in upland, wetland, or aquatic habitats (Gawler et al. 1996). Maine lists 10 species as endangered: golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus*), piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii*), least tern (*Sterna*

antillsrum), black tern (*Chlidonias niger*), sedge wren (*Cistothorus platensis*), American pipit (*Anthus rubescens*), grasshopper sparrow (*Ammo dramus savannarum*), and least bittern (*Ixobrychus exilis*). An additional 11 species are listed as threatened in Maine: razorbill (*Alca torda*), Atlantic puffin (*Fratercula arctica*), Harlequin duck (*Histrionicus histrionicus*), bald eagle (*Haliaeetus leucocephalus*), arctic tern (*Sterna paradisaea*), upland sandpiper (*Bartramia longicauda*), black-crowned night heron (*Nycticorax nycticorax*), Common moorhen (*Gallinula chloropus*), great cormorant (*Phalacrocorax carbo*), short-eared owl (*Asio flammeus*), and Barrow's goldeneye (*Bucephala islandica*). (§12803; Appendix 1).

Existing Land Use

Maine's present land use is characterized by extensive forests interspersed with agricultural areas in northeast Maine, scattered farms throughout the rest of the state, and many small towns. Maine's human population is densest in the southern part of the state and become less populated in the north. The human population lives primarily in small towns and in a handful of urban areas. Despite the large tracks of forestland in the state, only 5% of the land in Maine is in public ownership. For the most part, wildlife habitat is confined within large commercial forests in northwest, western, and eastern Maine, and within smaller private landholdings in southern, coastal, and central Maine.

2.2 Species of Concern in the Plan Area

2.2.1 Lynx

Canada Lynx -- Description & Natural History

The Canada lynx is a medium-sized cat that averages 22 lb (10 kg) for males and 19 lb (9 kg) for females. Its general appearance is similar to the bobcat. The most notable difference between a lynx and a bobcat is paw size. Lynx paws are about twice the size of bobcat paws. Lynx also can be distinguished from bobcats by the tip of their tail, which is completely black (bobcat tail tips are only black on the upper side [dorsal side]). Lynx have more prominent ear tufts, paler coloration, less spotting, and longer legs than bobcats.

Lynx are specialized predators on snowshoe hare (*Lepus americanus*), although they will opportunistically take other small mammals. Lynx are adapted to living in areas with deep fluffy snow, where they have a competitive advantage over other predators (e.g., bobcat, coyote, and fisher). The large size of a lynx's paws distributes the animal's weight over a large surface area and enables it to walk on snow. Thus, lynx have more mobility on deep snow than other predators with smaller paws (or higher foot loading), and expend less energy acquiring food in winter than more generalist predators.

In North America, lynx occur in Alaska and Canada and extend south into the northern contiguous states. They live in subarctic forests, boreal forests, mixed deciduous and coniferous forests (immediately south of the boreal forests), and in alpine forests in the Rocky Mountains and Cascades. Maine, Washington, Montana, Minnesota, Wyoming,

Idaho and Colorado are the only states, outside of Alaska, where lynx currently have resident populations in the US.

Lynx are highly mobile and can move long distances (>60 mi [100 km]) when dispersing). They prefer to make their reproductive dens in forests with high stem densities and high amounts of woody debris (downed logs). These conditions may provide some protection to kittens, and may provide ready access to snowshoe hare, which are also attracted to this type of forest structure.

Canada Lynx – in Maine

Maine's lynx are part of a large lynx population that includes the Gaspé Peninsula and northern New Brunswick (Hoving 2001, MDIFW unpublished data). In contrast to western states, most of Maine's lynx range occurs on privately owned woodlands managed for timber production. Lynx are attracted to the regenerating forests that occur on these lands, as the high stem densities of these forests provide snowshoe hare with ideal habitat. Snowshoe hare are associated with regenerating forest (15 to 30 years of age) and are negatively associated with recent clearcuts and mature forest (Litvaitis et al 1985, Monthey 1986, Lachowski 1997, Fuller 1999, Hoving et al. 2004, Robinson 2006). Hoving (2001) suggests that good lynx habitat in the Northeast consists of complexes of regenerating forest with relatively few deciduous trees and a high annual snowfall (>105 in [268 cm]).

The age structure of Maine's forests has changed considerably since European settlement, which likely changed the abundance and distribution of lynx in the state. Seymour et al. (2002) suggested that there has been a shift from a predominately mature forest to younger forest in Maine, based on past and current disturbance factors. During presettlement times, Maine's forests experienced frequent, but small natural disturbance events (wind, ice, and insect outbreaks) resulting in an older forest system. Bill Krohn (UMO, personal communication) estimates that early regenerating forests comprised approximately 3% to 5% of the coniferous forests in northern Maine. Spruce budworm epidemics occur periodically in Maine. The most recent epidemic in 1972-1986 resulted in extensive clearcutting to salvage diseased trees. By the mid-1990s, between 20-25% of Maine's northern forest was classified as early regenerating stands. Many of these stands currently have a physical structure (stem density and height) that is optimal for snowshoe hare and lynx. These regenerating forests, and the ensuing high snowshoe hare densities, made possible the current abundance of lynx and influence their distribution (Fig. 2.1).

Data on the historic and present distribution of lynx comes from historical records as compiled by Hoving (2001), radiotelemetry data from the MDIFW / USFWS study, snow track surveys from the Department's various ecoregional surveys, and snow track sightings reported by MDIFW regional biologists (Fig. 2.1).

Lynx Research Efforts

In 1999, the Department, in cooperation with the USFWS, began a radiotelemetry study of Canada lynx in a 4-township area of northwestern Maine (which continues to date). The original objectives of this study were to 1) determine if there was a viable, self-supporting population of lynx in Maine, or if lynx occurring in Maine were simply transients from the lynx population in Canada; 2) document mortality factors affecting lynx in Maine; 3) identify habitats used by lynx in Maine and how they relate to snowshoe hare (*Lepus americanus*) distribution and abundance; 4) investigate how lynx distribution in Maine is affected by sympatric populations of bobcats, coyotes, and foxes; and 5) test the efficacy of various survey methods used to determine the status of lynx.

Between 1999 and the end of 2007, 65 lynx were captured and equipped with radiocollars. Many of these lynx were caught more than once. In total, 65 lynx were caught a total of 454 times. Of the 65 lynx, 59 were caught by MDIFW biologists for the specific purpose of capturing lynx for the radiocollaring program. Department biologists used #3 foothold traps with padded offset jaws and cage traps to capture lynx. Lynx were caught in foothold traps 81 times, and were caught in cage traps 267 times. Four of the lynx caught by private trappers were caught in foothold traps, and two were caught in conibear traps. The 6 lynx incidentally caught by private trappers were equipped with radiocollars by MDIFW biologists before being released.³ In addition to trapping lynx, biologists on the lynx project caught 111 coyotes (11 radiocollared), 1

³ To date, Department biologists and trappers have successfully released 32 out of 34 lynx incidentally caught by trappers (i.e., 94%).

bobcat (radiocollared), 21 fisher (8 radiocollared), and 6 red foxes (5 radiocollared).

Reproduction of radiocollared adult females was monitored by visiting dens and capturing kittens. During den visits, 95 kittens were handled at 36 den sites. MDIFW biologists have worked closely with faculty at the University of Maine in Orono (UMO) on several graduate projects related to lynx and lynx /snowshoe hare interactions. Scientific manuscripts on lynx home range size, habitat use, survey techniques, and den site characteristics are in press. In addition, MDIFW continues to work closely with the USFWS on lynx surveys and habitat management recommendations. Numerous entities have supported the study both financially and technically.

None of the lynx captured by MDIFW biologists have required veterinary attention. Of the 65 lynx equipped with radiocollars (which includes the six caught accidentally by private trappers), 15 were still alive as of the end of 2007. Of these 15 lynx, three were captured more than five years ago, five were captured more than two years ago, six were captured more than one year ago, two were captured more than six months ago, and one was captured within the last six months. Of the 65 lynx, 42 lynx are now dead, but 29 lynx survived at least 6 months after capture. Specifically, four survived at least five years, two survived at least six years, six survived at least three years, four survived at least two years, nine survived at least one year, and four survived at least six months. Only thirteen of the radiocollared lynx failed to survive at least six months. In addition, signals from eight radiocollared lynx were lost > 6 months after capture. In summary, of the 65 radiocollared lynx, 80% are still alive or survived for at least six months after capture, and 20% died in less than six months after capture. The Department has no

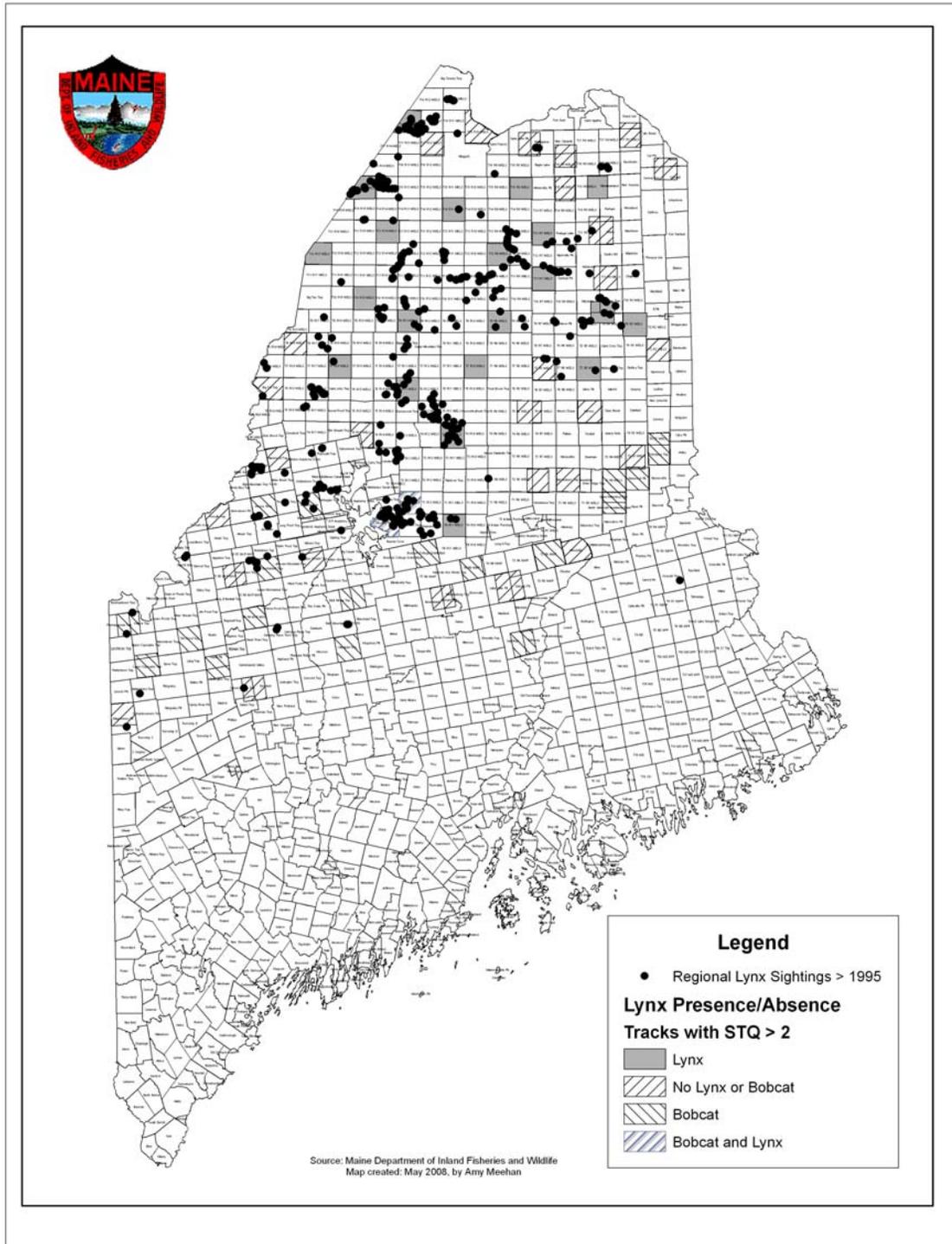
evidence (Jen Vashon, MDIFW, personal communication) that any of these animals died due to factors related to trapping. These data illustrate that trapping does not likely affect a lynx's post-capture chances of survival.

For lynx caught by trappers, the fate of the 6 animals that were radiocollared is known. One lynx caught by a private trapper suffered a broken leg. After rehabilitation, the lynx was equipped with a radiocollar and released. The lynx lived more than five years after release. For the other five lynx that were caught by private trappers and equipped with radiocollars, one lived for 20 months, one lived for 17 months, and three died within a month after release. Of the three that died shortly after release, one died while trying to cross a swift river swollen from recent heavy rain, and two died from unconfirmed causes, although predation is expected based on evidence collected at the mortality sites.

Canada Lynx – Population Size and Status:

A refined estimate of Maine's lynx population is currently not available. Researchers at UMO and MDIFW biologists are still evaluating the relationships between lynx densities and habitat type, and whether these relationships can be used to predict lynx occurrence on a landscape scale. A conservative population estimate was recently calculated for Maine's 2006 Endangered and Threatened Species listing process (MDIFW 2006). This estimate was based on the reproductive rates, survival, and density of radioed lynx in the lynx research study area; only used the most conservative figures from these data; and was considered a minimum density estimate for this area.

Figure 2.1. The distribution of Canada lynx in Maine as denoted by ecoregional snow track surveys and sightings of lynx (primarily snow tracks) by MDIFW regional biologists. Data were collected from 1995 until February 15, 2007.



The density estimate calculated from these parameters was applied to towns throughout northern Maine that had more than one confirmed lynx occurrence since 2001 (i.e., the last 5 years). In 2006, MDIFW estimated that there were at least 500 lynx in Maine. The Department used a combination of indices to assess trends in the lynx population, and fully recognized the limited accuracy these indices have to detect increments of change in the statewide lynx population. These indices included changes in the statewide distribution of lynx, track counts, frequency of road-killed lynx, incidental trapping frequency, verified sightings, and reproductive rates for adult female lynx.

Overall, Maine's lynx population appears to have increased dramatically in the since 1995 and reached a plateau or peaked in 2003 (see Sec. 4.2 for more detail). For example, Department personnel searched for lynx tracks, each winter from 1994 to 1996. For those years, a total of 4118 km of transects in 82 townships in northwestern Maine were searched for lynx tracks (Jakubas 1997). Of the 82 townships that were surveyed, lynx were found in only nine townships (11% of the townships searched). In 2003, 20 townships located in the same area of the state as the 1994 to 1996 surveys were surveyed for lynx during the Department's ecoregional surveys. The townships selected for the 2003 survey had high, medium, or low probabilities of having lynx. Of these 20 townships, 14 (70%) had lynx in them. Although the rate at which the lynx population has increased cannot be quantitatively estimated from these surveys, these data are consistent with other indices of population change including the number of lynx struck by vehicles, number of lynx sightings, and number of incidentally trapped lynx in Maine (Fig. 4.2). Similar patterns in lynx numbers have been reported by neighboring

jurisdictions (e.g., New Brunswick; Cade Libby, New Brunswick Department of Natural Resources and Energy, personal communication).

Currently, lynx are listed as a Species of Special Concern in Maine. The status of lynx was reviewed in 2006 for the Department's endangered and threatened species recommendation to the state legislature. The Department's review of the status of lynx (which was peer reviewed by outside reviewers) concluded that Maine's lynx population exceeds the state's listing criteria for threatened or endangered species, in that it exceeds 500 individuals, has increased in the last 10 years, is not discrete or fragmented, and the species is not endemic to Maine (MDIFW 2006).

Canada Lynx – Limiting Factors in Maine

Lynx habitat in Maine is not threatened with destruction or fragmentation due to agriculture, urbanization, recreational development, or by high volume / high speed roadways. Recreational development and agricultural fragmentation have not occurred in most of northwestern Maine. Human activity in northwestern Maine has increased since the early 1900s, but it remains low with few permanent residences or organized towns in the region.

A network of unpaved, private roads with low traffic volumes crisscrosses the habitat of lynx in Maine. Despite the low traffic volumes on these roads, vehicles occasionally strike lynx. Although no radiocollared lynx have been hit by vehicles since the start of

Table 2.1. Chronology of Canada lynx recovered after being hit by vehicles in northern Maine, from the start of the lynx study in 1999, until October 2006.

Date	Number of lynx killed by vehicles
1999	0
2000	1
2001	0
2002	1
2003	1
2004	3
2005	3
2006	2
2007	4

the lynx radiotelemetry project, the public has reported 15 lynx struck by vehicles since 1999 (Table 2.1).

Maine's lynx population level is dependent on forest management practices that determine the amount and distribution of regenerating conifer stands in the state. Regenerating conifer stands that are 15 to 30 years of age provide the habitat structure (i.e., dense cover) preferred by snowshoe hare (Litvaitis et al 1985, Robinson 2006), which are the principal prey of lynx. A decrease in the amount of regenerating conifer stands in Maine may reduce snowshoe hare numbers and the amount of habitat suitable for lynx to live in. A decrease in hare numbers may occur as the result of changes in the age composition of Maine's forests (e.g., less forest is cut) or if current

forest harvesting techniques (e.g., partial harvesting techniques) do not produce understory cover that is as dense and as long lived as that produced by forest harvesting techniques used in the past (e.g., large scale clearcutting).

Most of Maine's forests are privately owned and managed for timber production. These working forests have provided the habitat necessary to allow Maine's lynx population to expand their range and numbers since 1999 (MDIFW, unpublished data). However, a major shift in forest cutting practices occurred over the last 20 years. In 2005, 94.8% of all the timber harvesting in Maine was done using partial harvesting techniques (Maine Forest Service 2006), while in 1989 44% of all timber harvesting was done using clearcutting (Maine Forest Service 1995). It is not known whether this change in forest harvesting techniques has affected the temporal availability of hare / lynx habitat or its quality. Research to determine the extent current forestry practices can sustain snowshoe hare populations is still ongoing at the University of Maine.

Competition, from other predators has been hypothesized in the past as being capable of limiting the distribution and growth of lynx populations (e.g., Parker et al. 1983, Buskirk et al. 2000). In Maine, interspecific interactions have been observed between lynx, bobcat, and fisher. Over the course of Maine's radiotelemetry study on lynx, fisher have killed 6 lynx (5 adult females and one kitten; as of 2006). However, there is insufficient information to suggest that interspecific competition between lynx and fisher may exclude lynx from habitats used by fisher or in any way limit the range of lynx.

Bobcats and lynx are usually spatially separated by snow depth, which limits competition between the species (Aubry et al. 2000). However, Parker et al. (1983) speculated that interspecific competition may have occurred between lynx and bobcat Cape Breton Island, NS. On Cape Breton, the distribution of lynx across the island shrank considerably after bobcats immigrated to the Island. Twenty-five years after bobcats first immigrated to the island, lynx were restricted to highland areas, where snow depths were greater and provided spatial separation from bobcats. However, no conclusive evidence was presented for interference competition between bobcat and lynx in Parker et al.'s (1983) study.

In Maine, Robinson (2006) presented evidence that where lynx and bobcats occupied the same areas, bobcats were found in the best habitat for snowshoe hare. She further concluded that the presence of bobcats in an area could be used as a variable to predict the presence or absence of lynx on the landscape. In addition to bobcats limiting the range of lynx through competition, they may also limit the range of lynx by hybridizing with them. Several lynx-bobcat hybrids have been found in the region where the ranges of the two species overlap (Homyack et al. 2008).

One factor that cannot be controlled, but may influence extent of the lynx range in Maine, is climatic change (Carroll 2007). Hoving (2001) modeled climatic changes and their potential impact on snow depth and lynx habitat. This model indicates that decreased snow depths may cause the southern boundary of the lynx range to shift to the north; thus, decreasing the extent of the lynx range in Maine.

Table 2.2. Annual mortality rates for adult Canada lynx (> 1 yr) that were radiocollared in Maine from one year prior to the federal listing of lynx as a threatened species until 2005. Annual mortality rates were not corrected for staggered entry of radiocollared animals into the sample (i.e., Kaplan-Meier staggered entry approach; Pollack et al. 1989).

Year	Lynx mortalities	Number of collared lynx	Annual mortality rate (uncorrected)
1999	2	6	33.3%
2000	3	18	16.7%
2001	4	23	17.4%
2002	3	22	13.6%
2003	2	20	10.0%
2004	7	29	24.1%
2005	5	27	18.5%
2006	4	29	13.8%
Means	3.6	21.8	18.4%

Table 2.3. Mortality factors for adult Canada lynx (> 1 yr) that were radiocollared for MDIFW's radiotelemetry study. Data are from 1999 until Dec. 31, 2006.

Cause of mortality	Number of mortalities	Proportion of total mortalities	Sex ratio of lynx that died
Starvation	10	33%	6M:4F
Predation	5	17%	5F
Disease	1	3%	1M
Illegal harvest	3	10%	1M:2F
Canada harvest	4	13%	3M:1F
Unknown	7 ^a	23%	2M:5F
Total	30	N/A	13M:17F

^a Of the 9 lynx mortalities (all ages) that were classified as unknown in the study, 5 were suspected as being caused by predation. Note that Table 2.3 only reports mortalities for adult lynx.

Since 1999, the Department's radiotelemetry study has documented annual mortality rates for radiocollared animals and cause of death, when possible (Tables 2.2 and 2.3). For lynx of all ages, the most common source of mortality was starvation, followed by unknown causes, and predation (Table 2.3). To our knowledge, trappers have killed no radiocollared lynx in Maine. However, poachers took two radiocollared lynx using unknown methods. Approximately, 13% of the lynx mortalities in the radiotelemetry study resulted from lynx traveling into Canada and being trapped there legally.

2.2.2 Plant Species of Concern

There are 3 federally listed plant species in Maine. The eastern prairie fringed orchid (*Platanthera leucophaea*; federally threatened species) and the Furbish lousewort (*Pedicularis furbishiae*; federally endangered species) occur in northern Maine; within geographical area that lynx occur. The small whorled pogonia (*Isotria medeoloides*), a federally threatened plant, occurs in southern Maine. The range of this plant lies outside of the lynx range. None of the trapping activities referred to in this request for a Section 10 permit will impact any of these plant species.

3.0 Project Description / Activities Covered by Permit

3.1 Project Description

The Maine Department of Inland Fisheries and Wildlife is seeking a Section 10 permit under the Endangered Species Act to absolve the Department, its agents, and licensees from liability in the event of incidental take of Canada lynx in Maine that may occur as the result of otherwise lawful activities. The intent is that all persons legally permitted to trap in Maine would be covered under this permit. The incidental take permitted within the scope of this Section 10 permit would cover all lynx that are incidentally trapped, and juvenile lynx that might die indirectly from a trapping incident (i.e., from the death of an adult female during the legal trapping season in Maine for upland furbearers (Appendix 2, 4.01 G).

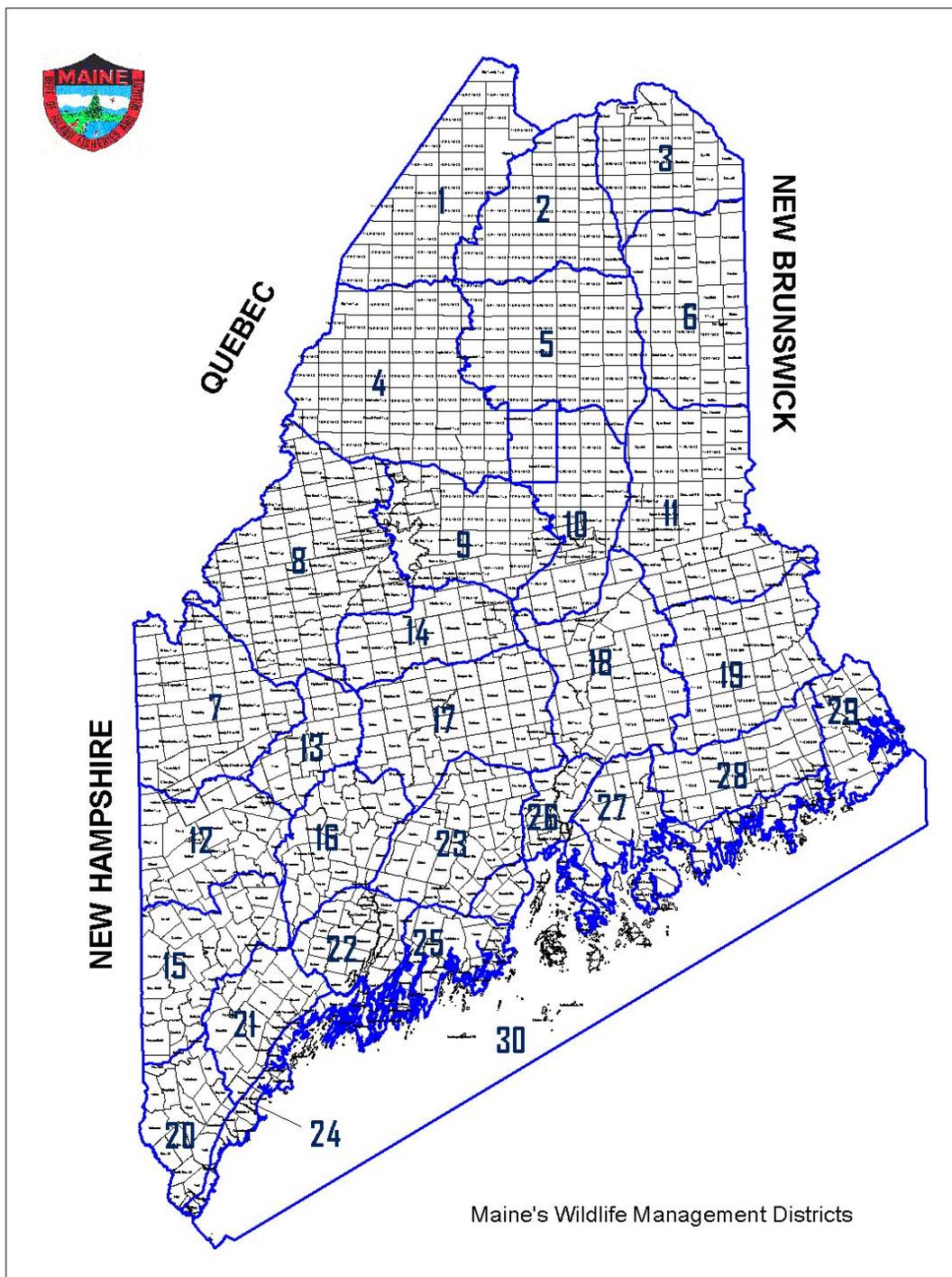
The Maine Department of Inland Fisheries and Wildlife was given authority to establish open trapping seasons for furbearing animals in 1973 (Title 12, Chapter 301, § 1960 A). Furbearing animals include all mammals harvested primarily for their pelts. In Maine, these include coyote (*Canis latrans*), red (*Vulpes vulpes*) and gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), fisher (*Martes pennanti*), marten (*Martes americana*), raccoon (*Procyon lotor*), skunk (*Mephitis mephitis*), short (*Mustela erminea*)- and long (*Mustela frenata*)-tailed weasels, mink (*Mustela vison*), otter (*Lutra canadensis*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), and opossum (*Didelphis virginiana*). Although the original statute (Title 12, Chapter 301, § 1960 A) defined black bears (*Ursus americanus*) as a furbearing animal, bears are now considered a big game animal and are trapped under a different seasonal framework than furbearers (Appendix 1, Title 12, Chapter 917, §12260). To our knowledge, there have been no incidences where a lynx has been caught in a trap set for a bear.

Maine's furbearer trapping season generally runs from mid-October through the end of December. Beaver have an extended trapping season and can be trapped into the month of April in some parts of the state. The most recent trapping season (2007 – 2008) consisted of a special fox and coyote trapping season, which ran from October 14 through October 27, and was open statewide; an early muskrat season, which was limited to Wildlife Management Districts (WMD) WMDs 1, 2, 3, 4, 5, 6, 9, 10, and 11 (Fig. 3.1), and was open from October 21 to October 27; and a general trapping season, which ran from October 28 to December 31. The general beaver season ran from November 1 through April 30, and was varied by region of the state. Opening and closing dates for the beaver season were the following: WMDs 1, 2, 3, 4, 5, .November 1 - April 30; WMDs 7, 13, 14, 17, December 1 - March 31; WMDs 8, 9, 10, 11, 18, 19, 28, November 1 – April 15; WMDs 12, 15, 16, 23, 25, 26, 27, 29, December 1 - February 28; WMDs 20, 21, 22, 24, December 15 - February 28.

Furbearer trapping is a highly regulated activity and is governed by the laws and rules promulgated by Maine's legislature and MDIFW, respectively (Appendix 1 and 2).

These laws and rules include stipulations that all trappers must have attended a state approved trapping education course, or shown proof they have held a trapping license from another jurisdiction, before they can obtain a Maine trapping license (Appendix 1, Title 12, Chapter 917, §12201). Maine's trapper education course instructs students on selective trapping techniques, use of traps, Best Management Practices for trapping, responsible trapping, and techniques to avoid the take of endangered and other

Figure 3.1. Maine's Wildlife Management Districts (WMDs).



nontarget species (Appendix 3). The Department's trapping education program was updated in 2008 and follows recommendations established by the Association of Fish and Wildlife Agencies (AFWA), and is taught by experienced trappers (volunteers) and Department staff who follow a predetermined course outline (Appendix 3).

The Department's efforts to educate trappers on proper trapping techniques are backed-up by regulations that govern the size of the trap that can be used for a particular application (e.g., use of conibears "killer-type traps" over 5 in is restricted) (Appendix 2, 4.01 J), where it can be set (Appendix 2, 4.01 K), and the method by which it can be set (Appendix 2, 4.01 J; Appendix 1, Title 12, Chapter 917, §12252). To minimize trauma of individual animals caught in traps, all trappers must tend restraining-type traps (e.g., foot-hold traps) within 24 hr. Killer-type traps (e.g., conibears) must be tended every 3 days when set in an organized town, and every 5 days when set in an unorganized town (Appendix 1, Title 12, Chapter 917, §12255). Trappers must identify all traps they set with their name and address (Appendix 1, Title 12, Chapter 917, §12254). Wildlife populations that are trapped are monitored using pelt-tagging records. All raw pelts must be tagged by a Department agent or staff with the exception of weasel, raccoon, muskrat, skunk, and opossum (Appendix 2, 4.01 H). For all species except marten, there is no limit on the number of animals a trapper can take during a trapping season. Trappers are limited to harvesting only 25 marten per year (i.e., 25; Appendix 2, 4.01 G - 3).

Description of Maine's Furbearer Harvest

Annually, approximately 22,400 furbearers -- not including weasel, raccoon, muskrat, skunk, and opossum – are caught and tagged⁴ (Table 3.1). Over 6 recent trapping seasons the most commonly tagged furbearer was beaver (9,646), followed by marten (3,667), fisher (2,509), coyote (2,244), and red fox (1,499) (Table 3.1). Bobcat, coyote, and fox are also hunted, and the number of coyotes and fox taken by hunting cannot be separated from the above totals and in Table 3.1.

Annually, an average of 2,616 individuals acquired Maine trapping licenses (1999-2000 to 2004-2005 trapping seasons). This includes 57 nonresident trappers, 2078 residents holding a regular trapping license, 201 junior resident license holders, and approximately 280 complimentary license holders who were actively trapping.

Maine's inland fur harvest occurs on 29 WMDs (Fig. 3.1), with the highest number of tagged pelts coming from WMD 17 (1,775), WMD 6 (1,694), WMD 11 (1,358), WMD 18 (1,323), and WMD 23 (1,287). The fewest number of tagged pelts came from WMD 29 (250), WMD 25 (290), WMD 24 (364), WMD 1 (421), and WMD 12 (429) (Table 3.2).

⁴ Mean values were calculated from the Fall 1999–2000 trapping season to Spring 2004-2005 season. Mean harvest rates were calculated from pelt-tagging records for an even number of years in order to accurately portray marten and fisher harvest rates. Marten, and to a lesser extent fisher, have large annual fluctuations in their harvest rates; therefore, an equal number of good and poor years is needed to calculate their mean harvest rates.

Table 3.1. Statewide harvest rates for Maine furbearers (1999-2000 to 2004-2005 trapping seasons). Mean harvest rates were calculated from pelt-tagging records for an even number of years (6 yr) in order to accurately portray marten and fisher harvest rates. Marten, and to a lesser extent fisher, have large annual fluctuations in their harvest rates; therefore, an equal number of good and poor years is needed to calculate their mean harvest rates. Bobcat, coyote, and fox can be hunted as well as trapped. Coyote and fox harvests include both trapped and hunter killed animals.

Furbearer	Annual Harvest
Bobcat	292 (124 ^a)
Fisher	2,509
Marten	3,667
Red Fox	1,499
Grey Fox	138
Coyote	2,244
Beaver	9,646
Mink	1,374
Otter	938

^a Average annual number of bobcat trapped in Maine.

Table 3.2. Mean harvest rates for furbearers for each of Maine's Wildlife Management District (WMD). Mean values are calculated using pelt-tagging records from the 1999-2000 to 2004-2005 trapping seasons. Marten, and to a lesser extent fisher, have large annual fluctuations in their harvest rates; therefore, an equal number of good and poor years is needed to calculate their mean harvest rates. Bobcat, coyote, and fox can be hunted as well as trapped. Bobcat, coyote and fox harvests include both trapped and hunter killed animals. (SEE NEXT PAGE)

Bobcat Harvest by WMD

WMD 1	0	WMD 7	14	WMD 13	4	WMD 19	19	WMD 25	5
2	0	8	10	14	6	20	6	26	5
3	1	9	3	15	21	21	2	27	28
4	2	10	2	16	8	22	6	28	29
5	0	11	16	17	14	23	11	29	20
6	1	12	14	18	44	24	2		

Fisher Harvest by WMD

WMD 1	31	WMD 7	137	WMD 13	82	WMD 19	39	WMD 25	43
2	54	8	115	14	75	20	94	26	60
3	131	9	45	15	92	21	111	27	16
4	65	10	50	16	145	22	120	28	11
5	114	11	108	17	243	23	162	29	1
6	166	12	58	18	50	24	82		

Marten Harvest by WMD

WMD 1	295	WMD 7	168	WMD 13	17	WMD 19	102	WMD 25	3
2	309	8	331	14	110	20	2	26	4
3	159	9	212	15	1	21	3	27	1
4	479	10	217	16	1	22	2	28	8
5	580	11	240	17	21	23	1	29	0
6	330	12	9	18	57	24	0		

Red Fox Harvest by WMD

WMD 1	5	WMD 7	41	WMD 13	48	WMD 19	35	WMD 25	12
2	13	8	39	14	34	20	60	26	46
3	66	9	43	15	123	21	45	27	40
4	13	10	45	16	84	22	31	28	27
5	21	11	77	17	135	23	115	29	13
6	141	12	44	18	58	24	38		

Grey Fox Harvest by WMD

WMD 1	0	WMD 7	2	WMD 13	1	WMD 19	0	WMD 25	0
2	0	8	0	14	0	20	47	26	0
3	0	9	0	15	34	21	19	27	0
4	0	10	0	16	5	22	1	28	0
5	0	11	0	17	0	23	0	29	0
6	0	12	6	18	0	24	21		

Coyote Harvest by WMD

WMD 1	20	WMD 7	127	WMD 13	54	WMD 19	115	WMD 25	18
2	38	8	115	14	63	20	41	26	68
3	70	9	93	15	147	21	41	27	78
4	45	10	61	16	95	22	29	28	99
5	47	11	116	17	125	23	122	29	86
6	96	12	76	18	109	24	39		

Beaver Harvest by WMD

WMD 1	63	WMD 7	202	WMD 13	233	WMD 19	311	WMD 25	152
2	95	8	294	14	232	20	212	26	269
3	267	9	236	15	435	21	222	27	226
4	177	10	322	16	388	22	339	28	239
5	232	11	660	17	1050	23	726	29	106
6	810	12	146	18	865	24	111		

Mink Harvest by WMD

WMD 1	3	WMD 7	29	WMD 13	58	WMD 19	22	WMD 25	42
2	11	8	24	14	39	20	22	26	32
3	19	9	41	15	76	21	45	27	19
4	15	10	42	16	115	22	75	28	20
5	47	11	64	17	120	23	103	29	6
6	110	12	60	18	60	24	49		

Otter Harvest by WMD

WMD 1	4	WMD 7	12	WMD 13	15	WMD 19	69	WMD 25	14
2	10	8	32	14	29	20	21	26	25
3	16	9	33	15	39	21	21	27	50
4	15	10	24	16	24	22	28	28	51
5	33	11	78	17	69	23	46	29	18
6	40	12	18	18	83	24	21		

3.2 Trapping & Risks to Lynx

Beaver

Beavers are Maine's most frequently trapped mammal (Table 3.1); however, since most traps are set under water and/or ice, beaver sets pose no risk to lynx. Beaver sets may incorporate foothold traps (# 3 or #4), large conibears (e.g., 330), or snares. Although foothold traps are usually thought of as restraining traps, in beaver trapping they are used in conjunction with a drowning wire or are set under water. Thus, nearly all of the traps used for beaver are set in a way to quickly kill the animal. Most sets are placed under water or ice. Land sets are often made near the shore, using sent as an attractant, and with a submerged foothold trap tethered to a drowning wire. The attractants used in beaver sets are not usually of interest to lynx (e.g., aspen twig). Fish or meat is not permitted to be used in beaver sets (Appendix 2, 4.01 K).

Muskrat

Muskrat are commonly trapped in Maine, but the Department does not keep track of the number of animals harvested each year. Small foothold traps (e.g., #1 or #1 ½), 110 conibears, and occasionally, colony box traps are used to capture muskrats. These trap sets are not attractive to lynx, and the size of the foothold trap used may be too small to hold a lynx.

Mink

Mink are trapped using small foothold traps and conibears. As with other semi-aquatic furbearers, underwater and drowning sets are often used for mink. On land, mink sets

are made in runways, expected travel paths (e.g., along a stream bank), and with or without scent lures for attractants. Although some scent lures may be attractive to lynx, mink traps are usually not located in areas frequented by lynx. Current trapping regulations (Appendix 2, 4.01 K) allow conibears with openings 5 inches or less (e.g., #s 120, 110, or 55) to be set on the ground in blind sets. Only scent lures can be used as attractants. It is unlikely that a lynx would be caught in these traps. Trappers pursuing mink in Maine have not incidentally caught lynx.

Otter

Trapping equipment used to capture otters is similar to that used in beaver trapping. Often, otter are caught incidentally by beaver trappers; however, otters may also be targeted by placing traps in otter runs, near latrines, and in specific stream situations. Since otter/beaver traps are usually set under water, they do not pose a threat to lynx.

Fox & Coyote

Fox and coyote are caught using foothold traps (e.g., #1.75 and #2 coil spring traps), and are primarily attracted to these traps with scent lures. These traps are commonly attached by chain to stakes driven into the ground, or by chain to a drag (typically a large double hook meant to become entangled in trees). Most of the incidentally caught lynx in Maine have been taken in fox and coyote sets. However, because foothold traps are used in canid trapping, any lynx that is incidentally caught can usually be released with little or no injury when temperatures remain at or above freezing. When temperatures are substantially below freezing, the possibility of frozen digits is a

concern (Mowat et al. 1994). Traps with longer chains, and that are on drags, are more likely to entangle around vegetation than traps with shorter chains (e.g., < 9 in).

Depending on how the chain is swiveled to the trap, the nature of the entanglement, and the amount of disturbance an animal receives, an entangled chain may allow an animal to put sufficient strain on its leg to break it. The regulatory and information and education steps the Department has taken to encourage trappers to avoid capturing lynx and trap related injuries are given in Section 5 of this document.

Bobcat

Approximately 44% of the bobcats harvested from 1999 to 2005 were harvested by trappers and the rest were killed by hunters. Because lynx and bobcat are similar, lynx would be vulnerable to any trap set specifically for bobcat. In the past, both conibears and foothold traps could be used to catch bobcat. Current trapping regulations in Maine stipulate that in the known lynx range, conibears with openings > 5 inches can only be placed 4 ft. above the ground on trees or poles < 4 inches in diameter, which are at an angle of $\geq 45^\circ$ to the ground. This type of set (principally used for fisher and marten) would have little attraction to bobcat or lynx. Therefore, the only bobcat set that a lynx would incidentally be caught in would be one made with a foothold trap. Only a few trappers target bobcat and most bobcat are caught incidentally by canid trappers.

The geographical distributions of lynx and bobcat overlap at the southern-most extensions of the lynx's range in Maine. It is in this area where lynx are at their greatest risk to bobcat trapping. In 2002, a trapper targeting bobcat trapped a hybrid lynx/bobcat

in this area. At the time, lynx/bobcat hybrids were unknown, and the trapper killed the animal thinking it was a bobcat. Biologists that examined the animal concluded it had the general appearance of a bobcat, but some features (e.g., white hairs under the tail, a little larger feet than normal for a bobcat) indicated that the animal might be a hybrid. Genetic analyses later confirmed that this was a hybrid animal (Homyack et al. 2008).

Marten & Fisher

In Maine, marten and fisher are most often trapped using killing traps (e.g., 120 or 220 conibears). These traps are often baited with meat and/or scent lures and may be attractive to lynx depending on how they are set. It is a widespread practice to hide the trap and bait from plain view by setting them in boxes with an opening at one end (e.g., plastic rural newspaper box). Most often, sets made in newspaper boxes use a 120 conibear; however, 220 conibears can be set in larger boxes or buckets. Starting in 2005, all licensed trappers received information on how to avoid incidental lynx captures. As of fall 2007, Maine trapping regulations stipulate that conibears having openings > 5 inches; which are used in the region of the state where lynx occur, must be set on small diameter (< 4 in [10 cm]) leaning poles (45°), at least 4 ft (1.2 m) above the ground (Appendix 5). Traps set in this manner will not readily be investigated by lynx. Bait can no longer be used in conjunction with conibears set on the ground. Prior to these regulations, conibears posed a risk to lynx if they attempted to reach through the trap opening to obtain the bait. In such cases the conibears would act like a restraining trap, holding the lynx by the forelimb until it was released. If a lynx

attempted to enter the trap, the conibear would close on its head or neck and kill it. Both 120 and 220 conibears have killed lynx.

Raccoon

Raccoons are trapped in Maine; however, the Department does not track how many raccoons are harvested each year. Raccoons are trapped using small foothold traps, enclosed foothold traps (e.g., egg-trap or duffer), and conibears (e.g., 220). Although raccoons and lynx occur together in northern Maine, raccoon densities are much lower than in southern Maine, and they are seldom targeted by trappers in northern Maine. In 8 years of trapping in the lynx study, only two raccoons have been caught in foothold traps. Given their low densities in areas where lynx occur, the lack of interest in trapping raccoon in northern Maine, and the high species specificity of some raccoon traps (e.g., enclosed foothold traps), lynx are highly unlikely to be caught in a trap set for a raccoon.

4.0 Potential Biological Impacts / Take Assessment

4.1 Direct and Indirect Impacts

Canada Lynx

Lynx Trapping in N. America

With the exception of its southern most range in the United States and the Maritime provinces of Canada, Canada lynx are hunted and trapped as a furbearing animal throughout most of their range (Bailey et al. 1986, Poole 2003, Alaska Dept. of Fish and Game 2004). Lynx harvest rates from these areas may vary considerably from year to year because, in these areas, lynx populations fluctuate in tandem with cyclic snowshoe hare populations. In Alaska, from 1998 to 2003 the mean number of lynx taken by hunting and trapping each year was 2,651 animals (Alaska Dept. of Fish and Game 2004). In Canada, from 1998 until 2002, the mean annual harvest rate of lynx was 8,986 animals (Poole 2003). Taking into account the variability of the harvest, MDIFW conservatively estimates that on average over 10,000 lynx are harvested for their fur each year in North America. The harvest of these animals is regulated at the provincial and state level (e.g., Alaska Dept of Fish and Game 2004), and does not pose a threat to the lynx population of North America.

Bailey et al (1986) reported that lynx of different ages and sex are not equally vulnerable to trapping. Juvenile animals were nearly 5 times as vulnerable to tapping as adults, and adult males were twice as vulnerable as adult females. Kittens were

particularly vulnerable to trapping and starvation if their mothers, who they usually travel with their first year, were killed (Bailey et al. 1986). In Maine, we did not observe the same differential vulnerability of lynx to trapping as Bailey et al (1986). Trapping records collected over the 8 years of our radiotelemetry work, and since 1999 for lynx caught incidentally by trappers, indicate male lynx were only slightly more vulnerable to trapping than females, and juveniles (< 1 yr of age) were less vulnerable than adults (MDIFW unpublished data; Table 4.1). The lower vulnerability of kittens to trapping was similarly observed by Quinn and Thompson (1987). The differences in vulnerability of lynx to trapping observed in Alaska (Bailey et al. 1986) and Maine may be due to differences in trapping pressure and in adult trapping mortality between the two jurisdictions. In Alaska, lynx are legally trapped and killed for their fur, and Bailey et al. (1986) reported heavy trapping pressure (80% of radioed lynx were killed because of trapping) on the Kenai. This heavy trapping pressure may have resulted in many juveniles being orphaned, and consequently, becoming more vulnerable to trapping. In Maine, almost all lynx that are incidentally caught in traps can be released unharmed, and trapping pressure on lynx is low. The highest proportion of radiocollared lynx caught in any one year during Maine's radiotelemetry study was in 2004 when 3 out of 22 (14%) radiocollared lynx were captured by recreational trappers (i.e., 2 non-lethal captures in Maine, 1 lethal capture in Canada). Given the low trapping pressure on lynx in Maine, there would be little reason to expect that many juveniles are being orphaned because of trapping, or that juvenile survival is significantly impacted because of trapping.

We hypothesize that juveniles accompanied by their mother are less vulnerable to trapping than orphaned juveniles due to the tendency of the adult female to assume the lead when traveling and in investigating novel objects in their environment. In addition, other studies (e.g. Brand and Keith 1979) suggest starving lynx are more vulnerable to trapping than lynx receiving adequate nutrition. We assume that the hunting efficiency of a mother and kittens is higher than for a kitten on its own (e.g., Bailey et al. 1986), and that kittens with their mother have a higher plane of nutrition than orphaned kittens. Supporting evidence for this hypothesis includes (1) snowtracking observations in Maine which indicate that juvenile animals closely follow the adult female - often walking in her footprints; (2) the difficulty of catching juvenile lynx in cage traps when they are with their mother (Jennifer Vashon, MDIFW, personal communication; John Squires, US Forest Service, Missoula, MT, personal communication; Tanya Shenk, Colorado Division of Wildlife, personal communication; Ron Moen, University of Minnesota - Duluth, personal communication); and (3) the ratio of juveniles to adults trapped during our radiotelemetry study, and in other studies where the lynx population is not heavily exploited.

Specific Causes of Mortality

Over the 8 years of the Department's radiotelemetry study, the sample of adult lynx that were radiocollared experienced roughly an 18% annual mortality rate (Table. 2.2). Starvation was the leading cause of mortality, followed by unknown causes, and predation (Table 2.3; Vashon et al. 2005). Maine's overall mortality rate for lynx was similar or lower than reported for other lynx populations; however, small sample sizes

and high variability make it difficult to make direct comparisons with other jurisdictions. In Washington, when hares were scarce, natural mortality rates were estimated to be < 25% (Bailey et al. 1986). In the Northwest and Yukon Territories, untrapped lynx populations had annual mortality rates of 8-11% and 0-22%, during hare population peaks, and mortality rates of 63%-75% and 0-60% during hare lows, respectively (Poole 1994, Slough and Mowat 1996).

Overall, Maine's lynx population has increased since 1999 (MDIFW 2006). The growth of Maine's lynx population at a time when its annual mortality rate was approximate 18% underscores that Maine's lynx population can readily sustain this level of mortality. Maine has had no open season on lynx since 1968; therefore, any lynx takings have either been accidental (e.g., road mortality), illegal (e.g., poaching), or incidental to trapping (Table 4.2). Only 2 lynx deaths have been directly attributed to trapping since lynx were federally listed as a threatened species. Conservatively, the Department estimates that there are at least 500 lynx in Maine (MDIFW 2006). If this population figure was used to estimate the percentage of the lynx population taken incidentally by Maine trappers, the highest mortality rate for trapping during any given year was 0.4%. These lynx were killed in 2005, and that was the only year, out of 7 years of monitoring (1999-2006), in which there were any lynx mortalities attributable to incidental trapping. Consequently, the small number of lynx killed by incidental trapping has not impacted Maine's lynx population growth or stability.

Although the mortality rates recorded during the Department's lynx radiotelemetry study may not be representative of all of northern Maine, and sample sizes may be small for extrapolating mortality rates to other areas of the state, nevertheless, some perspective may be gained by comparing mortality rates of radiocollared lynx to mortality rates of lynx in the statewide population that were attributed to incidental trapping. In 2005, the same year when two lynx were killed incidentally in conibear traps in Maine, trappers in Canada killed 2 lynx radiocollared in Maine. That year, 27 lynx were radiocollared (Table 2.2). It is roughly estimated that trappers in Canada took about 7% of Maine's radiocollared lynx population, which accounted for 33% of all mortalities that year to study animals. In comparison, a much lower percentage -- i.e., 0.4% -- of the state's lynx population may have been killed incidentally in traps set by recreational trappers in Maine. The lynx mortality rate that is attributable to Maine trappers each year is orders of magnitude lower than in jurisdictions where lynx trapping is legal. In these jurisdictions, the proportion of a lynx population taken by trapping varies greatly depending on the price being offered for lynx pelts. In the early 1970s in Alberta, trapping mortalities averaged 10% during years of low pelt prices but increased to 29% when pelt prices more than doubled (Brand and Keith 1979). Bailey et al. (1986) reported that 86% of their radiocollared lynx were taken over a 649-day period on the Kenai in Alaska when pelt prices were high, and in Canada, trapping is the major mortality factor for some lynx populations (Poole 2003). Brand and Keith (1979) concluded that trapping mortality is likely additive to natural mortality; that is, trapping is not removing a surplus of animals in the population that would have likely died from natural causes anyway.

Table 4.1 Description of lynx incidental trapping incidents in Maine from 1999 to 2006.

Date incident	Age Class	Sex	Type of Trap	Securing method	Response type	Degree of injury^a, if any	Type of Injury
10/18/1999	Adult	Male	Foothold	Staked	Assist with release	Mild	Tiny bit of blood on 3rd tow, no cut on toe was evident; minor injury
10/1 /2000	Adult	Unknown	Foothold	Unknown	Trapper Released	Unknown	
10/26/2000	Adult	Male	Foothold	Drag	Assist with release	Severe	Broken leg (ulna and radius), x-rayed in Presque Isle and rehabilitated at Tufts
10/21/2001	Adult	Female	Foothold	Unknown	Assist with release	Mild	small laceration on one toe
10/26/2002	Adult	Unknown	Foothold	Unknown	Trapper Released	Unknown	
10/22/2003	Unknown	Unknown	Foothold	Unknown	Trapper Released	None	
11/1/2003	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
11/2/2003	Adult	Female	Foothold	Drag	Assist with release	Mild	Small puncture above capture; Slight swelling; caught high just below wrist
11/22/2003	Unknown	Unknown	Foothold	Drag	Assist with release	Unknown	
10/21/2004	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
10/21/2004	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
10/23/2004	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
10/23/2004	Adult	Unknown	Foothold	Staked	Trapper Released	None	
10/25/2004	Unknown	Unknown	Foothold	Staked	Trapper Released	Unknown	
10/27/2004	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	

Table 4.1

Date incident	Age Class	Sex	Type of Trap	Securing method	Response type	Degree of injury^a, if any	Type of Injury
10/28/2004	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
11/7/2004	Juvenile	Female	Conibear	N/A	Assisted with release	Mild	X-rays revealed no broken bones; however, there was a lot of swelling. Animal was rehabilitated and released.
11/12/2004	Adult	Female	Foothold	Staked	Trapper Released	Unknown	
11/14/2004	Unknown	Unknown	Foothold	Unknown	Trapper Released	Unknown	
11/16/2004	Adult	Female	Foothold	Drag	Assisted with release	Mild	Slight cut on bottom of foot
10/1 /2005	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
10/18/2005	Adult	Male	Foothold	Staked	Assisted with release	Mild	Small cut inner left toe, small cut top of foot
10/26/2005	Adult	Male	Foothold	Drag	Assisted with release	Mild	Small puncture middle two toes. Small amount of blood
11/1/2005	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
11/1/2005	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
11/19/2005	Juvenile	Male	Conibear	N/A	Assisted with release	Severe	Four frozen toes, swelling, bone chipped on leg bone. Animal was rehabilitated and released.
11/22/2005	Juvenile	Unknown	Conibear	N/A	WS investigation	Fatality	
12/6/2005	Adult	Male	Conibear	N/A	WS investigation	Fatality	
10/15/2006	Unknown	Unknown	Foothold	Drag	Trapper Released	None	

Table 4.1

Date incident	Age Class	Sex	Type of Trap	Securing method	Response type	Degree of injury ^a , if any	Type of Injury
10/19/2006	Unknown	Unknown	Foothold	Staked	Trapper Released	Unknown	
10/20/2006	Unknown	Unknown	Foothold	Drag	Trapper Released	None	
10/26/2006	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
11/7/2006	Unknown	Unknown	Foothold	Unknown	Trapper Released	Unknown	
11/16/2006	Adult	Male	Foothold	Staked	Assisted with release	None	
10/15/2007	Adult	Female	Foothold	Staked	Assisted with release	Mild	One minor <1/8" skin laceration
10/17/2007	Unknown	Unknown	Foothold	Drag	Trapper Released	Unknown	
10/18/2007	Adult	Male	Foothold	Staked	Assisted with release	None	
10/23/2007	Unknown	Unknown	Foothold	Staked	Trapper released	Unknown	
10/25/2007	Adult	Male	Foothold	Drag	Assisted with release	None	
10/26/2007	Unknown	Unknown	Foothold	Staked	Trapper released	Unknown	
11/8/2007	Adult	Male	Foothold	Drag	Assisted with release	None	
11/13/2007	Adult	Male	Foothold	Staked	Assisted with release	Mild	Small laceration the size of a pea on top of the foot

^aMild injuries were those that would be assigned a trauma score ≤ 10 under ISO (International Standards Organization) standard (ISO/TC 191) ISO 10990-5:1999. The incidental capture on 1/19/2005 would not be scored as a severe trauma under ISO standards; however, we were unsure of the severity of frostbite and treated it as a severe injury. ISO standard 10990-5:1999 is same standard used to evaluate injuries caused by restraining traps during the development of Best Management Practices for trapping in the United States.

Table 4.2. Incidents of lynx takings recorded by the Maine Department of Inland Fisheries and Wildlife since the start of the Department's lynx project in 1999. Takings include captures by trapping where there was no apparent injury to the animal.

Date	Number Incidentally Trapped	Trapping Mortality	Vehicle Mortalities	Poaching ^a
1999	1	0	0 reported	1
2000	2 ^b	0	1	0 reported
2001	1	0	0 reported	0 reported
2002	1	0	1	0 reported
2003	4	0	1	0 reported
2004	11 ^c	0	3	0 reported
2005	8 ^{d, e, f}	2	3	1
2006	6	0	2	2
2007	8	0	4	1
Totals	42	2	15	5

^a. The 1999 and 2005 animals that were poached were radiocollared animals; one radiocollared lynx in 2006 was shot, the other lynx had not been radiocollared and its pelt was intercepted at the U.S. / Canadian border.

^b. One trapped lynx had a broken ulna as the result of the trap chain becoming entangled around a tree. The #3 foothold trap was set for coyote using a drag chain. The animal's fracture was treated at Tufts University, and the animal was successfully rehabilitated and released.

^c. One lynx had its foot caught in a #120 conibear set for marten on the ground. A veterinarian examined the animal and found no broken bones. The animal was rehabilitated and released.

^d. One animal was caught twice once in a foothold trap and again in a #120 conibear set for marten.

^e. One animal was caught by its foot in a #120 conibear, examined by a veterinarian, rehabilitated, and released.

^f. Two animals were killed in conibear sets. One set (#120 conibear) was made on the ground for marten, and another set (#220 conibear) was made on a leaning tree for fisher.

Biological Impacts in a Declining Population

Trapping or other forms of human-caused mortality can be classified as being density dependent or independent. Density independent mortality refers to a mortality rate that occurs at the same rate (i.e., deaths per capita) regardless of the density of the population. For example, if incidental trapping was density independent⁵, and trappers caught 2 lynx out of every 100 lynx in the population when there were 500 lynx in the population (i.e., 10 lynx total taken), then trappers would still catch 2 lynx out of 100 lynx in the population, or 5 lynx total, if the population dropped to 250 lynx. Density dependent mortality rates change with the density of a population. For example, a greater proportion of animals in a population may die from a disease when the population is at a high density than when it is a low density (Caughley and Sinclair 1994).

At this time there is insufficient evidence to conclude whether human-related mortality in lynx populations is density dependent or independent (Steury and Murray 2004). In some circumstances declining prey or lynx densities may lead to trapping rates becoming density dependent. At the very beginning of a hare population crash, lynx may initially be less vulnerable to trapping (Slough and Mowat 1996:957). This lower vulnerability to trapping may be the result of snowshoe hare being very vulnerable to predation and the affect this has on lynx movements and interest in baited traps.

⁵ Poole (1994:614) reported a 10-fold change in the lynx population size in the Fort Providence area. Approximately 10% of this population was removed annually at peak densities and 12% of the population was removed when lynx densities were at their low (i.e., little evidence of density dependence in the trapping rate).

Subsequently, when prey is scarce and lynx densities are decreasing, lynx may increase their movements to search for food and/or become more attracted to bait than at high hare densities (Brand and Keith 1979). However, Slough and Mowat (1996) did not see a consistent pattern of lynx becoming more vulnerable to baited traps as snowshoe hare densities declined. It appears that local or regional differences (e.g., trapping pressure, habitat, or prey densities) may influence whether trapping mortality may become density dependent as a lynx population declines.

Although catching a lynx in a foothold trap is considered a take and a violation of the federal ESA, this type of take has no detrimental effect on the lynx population if the lynx is released back into the wild without incurring an injury that would lower its chances of survival. With current regulations governing the use of conibears in Maine, the probability of a lynx being killed in a foothold trap is very low. Therefore, we would anticipate little impact from incidental trapping, if Maine's lynx population were to decline.

4.2 Anticipated Take: Canada Lynx

The process of estimating future rates of lynx takings related to trapping must take into account a number of discrete components that potentially could affect the rate of take. These include 1.) lynx densities, 2.) trapping effort, 3.) types of take, and 4.) the differential vulnerability of different segments of the population (sex, age) to trapping.

Lynx density predictions

To determine lynx population trends and the rate of change in the lynx population, a series of surveys which would enumerate the size and density of the population would be ideal. However, these surveys have not been considered practicable over a large geographical area because a). the low density that lynx occur on the landscape, b.) the cryptic nature of lynx and the difficulty of spotting them from the air or ground, and c.) the personnel and time that would be needed to do a mark-recapture study for a large area like northern Maine. As an alternative to counting individuals in a population, we used population indices such as incidental trapping rates, lynx sightings, and road mortalities to gauge the level of change in the lynx population. Although the number of lynx being incidentally trapped was used as an index to lynx population changes, the trapping of lynx is never encouraged, and is considered purely incidental to other forms of legal trapping. Biological data (e.g., kittens produced / adult female lynx) from Maine's lynx research area were used to help interpret these indices. Ideally, information on lynx sightings, snowshoe hare densities, or habitat conditions could be used along with demographic and home-range data from the lynx study to develop a more precise population model. The feasibility of such a modeling effort still needs to be explored. Currently, detailed information on lynx and snowshoe hare are only available for a small portion of northern Maine. Biological data would need to be collected from other regions of northern Maine if changes in the statewide lynx population were to be tracked.

We used lynx population indices collected from 1999 to 2007, and snowshoe hare data to predict future lynx population trends. Overall, from 1999 to 2006, lynx sightings increased in frequency and distribution (Fig. 2.1), the number of lynx being struck by vehicles increased ($P = 0.002^6$; Table 4.2), and the number of incidentally trapped lynx increased ($P = 0.013^6$; Table 4.2). Although there has been an increase in Maine's lynx population since 1999, it appears that the lynx population may have reached a plateau or peaked in 2004. We based this conclusion on 1) incidental trapping rates for lynx, 2) kitten production rates, 3) snowshoe hare habitat projections, and 4) snowshoe hare densities (1-4 described below).

(1) Incidental trapping rates for lynx peaked in 2004 for the period of 1999 to 2007⁷. We assumed that the rate of incidental trapping for lynx during this period varied in direct proportion to the number of lynx in the lynx population (i.e., density independent relationship, under which the per capita trapping rate stayed the same; see Section 4.1 and references therein). From these data, we would speculate that the lynx population has not increased in density since 2004.

(2) Since 2003, on the lynx study area, the number of kittens produced per adult female declined (Fig. 4.1). Although kitten production has declined in the study area, this information in itself is not sufficient to conclude that Maine's lynx population has declined. If lynx in Maine have a large amount of variability in their reproductive

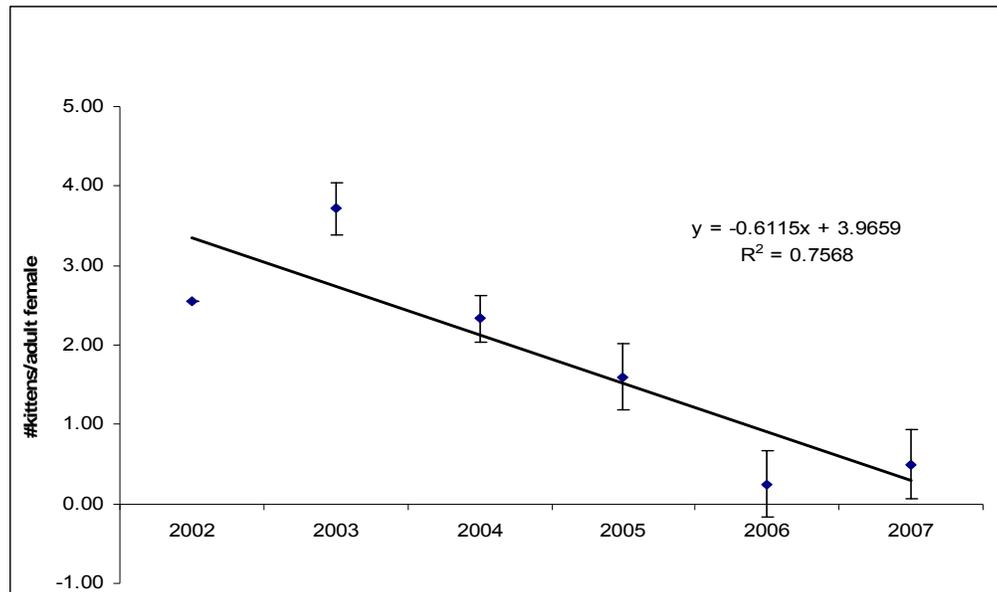
⁶ Linear regressions were used to determine whether there was a trend to these data.

⁷ The 2007 trapping season was still in progress at this time. As of Nov. 18, 2007, 8 lynx had been incidentally trapped.

rates, the recent decline in reproduction may just be a temporary decline in an otherwise growing population. Lynx reproduction has not been studied long enough in Maine to determine its natural variability. In addition, the lynx study area is not representative of all of northern Maine. Therefore, even if lynx were declining in the study area, the same might not be true for other areas of the state. We conclude that changes in kitten production levels are consistent with other evidence that indicates that lynx numbers have not increased since 2004, at least in the vicinity of the lynx study area.

- (3) Long-term changes in Maine's lynx population will likely be dependent upon the amount of suitable habitat available for their main prey item -- snowshoe hare. Unlike other regions where lynx and snowshoe hare occur, Maine's snowshoe hares do not appear to be cyclic over broad areas. Therefore, regional snowshoe hare abundance is more related to habitat conditions than to a regional population cycle. The best habitat for snowshoe hare in Maine is composed primarily of regenerating conifer stands that provide cover from predators because of their high stem densities (Litvaitis et al. 1985). Currently, about 2/3 Maine's forests are comprised of regenerating stands of timber and pole size timber (Department of Conservation 2005), which are the timber classifications that include most of Maine's snowshoe hare habitat. Many of these regenerating conifer stands are nearing the age where they will no longer provide optimal habitat for snowshoe hares (Jakubas and Cross 2001, Robinson 2006).

Fig. 4.1 Mean productivity of adult (≥ 1 yr) female lynx radiocollared in northern Maine (unpublished data, Maine Department of Inland Fisheries and Wildlife). The rate of productivity was measured as the mean (mean \pm standard error) number of kittens born to all adult females during a given breeding season.



The declining habitat conditions in Maine support the hypothesis that lynx numbers are no longer increasing. In addition, it may be unreasonable to expect lynx numbers in Maine to increase significantly in the near future, given current forest conditions and forest harvesting patterns.

In addition to the loss of hare habitat due to successional changes in Maine's forests, current forest harvesting practices may reduce the amount of optimal hare habitat in the future. Following the spruce budworm outbreak of the late 1970's and early 1980's, large blocks of regenerating conifer stands were created from salvage cuts (primarily clearcuts), creating very good lynx habitat. Current forest cutting practices in Maine, in response to public pressure and regulations, rely less on

clearcutting (Maine Forest Service 2006) and more on partial cuts (e.g., shelterwood cuts). There is a growing body of evidence which suggests that current forest practices may not produce conifer stands that are capable of supporting hare densities which are as high as those occurring in stands of regenerating clearcuts (Fuller 2006, Robinson 2006, Homyack et al. 2007).

(4) Hare densities are one of the most important factors determining whether lynx can persist in an area (Steury and Murray 2004); however, there is insufficient information, at this time, to use hare densities to predict lynx densities. Snowshoe hare densities have decreased in regenerating conifer stands in the Clayton Lake study area and at the Telos study area (approximately 75 km to the south of Clayton Lake) in 2006 (unpublished data, Dan Harrison, University of Maine, Orono; unpublished data, Jennifer Vashon, MDIFW; Fig. 4.2). Snowshoe hare densities, in the best habitats at these sites, are now below 1.5 hares / ha, which may be close to the threshold needed to support a lynx population (Steury and Murray 2004)⁸. Unfortunately, the exact density of hare needed to maintain a lynx population in Maine or elsewhere is not known. Furthermore, it would be speculative to suggest that other hare populations in Maine are experiencing similar density fluctuations as the hare populations near Clayton Lake and Telos. However, lower hare densities are consistent with our observations of low levels of lynx reproduction and with the hypothesis that lynx numbers in Maine are no longer increasing.

⁸ The threshold density of snowshoe hare needed to support a lynx population (Steury and Murray 2004), may be too high, and not representative of hare densities that were present at a landscape scale (Bill Krohn and Dan Harrison, University of Maine, personal communication).

Incidental Trapping Rate

Another factor that MDIFW took into account when estimating future rates of lynx trapping was trapping effort (e.g., number of trap nights). The majority of lynx that are incidentally trapped are caught in foothold traps set for coyotes and fox. We assumed that future trapping effort on coyotes and fox would remain similar to current levels.

Although there is no way to predict future trapping effort with any certainty, current trapping trends, pelt prices, and public attitudes towards trapping do not portend an increase in trapping rates (Flather et al 1999, Armstrong and Rossi 2000, Muth et al.

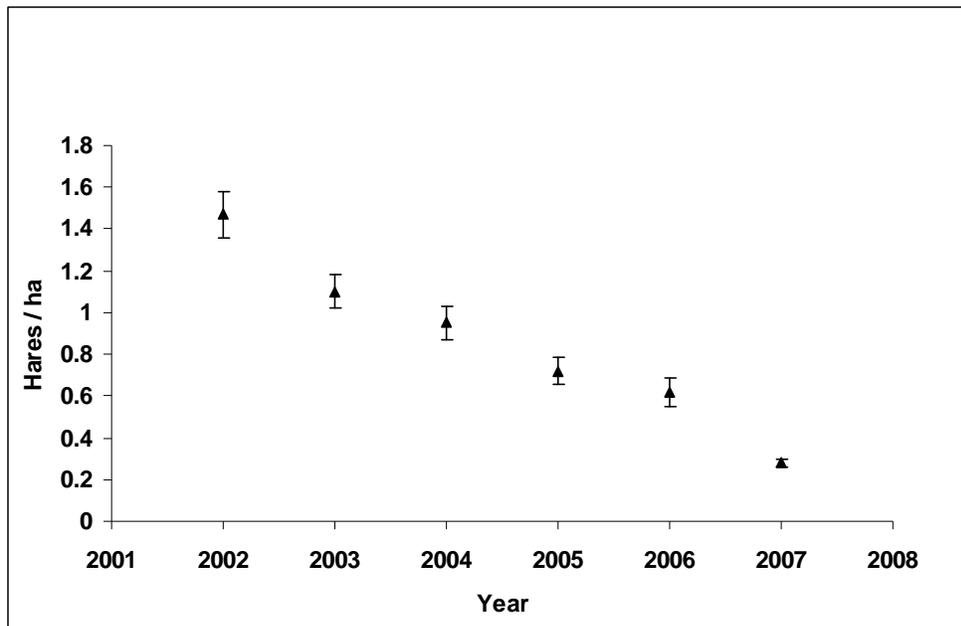
2006). We used the maximum number of lynx incidentally trapped in any one year from 1999 to 2006 (i.e., 11 in 2004) to approximate future incidental trapping rates for lynx (lynx trapped / year).

Categories of Take & Predictions

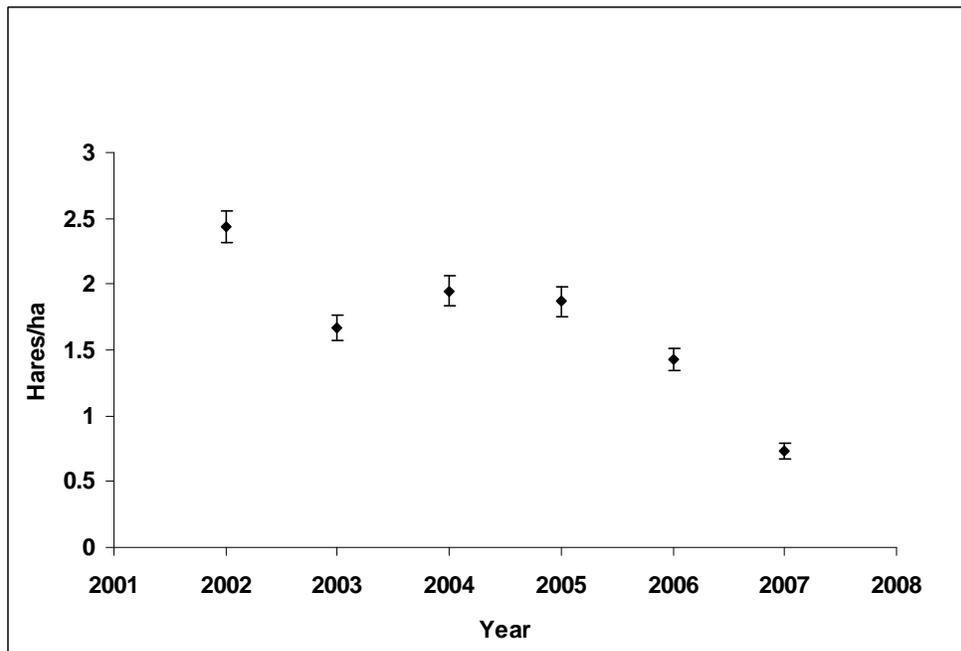
We subdivided the level of incidental take from 1999 to 2006 into 5 categories (Table 4.3). In many cases the injury status of the animal was unknown, because the trapper released the animal and Department personnel could not verify whether or not the animal was injured or not. Of those animals that were caught in a foot-hold trap whose injury status was known (n = 11), approximately 45% (n = 5) had no discernable injury, 45% (n = 5) had mild injuries (e.g., small laceration), and 9% (n = 1) had a severe injury (e.g., broken leg). Of the 4 lynx that were caught in conibear traps, 2 had injuries requiring rehabilitation, and two were killed.

Fig. 4.2 Winter snowshoe hare densities (hares / ha) near Clayton Lake, Maine in (a.) conifer or mixed conifer stands that were pole size (7.9 to 12.2 m in height) and in (b.) conifer sapling stands (3.4 to 7.6 m in height). Hare densities were determined from pellet plots following Homyack et al. (2006).

a.



b.



All lynx mortalities to date have been associated with conibear traps. In an effort to minimize incidental trapping mortalities to the maximum extent practicable, MDIFW promulgated rule changes in 2007 to restrict the placement of conibear traps in the lynx range (Appendix 5). The new rules on the use of conibears, if followed, should eliminate mortalities associated with conibear trapping. In addition, these new rules should reduce the number of major injuries that result from incidental trapping. In the past, foot and leg injuries have occurred when a lynx sprung a conibear trap with its paw or forelimb, while reaching for bait.

The mortality and major injury risk to lynx caught in foothold traps is extremely low, if trapping regulations are followed. For example, #3 foothold traps, with padded offset jaws were selected for trapping lynx for the Department's lynx research project. In this study, lynx were caught 78 times in foothold traps by Department biologists and none of the captures resulted in a lynx requiring veterinary attention. Maine law (Appendix 1, Title 12, Chapter 917, §12255) requires trappers to check foothold traps every 24 hr, which greatly lowers the risk of injury to animals in traps. There is a remote possibility that a lynx caught in a trap could be attacked by another animal; however, such an attack has not occurred during the 8 years lynx have been trapped as part of the USFWS / MDIFW lynx study. Assuming that the lynx population is stable or will decline, we predict that the number of lynx caught each trapping season will fluctuate around 11 animals (Table 4.4). Barring poaching incidents, we would expect ≤ 1 lynx mortality, every 5 years that would be related to foothold traps (Table 4.4). From 1999 to 2006,

Table 4.3. The number of lynx incidentally trapped per year in Maine categorized by the animal's injury status.

Year	Lynx Caught	Trapped & Released No Injury	Trapped & Released Injury Status Unknown	Trapped & Released Mild Injury	Trapped, Injured, Rehabbed & Released	Trapping Mortality
1999	1	0	0	1	0	0
2000	2	0	1	0	1	0
2001	1	0	0	1	0	0
2002	1	0	1	0	0	0
2003	4	1	2	1	0	0
2004	11	1	8	1	1 ^a	0
2005	8	0	2	1	1	2 ^b
2006	6	3	3	0	0	0
2007	8	3	3	2	0	0

^aThis lynx was caught by the foot in a #110 conibear set on the ground. The animal's foot was swollen and was taken to a veterinarian for examination. No broken bones were found. The animal was rehabilitated for 1 week and released at the capture site. The animal died 2 weeks later of starvation.

^bThese animals were killed in conibears (#110 and #220) that were not set on leaning polls < 4" in diameter. Note that if a lynx enters a conibear trap head first it is likely it will be killed in the trap. If a lynx reaches through a conibear trap to obtain the bait, it will be caught on the forearm or paw. As of fall of 2007, all trappers in the lynx range were required to set conibear traps \geq 4 ft. off the ground, on trees or poles that were < 4" in diameter, and that stood at an angle of \geq 45°.

the lynx mortality rate that was directly attributable to trapping was 1.25 lynx for every 5 years; however, these mortalities resulted from lynx being caught in conibear traps.

Differential Vulnerability to Trapping

To estimate future incidental trapping rates of lynx the Department took into account that not all segments of the lynx population (i.e., animals of different ages or sex) may have the same vulnerability to trapping. For example, Bailey et al. (1986) observed that

juvenile lynx may be more vulnerable to trapping than adults. In addition to being directly caught in traps, juveniles may indirectly die from trapping if their mother is killed in a trap. Juveniles have starved after their apparent mothers had been trapped and killed (Bailey et al. 1986). These authors speculate that the juveniles were unable to find sufficient prey after the death of the adult females, and that juvenile lynx may be dependent on the hunting ability of their mother during their first winter. We anticipate few, if any, juvenile mortalities resulting from the incidental trapping of adult females with kittens. The juvenile mortalities that Bailey et al. and others observed occurred in conjunction with adult female mortalities. Over the course of the lynx study in Maine, females that were trapped, radiocollared, and that were traveling with kittens always reunited with their kittens (MDIFW, unpublished data). Similarly, kittens that were trapped and released were able to reunite with their mothers. Therefore, we do not anticipate any kitten mortalities resulting from adult females or kittens being incidentally caught in foothold traps and subsequently released.

We only anticipate one lynx mortality every 5 years. Maine data (MDIFW unpublished data) indicate that female and male lynx have an equal chance of being caught in an incidental trapping incident (but see Bailey et al. 1986). Therefore, there is approximately a 50% probability that if one lynx mortality occurs during a 5 year period, that the mortality would be a female lynx. Approximately, 75% of the radiocollared, adult, female lynx in MDIFW had kittens from 1999 to 2007, and of those having kittens, their litter size averaged 2.4 kittens per adult female per year (Fig. 4.1; MDIFW unpublished data). We recognize that kittens orphaned in the fall have a higher

mortality risk, than kittens accompanied by their mother, but also that loss of the mother does not mean the certain death of her offspring their first winter. We assumed the worse case scenario, that if a female was killed in a trap both kittens would die. Based on the probability of catching a female lynx in a trap and our anticipated mortality rate from incidental trapping, we would anticipate that <1 lynx kitten may die every 5 years as a result of incidental trapping (Table 4.4).

The survival rate of orphaned kittens would be very difficult to monitor. Determining the survival rate of orphaned kittens would require capturing and radiocollaring the kittens after the adult female was killed. This may be difficult or impossible depending on the circumstances (e.g., weather, time of the capture). Furthermore, unless tracking conditions are favorable or kittens are seen, it may not be possible to determine whether an adult female lynx that was killed in a trap was accompanied by kittens (adult females have stopped lactating by the start of the trapping season). Therefore, we can only assume that if a female lynx dies in a foothold trap that on average 2 kittens may die.

Incidental Take Request

The Department's incidental take request is based primarily on 5-year averages because of the anticipated low incidences of severe injuries and mortalities that may result from the incidental trapping of lynx (Table 4.5). In the event that a mortality or severe injury occurs prior to the end of the first 5 years of the permit, we have outlined a course of action to further reduce the probability that additional takings of this nature will

Table 4.4. Predicted incidental capture rates from trapping and associated injuries and mortalities for lynx in Maine. Rates are presented as annual rates, 5-year rates, and totals for the duration (2008 to 2023) of the proposed Incidental Take Permit. The severity of the injury follows the trauma classification given in ISO (International Standards Organization) 10990-5:1999 (ISO/TC 191).

Capture Event	Annual Rate	5-year Rate	Total Over Life of Permit (15 yr)
Lynx Incidentally Trapped	11 ^a	55	165
Trapped & Released No Injuries	5.3 ^b	26	79
Trapped & Released Mild Injuries	5.2 ^b	26	78
Trapped & Released Severe Injuries	0.2 ^c	1	3
Adult Trapping Mortalities	0.2 ^d	1	3
Juvenile Trapping Mortalities	0.13 ^e	0.65	2
Total Lynx Mortalities	0.4	2	5

^aIn 2004, the highest number (11) of lynx were incidentally caught and the lynx population likely reached its peak or began a decline. We assumed the incidental catch rate would fluctuate around this figure in the future.

^bThis rate was determined from the proportion of incidentally trapped lynx known to have incurred an injury of similar severity from 1999 to 2006. The 5-year and annual capture rates were back calculated from the 15-year totals.

^cOnly 1 lynx in 8 years was known to have incurred a major injury from an incidental trapping incident involving foothold traps. We anticipate that 1 or fewer major injuries would occur every 5 years.

^dLynx mortalities due to incidental trapping should only occur under unusual circumstances after 2007 rule changes to Maine's laws regulating conibear traps. To cover these unusual circumstances we estimated that only 1 lynx every 5 years would die from causes stemming from an incidental trapping incident.

^eJuveniles have a greater probability of dying if orphaned early in the winter. The juvenile mortality rate was calculated using the expected adult mortality rate (d), the probability that the adult would be a female (50%), the probability that an adult female would be pregnant (75%), and the mean litter size in Maine ($\bar{X} \approx 2.4$)

occur. A similar strategy may be applied if the annual incidental trapping rate (i.e., with no or only mild injuries) is met or exceeded. We ask that the USFWS take into consideration the rate of severe injuries or mortalities over the duration of the 15 years of the permit, rather than treat each 5-year period independently. As such, if one mortality occurred in year 6, and no other mortalities had previously occurred, the Department would still be considered to be under the permitted mortality rate of 1 every 5 years. Likewise, if 2 mortalities occurred in year 10 of the permit, and no other mortalities had previously occurred, the Department would not have exceeded the allowable level of incidental mortalities. Although the Department may not have exceeded the allowable rate for incidental mortalities in these incidences, it recognizes

Table 4.5 Incidental take request for lynx incidentally caught in foothold traps in Maine. The total number of Incidental Trapping Incidents was increased by 20% over expected values to allow for fluctuations in lynx population growth.

Category	Take Request
Adult lynx mortality	1 every 5 years
Juvenile lynx mortality	2 as the result of 1 adult female mortality every 10 years
Total Incidental Trapping Incidents	65 every 5 years
Incidental Trapping Incidents (major injury)	1 every 5 years

the importance of reviewing the factors behind all takings that result in severe injury or mortality.

The Department is requesting a permit for takings that are a direct result of the incidental trapping of lynx, and the indirect result of female lynx being killed in a trap. We recognize that by assuming 2 kittens will be killed for every female killed in a trap, we are assuming the worse case scenario, given that the female may not have had kittens (~ 25% probability), one or more kittens may not have survived until the trapping season (first year survival for kittens ~ 78%), and that not all orphaned kittens die. For takings that involve the incidental trapping of lynx, where there is no apparent or only minor injury, MDIFW requests a permit for 11 incidental captures per year, plus 20%, to account for variations in the lynx population. Previously in this section (Incidental Trapping Rate) we speculated that Maine's lynx population would fluctuate near 2004 levels. In 2004, 11 lynx were incidentally caught. We do not know whether the current decline in lynx productivity is temporal or represents a shift in the reproductive rate as Maine's lynx population comes into equilibrium with its environment. To allow for the possibility of further growth in the lynx population we are requesting a permit to allow for 20% more incidental captures than 2004 levels (i.e., 13 lynx). Since the probability of major injury or trapping mortality is so low, we are not requesting a 20% increase from the predicted levels of take in these categories (Table 4.4; Table 4.5).

Implementation of Plan

If a category of take meets or exceeds the level requested in the permit the Department will assume that the take is evidence that the minimization measures currently in place are insufficient. The Department will work with the USFWS on a case-by-case basis to address the circumstances that led up to the incidental taking. Although it may appear desirable for the Department to outline the specific actions it would take to reduce the probability of additional takings that would exceed the permitted level, MDIFW believes that the problem must be identified first; prior to selecting the tool to fix it. We have provided examples of actions that might be considered under certain circumstances.

Steps that will be taken to reduce the probability of further incidental takes include

- a.) notification of the USFWS of the taking,
- b.) determining the circumstances that led up to the incidental take,
- c.) determining whether a trend exists in the circumstances behind this and other incidental takings,
- d.) conferring with the USFWS and Maine trappers on ways to eliminate the reoccurrence of similar circumstances (e.g., eliminate the use of drags on foothold traps), and
- e.) taking the steps (regulatory or informational) needed to bring about the recommended changes. These actions may include seasonal bag limits, area specific trapping closures, equipment modifications, trapping permits, or outreach programs.

Examples of actions that might be taken to reduce lynx incidental take:

Hypothetical Problem: An increase in coyote pelt prices has dramatically increased trapping effort and the number of lynx being incidentally trapped.

Possible Solutions:

- a. MDIFW could limit the number of fox or coyotes a trapper could take in a season.
- b. Trapping canids could be restricted to permit-only trapping within the lynx range.
- c. Portions of the lynx range could be made off-limits to trapping.

Hypothetical Problem: There has been an increase in major injuries related to foothold traps that utilize a drag.

Possible Solutions:

- a. MDIFW could work with the Maine Trapper's Association to inform trappers of the hazards of using drags within the lynx range.
- b. MDIFW could suggest to trappers that additional swivels or in-line springs be used when using traps with drags.
- c. Trappers in the lynx range could be required to stake their traps.

Anticipated Impacts: Plant Species

Activity covered by this Section 10 permit will not impact any listed plant species.

Cumulative Impacts

No additional impacts to protected species are anticipated.

5.0 Conservation Program / Measures to Minimize and Mitigate for Impacts

5.1 Biological Goals

MDIFW is charged with protecting and enhancing Maine's wildlife so that future generations can enjoy Maine's wildlife. As such, the Department's biological goals are directed at maintenance or enhancement of Maine's lynx population (MDIFW 2005) and are broader than the biological goals for this Plan which are focused on minimizing the incidental trapping of lynx. At a minimum the Department's biological goal for lynx will be to ensure the persistence of Maine's lynx population (MDIFW 2005). However, more specific goals for lynx management may be given to the Department in the future by public working groups as part of the Department's Strategic Planning Process (Appendix 6).

The biological goals for this Plan are to:

1. Quantify the incidental trapping of lynx and ensure that any mortalities or major injuries resulting from the incidental trapping of lynx do not adversely impact the lynx population in Maine.
2. Collect accurate information on each lynx incidental capture and use this information to help reduce future incidental captures or injuries.

5.1.1 Biological Objectives

The USFWS's recovery outline does not present recovery objectives in terms of achieving a certain population level (USFWS 2005), and states, "development of demographic criteria for delisting is not possible at this time". Rather than attempting to achieve a set population number, which would be difficult to confirm and track over time, the USFWS proposed four objectives. The first three objectives address retaining sufficient habitat, of suitable quality, to support the long-term persistence of lynx. Maine's trapping program does not relate to these first three objectives. Objective 4 of the recovery outline states, "*Ensure that threats have been addressed so that lynx populations will persist in the contiguous United States for at least the next 100 years.*" It is this last recovery objective that MDIFW addresses in its conservation plan.

Section 10 Permit Objectives:

- Limit incidental captures by licensed trappers of lynx to no more than 13 per year.
- Limit severe injuries that may result from the incidental trapping of lynx to one major injury every 5 years. If a debilitating injury occurs as the result of an incidental trapping incident, MDIFW will provide appropriate veterinary care, with the objective of rehabilitating and releasing the lynx back into the wild.
- Limit lynx mortalities directly related to the incidental capture by licensed trappers to 1 every 5 years, and no more than 1 adult female mortality every 10 years.
- Have biologists physically inspect $\geq 90\%$ of lynx incidental captures to collect information on the trapping incident and condition of the animal.

The primary impact of incidental trapping to Maine's lynx population would come from trapping related mortalities. If we assume that trapping mortality is additive to other forms of mortality, the predicted mortality rate of 1 juvenile and 1 adult lynx every 5 years would increase the annual mortality rate by $< 0.08\%$ (this assumes that the lynx population would remain near its current population of over 500 animals). We can get an idea of the amount of trapping mortality that a lynx population could withstand (i.e., before population growth would decline) by looking at studies of similar species, such as bobcat. When population growth is modeled using bobcat demographics and trapping

mortality, model runs indicate that under normal levels of natural mortality, trapping may decrease population growth when the harvest rate exceeds 20% of the population in a given year (Knick 1990). Lower survival of adult females and lower kitten production will affect recruitment rates and will lower the number of animals that can be harvested (Knick 1990). However, even if there is little recruitment into a population an increase in the annual mortality rate of 0.08% is insignificant. Field studies with lynx indicate that other lynx populations rapidly increased when annual trapping mortalities varied from 3% to 15% (Slough and Mowat 1996).

To illustrate the affect that mortalities from incidental trapping might have on Maine's lynx population a deterministic population model (Appendix 7) was built using demographic information from Maine's lynx study, and previously published information on lynx resource relationships (Steury and Murray 2004). These parameters were incorporated into a model using Stella 9.0.3 modeling software (isee Systems). The time period modeled was 15 years, or the duration of the ITP. Mortalities from incidental trapping were modeled by removing an adult female lynx, and a male and female kitten, in year 5, and an adult male lynx in years 10 and 13. The timing and number of these mortalities reflect the allowable mortality rate requested by MDIFW, and assumes the worse case scenario – that an adult female with kittens would be the first lynx killed during the 15 year period of the permit. The model employs a resource limitation function that changes kitten survival rates inversely with the number of breeding females in the population. This allowed “what if” questions to be modeled such as, “if the habitat that is available to support lynx (i.e., carrying capacity) was

decreased by $\frac{1}{2}$, would the mortalities from incidental trapping significantly affect the population? The resource limitation function also facilitates the illustration of basic principles of population dynamics, where birth rates or population growth fluctuates with available resources. We used this model to illustrate the impact incidental trapping mortalities might have on Maine's lynx population. To demonstrate the range of effects these mortalities might have on the population, we set hypothetical limits on the number of females that could be supported in the population at 1000 and at 25.

The model illustrates that removing 5 lynx (1 adult female, 2 kittens, and 2 adult males) from a lynx population, within a 15 year period, has no effect on the size of the lynx population ($\Delta < 0.1\%$) at the end of 15 years. In this scenario we set the maximum number of female lynx Maine's habitat could support at 1000. When available resources could only support 25 females and the founding population started with 3 females, there would be an 11.2% difference (i.e., 6 animal difference) at the end of 15 years between a population that had incurred the maximum number of trapping related mortalities and one that had no trapping related mortalities⁹. The low affect on the population from this rate of mortality is primarily due to the relationship between available resources and the growth rate of a population. Population growth is not maximized when the number of breeding females is at carrying capacity, rather it occurs when the number of females is at $\frac{1}{2}$ carrying capacity (Caughley 1977). When a

⁹ This was determined using adult and kitten mortality rates obtained during the MDIFW's lynx study and estimated mortality rates for dispersing animals (i.e., adult females 24% / yr; adult males; 19% / yr; dispersing females 48% / yr; dispersing males 38% / yr; kittens 22% / yr. Levels of carrying capacity modeled ranged from 1000 female lynx to 25 female lynx, and assumed all females had access to mates. Starting populations had equal sex ratios. For a carrying capacity of 1000 females, 150 females were used in the starting population; and for a carrying capacity of 25 animals, 3 females were used in the starting population.

population exceeds 1/2 of the habitat's carrying capacity, the amount of resources available per female decreases. Lower resource availability lowers birth and survival rates.

If all resource limitations were removed, such as would occur in a pioneering population, and the lynx population was allowed to grow indefinitely in Maine for 15 years, the model illustrates that the mortalities resulting from incidental trapping would only result in minor changes at current lynx population levels. At the current rate of kitten survival (78%) and with a starting population of 150 males and 150 females¹⁰, the resulting lynx population without any trapping related mortalities would only be 0.6% higher than the population that incurred trapping mortalities. If kitten survival dropped to 7.8%, the difference between the two populations would be 1% after 15 years. In the extreme circumstance where the starting population was reduced to 25 adult female lynx and 25 adult male lynx, and kitten survival remained at 78%, the difference between populations that incurred and did not incur trapping related mortalities would be only be 3.5%. The difference between the two populations would increase to 54.7% ($\Delta = 1.5$ animals out of a final population of 3 animals) if kitten survival dropped by ten-fold to 7.8%. We point out that with or without incidental trapping mortalities, a lynx population this small and with this low rate of kitten survival would not be sustainable.

While resources may not be limiting for a population that immigrates into a previously unoccupied area, animal populations can quickly grow to a point where resources are

¹⁰ If 150 breeding males and 150 breeding females are used in the model the total lynx population, i.e., including kittens, and non-breeders would be about 631 animals.

limiting once again. Lynx in particular are thought to have a greater capacity for rapidly increasing their population size than the bobcat or other similar felids because of the size of their litters (Mowat et al. 1996). This may be an adaptation to cyclic snowshoe hare populations. Since 1999, lynx have dispersed throughout most of northern Maine. However, at the lynx study area the number of females successfully bringing off litters has declined. There is little evidence to suggest that Maine's lynx population is responding like a founding population that has no resource limitations.

An added margin of safety is the conservative nature of MDIFW's estimate of lynx population levels in Maine, and how the lynx population is defined. The Department estimated that Maine's lynx population consists of more than 500 animals. However, Maine's lynx population is actually part of a much larger lynx population that includes animals in the Gaspé Peninsula, Quebec, and in New Brunswick. MDIFW's radiotelemetry study has shown that lynx in Maine travel to and from these other geographic areas. As part of a larger population, Maine's lynx population would be more resilient to change or minor population fluctuations than an isolated population of 500+ animals.

5.1.2 Adaptive Management Strategy

An adaptive management section is not a mandatory element in a HCP. The Department chose to address matters of uncertainty in Sec. 8.2 of this document.

5.2 Measures to Minimize Impacts

The Department enacted a number of measures prior to the submission of this Plan to minimize lynx incidental captures and injuries to lynx (Table 5.2.1). These measures are described first; followed by measures that were considered, but were not practicable.

Table 5.2.1 Minimization measures to limit the incidental take of lynx or injuries to lynx that were in place or being promulgated by Maine's Department of Inland Fisheries and Wildlife prior to submission of its ITP application in 2008.

Measure	Year
Conferring with trappers about incidentally caught lynx	No specific date (at least since the 1970's)
Annual trapper mailing included information on how to distinguish between a lynx and bobcat	1991
Annual trapper mailing included an offer to help trappers release incidentally caught lynx	1996
Annual trapper mailing included lynx track descriptions	1997
Lynx Hot Line established in annual trapper mailing	1999
Standard operating procedures developed for handling incidentally caught lynx	1999
Recognition of trappers reporting incidentally trapped lynx.	2000
Distribution of "How to avoid the incidental take of lynx..." USFWS, IAFWA brochure (MDIFW assisted in the writing of this brochure)	2003

Table 5.2.1 Cont'

Measure	Year
Customization of USFWS, IAFWA brochure for Maine trappers. Brochure distributed to all licensed trappers in Maine.	2005
Conferring with other jurisdictions on incidental take issues	2006
Restricting use of visible bait used in trapping ^a	2007
Requiring conibears to be set on leaning poles within the lynx range	2007
Guidelines for evaluating lynx injuries	2007
Contact list for backup veterinarian care and rehabbers developed	2007
New trapper education program emphasis on how to avoid lynx incidental captures	2008
Mandatory reporting of lynx incidental catches	proposed for 2008 trapping season

^aIn 2007, MDIFW promulgated a trapping rule to restrict the use of visible bait by trappers. The primary objective for this rule was to reduce the incidental trapping of eagles. Secondly, it was thought to be of some benefit in reducing the incidental take of lynx by limiting the use of attractants (e.g., ruffed grouse wing) near coyote and fox traps.

Informational Approach

The Department prefers the informational approach to solving problems as its first course of action, rather than a regulatory approach. Problem solving through the use of information and education can be effective in gaining compliance and promotes the sense of cooperation. Such an approach allows resource users a chance to resolve the problem on their own initiative, lessens the chance that an adversarial response will develop between the resource user and the regulatory agency, does not overburden the regulatory or legal process with matters that could have been resolved in a less

restrictive way, and maintains a greater degree of trust and respect between the resource user and the regulatory agency.

The Department will continue with its information and education approaches to reduce the number of incidentally caught lynx and to provide information to trappers on the importance of adhering to regulations and trapping guidelines. The Department has a multi-pronged approach that addresses both informational needs and trapper concerns. This approach includes 1) recognizing the contributions trappers make to lynx conservation; 2) consulting with trappers on trap improvements that would lower the probability of incidentally catching a lynx; 3) trapper education, including continuing education on how to avoid lynx incidental catches; 4) information initiatives on lynx behavior and biology, and 5) trying to preserve trapping opportunities when making regulatory changes that minimize the incidental take of lynx.

Recognition of Trappers

The most effective way to ensure that incidental lynx captures are reported is for the Department to maintain a good relationship with the trapping community. To encourage the reporting of incidentally trapped lynx, the Department sends letters of commendation to trappers that report and help biologists release lynx from traps. As of 2006, at least 7 trappers had received letters from the Department for their help in reporting and releasing lynx. These letters have helped foster an attitude of cooperation between the Department and trappers, and will continue to be used in the future, even after reporting lynx incidental captures becomes mandatory.

Trapper Education and Information

Trapping education in Maine is directed at both experienced and inexperienced trappers using various mediums. All new trappers are required to take the Department's trapping education course. In this course (Appendix 3), trappers are instructed on furbearer identification, how to reduce the number of incidental captures, trap selection, and the Best Management Practices program for trapping (AFWA 2006a). Information is also given to trappers on how to avoid incidental lynx captures. This includes the booklet, "How to Avoid Incidental Take of Lynx, while Trapping or Hunting Bobcats and other Furbearers", and flyers on how to handle lynx incidental catches (Appendix 3).

Maine's trapper training course was developed in consultation with professional wildlife biologists and employs the national standards developed for trapper training programs by AFWA. Instructor applicants must have completed a trapper education course within the last 5 years, receive training before teaching the trapper education course, and thereafter, must attend training updates every other year. These training updates allow for modification of course material, including instructions for reducing the incidental take of lynx. All trapping instructors teach from the same syllabus. The Department's Wildlife Division Director annually meets with the staff of the Recreational Safety Division to update them on trapping issues. In recent years, this has given the Director opportunity to discuss the importance of avoiding lynx incidental takings with the Safety Coordinators. Regional Safety Coordinators pass on this information to volunteer instructors.

The Department recognizes that even experienced trappers occasionally need additional information on current trapping issues (e.g., incidental taking of lynx), and trap improvements (e.g., Best Management Practices). Similar to other forms of continuing education, there are many ways to update trappers on changes in regulations and new techniques other than by mandating that they attend a formal course. In the past, the Department has addressed these needs through the annual trapper information packet. This packet includes information on how to avoid the incidental capture of lynx and large canids (Appendix 3), and for the last two years, the packet included the booklet, "How to Avoid Incidental Take of Lynx, while Trapping or Hunting Bobcats and other Furbearers"(USFWS and IAFWA 2003). The information in this booklet was modified by Department biologists in 2005 to make it more applicable to trapping practices in Maine. It gives information on lynx identification, lynx track identification, methods for setting conibear traps to minimize the possibility of catching lynx, and how to release a lynx if one is caught in a trap. Because of budgetary shortfalls in 2007 the information packet was not mailed to every licensed trapper. However, a letter was sent to every licensed trapper informing them that this information was available online¹¹ and that the Department would send them printed copies of the information packet if they did not have Internet access.

Consulting with Trappers

In addition to providing information to trappers through the trapper information packet, Department biologists often meet with trapper groups to discuss information on new

¹¹ http://mainegov-images.informe.org/ifw/hunting_trapping/pdfs/trapperinformation_2007-08.pdf

regulations, trapping techniques, furbearer populations, and the avoidance of incidental lynx captures. It is the Department's intent to provide additional opportunities for trappers to discuss the issues surrounding the incidental take of lynx. The Department will work with the Maine Trappers Association¹² (MTA) to provide these additional discussion opportunities at large gatherings of trappers (i.e., trapper rendezvous, annual MTA & MDIFW meeting, and MTA chapter meetings).

Maine trappers are eager to preserve trapping opportunities and often are willing to work with the Department to improve trap designs to decrease the potential for incidentally capturing an animal. By being open to suggestions for trap improvements, the Department hopes to reduce the incidental capture rate of lynx in the future. For example, MDIFW is currently considering an attachment to conibear sets that would prevent lynx reaching into or accessing the trap.

Trapped Lynx Hotline

Since 1999, the Department has publicized telephone numbers that trappers can call 24-hr a day, 7 days a week, during the trapping season, to report lynx that have been incidentally trapped. Staff biologists are available to release lynx from traps, and assess any injuries that the lynx may have sustained during the trapping incident. Trappers are also given information on proper techniques for releasing a lynx, if a biologist is not able to make it to the capture site. To date, Department biologists and

¹² The Maine Trappers Association was established in 1947 and has about 1000 members. They employ a legislative liaison and are very active politically on legislation and regulations that affect trapping. More information on this organization can be found on their web site: <http://mta.homestead.com/index.html>

trappers have successfully released 32 out of 34 lynx that were incidentally caught by trappers¹³ (i.e., 94%). In addition, six of these lynx were radiocollared and ear tagged by Department personnel at the time of capture, and 4 additional animals received ear tags only. Data from these marked animals were used to further the Department's lynx research efforts. The Department intends to maintain this hotline for reporting lynx incidental captures. By maintaining this hotline, the Department hopes to minimize injuries that may occur to lynx as the result of incidental trapping or other accidents.

Injured Lynx Rehabilitation

MDIFW biologists routinely examine lynx caught in traps to determine if the animal sustained any injuries that might affect its survival. If an animal has sustained severe injuries, biologists will transport the animal to a location where a veterinarian can examine it. Animals requiring further medical attention are treated by qualified veterinarians, or if necessary may be transported out-of-state for specialized surgery or rehabilitation (e.g., Tufts University). Since 1999, three lynx have required rehabilitation because of incidental trapping injuries. All were successfully rehabilitated and released into the wild. In 2007, the Department developed specific guidelines, detailing when a lynx should receive medical attention for a potentially debilitating injury (Appendix 8 and

¹³ Of the 32 captures, six of these lynx were outfitted with radiocollars. Of these radiocollared lynx, four had been caught in foothold traps, and two had been caught in conibears. In one case, a lynx caught by a private trapper suffered a broken leg. After rehabilitation, the lynx was equipped with a radiocollar and released. The lynx lived more than five years after release. For the other six lynx that were caught by private trappers and equipped with radiocollars, one lived for 20 months, one lived for 17 months, and four died within a month after release. Of the four that died shortly after release, one was taken illegally during the deer firearm season, one died while trying to cross a swift river swollen from recent heavy rain, and two died from unconfirmed causes, although predation is expected based on evidence collected at the mortality sites.

The two lynx that were not successfully released were killed in conibear traps.

8.1). These guidelines were developed in consultation with a veterinarian and distributed within the Department. These guidelines should ensure uniform care for injured lynx and may lead to quicker recovery of injured animals.

In the past, there were few veterinarians and animal rehabilitators in Maine that regularly work with the Department in caring for and rehabilitating injured lynx. In 2007, MDIFW developed a contact list to help staff easily determine the resources available for caring for an injured lynx in northern Maine (Appendix 8.1). This list should particularly be helpful for providing care to injured lynx should the Department's primary sources for animal care not be available, and it is the Department's hope it will hasten recovery times for injured lynx.

Lynx Research

Although research and management activities may not reduce the number of lynx incidentally caught, these activities benefit the overall welfare of the lynx population and in turn minimize any impact incidental trapping may have on lynx (i.e., healthy populations are more robust to perturbations). Research and management activities are essential for the accurate monitoring of lynx populations, identifying the forest management techniques that provide the best conditions for snowshoe hare and lynx, and are essential to modeling efforts to predict lynx occurrence and densities.

Maine's lynx research initiatives have provided critical pieces of information needed for a science-based approach to lynx management. MDIFW has collaborated with the

USFWS, the Wildlife Ecology Department at the University of Maine, forest industry, nongovernmental organizations, and other researchers around the country in its lynx research. This research has included investigations into lynx spatial and habitat requirements, the impact of forest management techniques on snowshoe hare densities, and lynx demographics. From this research, investigators have better knowledge of recruitment and survival rates in Maine, and may be able to determine which factors limit the growth of the lynx population in Maine. The Department's research on lynx is currently slated to continue until 2010, with the publication of manuscripts and reports to continue after that time. Objectives for the remainder of the project include developing best management practices for lynx habitat management, which will be directed at large landowners and the timber industry (i.e., part of adaptive management strategy in the Department's Plan). MDIFW biologists also plan to collaborate with researchers in Minnesota to explore ways to combine and analyze data from their respective lynx research projects. Through research, MDIFW hopes to identify the best ways to ensure the persistence of the lynx population into the future.

Lynx Management

Currently, the Department is transitioning from a lynx conservation program that has been primarily focused on lynx research to one focused on lynx management. A lynx management program that is directed at ensuring the persistence of the lynx population in Maine is the primary safeguard for making sure that human-related lynx mortalities are not detrimental to Maine's lynx population. The lynx management program may involve the cooperation of large landowners in maintaining lynx habitat, continued lynx

research by faculty at the University of Maine, and monitoring of habitat and the lynx population by MDIFW. The Department follows a strategic planning process for developing management systems for wildlife (Appendix 6). The process includes writing a species assessment, which presents the current knowledge about a species' natural history, life requirements, management, and utilization. This species assessment is used by a public working group to set management goals for the Department. From these management goals, Department biologists draft a species management system, which is reviewed within and outside of the Department before it is implemented. These management systems include monitoring measures and a decision framework to ensure that the Department works towards meeting the objectives and goals set by the public working group. Work on a species assessment is currently underway, and the lynx management system should be developed within the next year. This management system would be reviewed annually and updated as needed to ensure the conservation of lynx in Maine.

Conferring with Other Jurisdictions

As part of MDIFW's effort to minimize the incidental take of lynx to the maximum extent practicable, the Department will periodically confer with other jurisdictions (e.g., Minnesota, New Brunswick) and review their programs for reducing the incidental take of these species. Department biologists will confer with other jurisdictions primarily through personal contacts and with biologists in the Northeast Furbearer Resources Technical Committee (NEFRTC). This committee is composed of wildlife biologists

from 13 states and 6 Canadian provinces that specialize in dealing with furbearer and trapping issues.

Regulatory Approaches

Reporting Incidental Takings

The Department has generally been pleased with the cooperation of trappers in reporting incidentally trapped lynx, but also recognizes that not all lynx that are incidentally trapped are reported (See Table 4.1). The USFWS requires ITP applicants to accurately monitor incidental take, and has expressed concern that this requirement cannot be met without mandatory reporting of incidentally trapped lynx. Mandatory reporting will also improve the accuracy of the data collected by the Department on lynx incidental captures, and is essential for assuring that lynx are examined for any injuries related to the incidental trapping event. Improving the accuracy of the information collected on incidental captures is one of the biological goals (Sec. 5.1) of MDIFW's conservation plan. Therefore, the Department has proposed the following rule change (i.e., amendment to 4.01 G; Appendix 2) for the 2008 trapping season:

"Any lynx caught incidentally, whether dead or alive, during any trapping season must be reported to a game warden or biologist of the Department as soon as possible and prior to removing the animal from the trap, unless a Department official can not be reached in time to prevent injury to the lynx. Any lynx released under this provision before reporting to the Department must also be reported to the Department within 24 hours from the time it was discovered."

Restrictions on Conibear Trapping

The Department adopted rule changes in June 2007 that prohibits the use of conibears in most upland settings, unless conibears are set 4 ft above the ground or snow and affixed to pole or tree <4 inches in diameter that is at an angle of $\geq 45^\circ$ from the ground (Appendix 5). The steep angle at which the trap is set and the small diameter of the tree appear to be very effective at preventing the incidental capture of lynx (USFWS and IAFWA 2003). The primary benefit of this new regulation should be a reduction in injuries and mortalities associated with incidentally trapped lynx. In the past, injuries related to lynx being caught in conibears occurred when conibears were not set following these recommendations. In conjunction with these regulations, the Department is continuing its trapper education efforts on avoiding incidental lynx captures.

Benefits of Minimization Measures

The benefits of the Department's efforts to minimize the impact of incidental trapping on the lynx population cannot all be quantified. In particular, the benefits of education and outreach efforts, in terms of reducing the number of lynx incidentally trapped, are difficult to quantify. Yet these efforts are likely effective in reducing the number of lynx incidentally trapped and injury rates. Outreach and education efforts include the trapper education program's efforts to reduce non-target captures, requests by the Department to avoid trapping canids in areas where there is abundant lynx sign, informational material on recognizing lynx and lynx sign, and dialog with trappers. Therefore, estimates of the benefits of minimization measures (Table 5.2.2) should be viewed as conservative.

Table 5.2.2 A comparison of incidental take levels with and without minimization measures in place. Primary measures affecting take include (a.) regulations restricting the use of conibears in the lynx range, (b.) the lynx hot line, and (c.) veterinarian and rehabilitator cooperation. It was not possible to quantify the effects of education and outreach efforts on incidental trapping rates.

Methods for calculation predictions follow Table 4.4.

Take Categories Related to Incidental Trapping	15-year Level of Take Without Minimization Measures	15-year Level of Take With Minimization Measures
Lynx Incidentally Trapped	169	165
Trapped & Released No Injuries	62	79
Trapped & Released Mild Injuries	72	78
Trapped & Released Severe Injuries	0 ^a	3
Adult Trapping Mortalities	35	3
Juvenile Trapping Mortalities	32	2
Total Lynx Mortalities	67	5

^aIt was assumed that severe injuries, if not attended to, would result in the death of the animal.

Minimization measures include biologist notification, veterinary care, and rehabilitation; therefore, no severely injured lynx were expected to survive without these measures.

Minimization measures that the Department attempted to quantify include regulations that restrict the usage of conibears within the lynx range, the lynx hotline, and cooperative agreements with veterinarians and rehabbers (Table 5.2.2). It was assumed that veterinary care and rehabilitation prevented lynx seriously injured in traps from dying, and that minor injuries, that did not require veterinary attention, did not progress beyond the stage of being only minor injuries.

Other Measures Considered

Shorter Tending Times for Conibears

It has been suggested that requiring trappers to check conibear traps more frequently¹⁴ might reduce the probability of lynx mortalities or severe injuries from occurring should a lynx become incidentally caught in a conibear trap. The Department believes that the new regulations on conibear sets that were put into place in 2007 virtually eliminate the risk of lynx becoming incidentally caught in these traps. Consequently, there is no rationale for shortening conibear tending times to benefit lynx. The first trapping season (i.e., 2007-2008) during which these new regulations were in effect bore out the Department's conviction that lynx would avoid traps set on leaning poles. None of the 8 lynx that were incidentally caught were caught in conibears. Therefore, the Department does not feel shortening the tending time for conibears in the lynx range is practicable or necessary.

¹⁴ Currently trappers are required to check killing-type traps (e.g., conibears) once every 5 days in unorganized towns, and once every 3 days in organized towns. The majority of towns in the lynx range are unorganized.

Shortening the Canid Trapping Season

In Maine, lynx are most often incidentally caught in foothold traps set for fox and coyote. Therefore, we considered whether shortening the length of the canid trapping season, within the lynx range, was a practicable way to reduce the number of lynx incidentally being caught in traps. Such a regulatory change might not only reduce the probability of incidental lynx captures by decreasing trapping effort¹⁵, but also reduce the possibility of serious injuries to lynx from frostbite, if a lynx was incidentally caught in a foothold trap late in the season. Lynx caught in foothold traps have decreased blood circulation in their feet, and consequently are susceptible to frozen digits if caught in a trap when temperatures are below freezing (Mowat et al. 1994).

To determine the most effective way to shorten the trapping season, we looked at the distribution of fox and coyote captures throughout the canid trapping season (mid-Oct. to Dec. 31) in WMDs 1-11 (approximately the current lynx range), and the temporal distribution of lynx incidental captures. We also considered seasonal factors that may increase the risk of injury to lynx and trapper cooperation. In 2006, 45% of the fox and coyotes were tagged¹⁶ during the last two weeks in October (i.e., early fox and coyote season), 42% were caught in November, and 13% were caught in December. From 1999 to 2006, 61% of the lynx that were incidentally caught (all trap types) were caught in October, 36% were caught in November, and 3% were caught in December.

¹⁵ Trapping effort is usually measured in terms of trap nights, where one trap set for 24 hr is equal to one trap night.

¹⁶ In Maine, when a fox or coyote is killed by trappers or hunters it must be tagged by Department personnel or agent if the fur of the animal is to be sold or bartered. The Department uses fur tagging records to track the fur harvest for fox, coyote, and other furbearing animals.

We considered shortening the canid trapping season by eliminating the early fox and coyote trapping season in WMDs 1-11. If the early fox and coyote trapping season were eliminated, it would disrupt a large proportion of the canid trapping that occurs in Maine, and increase the probability that trappers would trap later into the season to make up for the loss of trapping opportunity. One danger of pushing trapping effort later into the season is that colder temperatures increase the probability of frozen digits should a lynx be incidentally caught. Trappers also prefer to trap canids before Maine's deer season starts (opening date is approximately Nov. 1) to reduce illegal interference with their traps. Lynx incidentally caught in November may have a higher probability of being disturbed in traps, than lynx incidentally caught in October.

We considered shortening the coyote-fox trapping season by ending the season in mid-December. If the season ended in mid-December, it might be more socially acceptable than an October closure. By December, the daily temperature average in northern Maine is below freezing (National Oceanic and Atmospheric Administration data for Caribou, ME; <http://www.weather.gov/climate/index.php?wfo=car>) and the ground becomes frozen. Many trappers in northern Maine pull their foothold traps when the ground becomes frozen or covered with snow; consequently, there would be relatively little impact on the coyote and fox harvest. However, we question the practicality of such a closure in protecting lynx. The canid trapping season has been open in December for decades and we have never had a report of a lynx being caught in a foothold trap in December. Only one lynx was caught in December, and it was caught in a conibear set on the ground for marten or fisher. This type of set was made illegal in

2007 and should no longer pose a threat to lynx. Finally, trappers choosing to trap in late December can more readily identify areas occupied by lynx by the snow tracks lynx leave. Trappers are encouraged to avoid trapping in areas with lynx sign or to pull their traps should a lynx move into a trapping area. Information on how to recognize lynx sign is provided annually in the trapper mailing (Appendix 4).

We considered shortening the season from mid-Oct to mid-November, to ensure that an early season trapping closure would not push trapping effort later into the season when incidentally caught lynx might suffer frostbite. If such a season were enacted, it would reduce the canid trapping season in northern Maine by $> 1/2$. Shortening the canid trapping season by $> 1/2$ would likely be opposed by the trapping community and may lead to the loss of their cooperation in reporting incidental lynx catches. If we were able to promulgate such a regulation, trappers would likely trap more intensively during the open season. This, in turn, may result in little if any reduction in trapping effort or in the rate at which lynx are incidentally caught. The end result may be a small reduction in trapping effort, a hostile trapping constituency, and a lower reporting rate for lynx that are incidentally caught.

The Department believes that shortening the canid trapping season within the lynx range would lead to reduced cooperation from trappers in reporting incidentally caught lynx. Furthermore, similar regulations have not been effective in changing trapping effort. For these reasons, the Department did not feel shortening the canid trapping season was practicable.

MDIFW Staffing Trapper Training Course

The Department was asked to consider having wildlife biologists or wardens present at all trapper training courses in order to assure that information on how to avoid lynx incidental captures was being conveyed correctly to new trappers. The Department did not feel that this requirement was necessary or practicable. Current instructors are experienced trappers, are trained by the Department, and are fully capable of disseminating information on how to avoid incidentally catching a lynx. In contrast, most wildlife biologists in the Department have limited trapping experience and are not active trappers. The intricacies of avoiding an incidental take are best explained by trappers who have recent, first-hand knowledge of trapping. Staff biologists and wardens are available to answer questions regarding regulations, furbearer management, and lynx, should any arise outside of the training session.

Trap Modifications

We considered whether restricting the type or size of foothold trap was a practicable way to minimize the number of lynx captured in traps. For trappers that are using foothold traps to trap coyote or fox within the lynx range, there is little that can be done to prevent lynx from being caught in these traps. A review of the incidental lynx captures in Maine and personal communication from biologists that have trapped numerous lynx as part of Maine's lynx research program indicate that all traps commonly used by canid trappers can catch and hold a lynx. This includes all Best Management Practices (BMP) approved foothold traps recommended for coyotes

(Tables 5.2.3 also see 5.2.4). The ability of smaller traps (e.g., 1.75 coil spring) to capture and hold a lynx is in part due to the behavior of lynx in traps. Lynx tend not to struggle against a trap as much as coyotes (J. Vashon, MDIFW, pers. comm.), if left undisturbed. Likewise, lynx have been caught in a variety of set types (e.g., dirt hole, blind set) and there does not appear to be a ground set for foothold traps that is particularly effective at excluding lynx. Therefore, it is not practicable to reduce the amount of lynx take by restricting trap size or type, or by limiting the type of set that can be used to trap canids.

Major injuries or mortalities are unlikely to result from a lynx being incidentally captured in a foothold trap that is set for coyote or fox. This is due in part to the relatively calm behavior of lynx in foothold traps (J. Vashon, MDIFW, pers. comm.). We are not aware of any mortalities and are aware of only 1 severe injury out of 42 incidental capture events involving foothold traps that occurred from 1999 to 2007 (Table 4.1). Even though MDIFW personnel were not able to examine all 42 of these animals, we think that it is unlikely that a trapper would go to the trouble of reporting an incidental capture and not report that the lynx was seriously injured or had died. Despite the low injury rate for incidentally caught lynx, we considered whether it was practicable to attempt to reduce minor and severe injuries by requiring certain trap types or trap modifications.

For the 17 lynx that were incidentally captured from 1999 to 2007 that MDIFW personnel were able to examine, 8 (47%) had no discernable injury, 8 (47%) had mild injuries (i.e., 1 or 2 lacerations or edematous swelling), and 1 (6%) had a severe injury

(ISO standard 10990-5:1999 trauma classes). These injury rates were compared to injury scores from a nationwide trap testing program (BMP trap testing) on coyotes and bobcat (AFWA 2003, 2006a, 2006b; Tables 5.2.3, 5.2.4). This testing program evaluated traps for a variety of attributes, including animal welfare, efficiency, selectivity, practicality, and safety (AFWA 2006a).

Experienced veterinarians evaluated trapping injuries (animal welfare) by necropsying trapped animals and scoring injuries according to ISO standard 10990-5:1999. We recognize that our field examinations were not as thorough as the necropsies performed by veterinarians during the BMP testing process, even though our field examinations often involved chemically immobilizing the lynx and careful examination of the animal. Therefore, the number of incidentally caught lynx with mild or moderate injuries may be underreported. Unfortunately, we could not examine all the lynx that were incidentally caught and only report injury scores for lynx that were examined by a biologist (Tables 4.1, 5.2.5).

The proportion of lynx incidentally caught in Maine with mild to severe trap related injuries appears to be as low or lower than the proportion of bobcat or coyote having similar injuries that were caught in BMP approved traps by experienced trappers (Table 5.2.5; also see Tables 5.2.3, 5.2.4). Coyotes caught in a foothold trap normally fight the trap more than bobcat or lynx; thus, their injury scores may be higher. Lynx are probably the calmest of these three species (J. Vashon, MDIFW, personal

Table 5.2.3. Injury (welfare) scores for 20 restraining devices evaluated for coyotes during Association of Fish and Wildlife Agencies, Best Management Practices (BMP) trap research, 1998-2005. BMP criteria for welfare, efficiency and selectivity were met for 16 devices evaluated for coyotes. Those traps not meeting BMP criteria are shaded in gray. The most commonly used trap in the United States is the No. 2 coil-spring (Responsive Management 2005). This trap met all BMP criteria.

Trap Code	States Tested	Sample Size	Cumulative Injury Score			% animals classed by worst injury					
			Mean	Median	SE	None	Mild	Moderate	Mod. Severe	Severe	Dead
15P	AL, GA, NM, NY, VT	28	16.2	8.5	3.2	25.0	39.3	35.7	0	0	0
NPCD	WI	57	19.3	5.0	25.1	0	80.1	10.5	1.7	7.0	0
BEL	KS, ME, NM, PA, VT,	49	22.7	10.0	4.2	4.1	65.3	26.5	0	4.1	0
134FO	ME, NY, PA	27	25.6	20.0	4.8	11.1	44.4	44.4	0	0	0
3PM	KS, ME, NE, NY, OR, PA, VT	105	25.7	10.0	2.5	1.0	59.0	38.1	1.0	1.0	0
15PM	AR, GA, KS, ME, NY, OK, OR, PA, SD, VT, WA, WY	92	28.9	10.0	4.1	0	53.3	41.3	3.3	2.2	0
2OLM	KS, ME, NE, NY, OK, OR, PA, VT, WA	74	30.1	20.0	2.9	1.4	52.7	43.2	1.4	1.4	0
2C	AR, KS, MI, NY, OH, OK, VT	25	37.0	40.0	7.9	20.0	24.0	48.0	4.0	4.0	0
175OL	GA, ME, NM, NY, OK, OR, PA, SD, WA, WY	72	37.1	35.0	4.1	4.2	43.1	48.6	4.2	4.2	0
175	GA, ME, NM, NY, OK, OR, PA, SD, WA, WY	84	39.5	42.5	3.3	3.6	34.5	56.0	1.2	4.8	0
MJ600	GA, KS, OK, OR, SD, TX, WY	49	40.2	35.0	4.5	0	49.0	49.0	0	2.0	0
MB650	GA, KS, OK, OR, SD, TX, WY	67	42.6	20.0	5.9	1.5	52.2	38.8	1.5	6.0	0
22CC	OR, SD, WA	39	49.8	45.0	6.7	2.6	35.9	53.8	2.6	5.1	0
3MSM	PA, SD	30	50.7	47.5	5.3	0	40.0	50.0	0	10.0	0
33CC	OR, SD, WA	49	52.6	45.0	7.4	0	42.9	44.9	6.1	6.1	0
2FOJ	PA, SD	24	54.3	60.0	6.17	0	41.7	41.7	0	16.6	0
175FOJ	PA, SD	28	54.8	55.0	4.9	0	35.7	50.0	0	14.3	0
3OL	GA, NM, OK, OR, WA	23	60.9	45.0	8.7	4.3	13.0	60.9	4.3	17.4	0
3S	GA, KS, OK, OR, SD, TX, WY	56	71.7	50.0	7.7	1.8	21.4	62.5	0	14.3	0
3O	GA, NM, OK, OR, SD, WA	41	98.2	80.0	9.1	0	7.3	63.4	2.4	26.8	0

Abbreviations

FO = flat offset, **P** = padded, **PM** = padded modified (4 coiled), **FOJ** = flat offset jaw, **OL** = offset laminated, **CC** = Coyote Cuff brand, **OLM** = offset laminated modified (4 coiled), **O** = offset PM = padded modified (4 coiled), **S** = longspring, **MSM** = Montana Special Modified, **NPCD** = non-powered cable device, **BEL** = Belisle foot snare, **MB650** = Minnesota Brand 650, and **MJ600** = Sterling 600

Table 5.2.4. Injury (welfare) scores for 16 restraining devices evaluated for bobcats during the Association of Fish and Wildlife Agencies, Best Management Practices (BMP) trap research, 1998-2006. BMP criteria for welfare, efficiency, and selectivity were met for all 16 devices evaluated for bobcats. The most commonly used trap type in the United States for capturing bobcats is the No. 3 coil-spring (Responsive Management 2005). The standard No. 3 coil-spring trap met all BMP criteria, as did the same trap size with modifications including padded jaws, offset jaws, laminated jaws and jaws with both offset and lamination.

Trap Code	States Tested	Sample Size	Cumulative Injury Score			% animals classed by worst injury only					
			Mean	Median	SE	None	Mild	Moderate	Mod. Severe	Severe	Dead
Cage 109.5 (Tomahawk)	CA, GA, KS	22	0.3	0	0.3	95.5	4.5	0	0	0	0
#1.5 coil-spring (WOV)	GA, KS, NC, OK, PA, SC, VT	42	9.4	5.0	1.5	4.8	83.3	11.9	0	0	0
#1.75 coil (WOV)	GA, NM, OK, PA	23	9.8	5.0	4.6	13.0	74.0	8.7	0	4.3	0
#3 padded, 4 coil (WOV)	PA, KS, OR	27	10.1	5.0	1.9	0	55.6	44.4	0	0	0
# 3 coil, offset (BRI)	GA, NM, OK, OR	22	11.2	5.0	2.7	4.5	76.3	19.2	0	0	0
#1.75 offset, laminated (WOV)	NY, GA, PA, NM, OK, OR	38	12.8	5.0	4.2	18.4	52.7	23.7	0	5.3	0
# 3 coil, offset, lam (BRI)	GA, NM, OK, OR, WA	31	15.8	5.0	4.1	3.2	71.0	22.6	0	3.2	0
MJ 600 (Sterling)	GA, KS, OK, OR, TX	37	16.8	10.0	2.9	2.7	81.1	16.2	0	0	0
Belisle Foot Snare	KS, NM, PA	18	17.3	5.0	5.3	0	72.2	22.2	5.6	0	0
# 2 coil (WOV)	KS, NC, NY, OK	30	20.1	7.5	3.9	0	76.7	23.3	0	0	0
MB 650 (Minnesota)	GA, KS, OK, OR, TX	29	20.9	5.0	4.8	0	75.9	20.7	0	3.4	0
#2 offset, laminated, 4 coil (BRI)	KS, OK, PA, OR, WA	21	21.2	10.0	4.4	0	66.7	33.3	0	0	0
#1.5 padded, 4 coil (WOV)	GA, KS, OK, PA, VT	43	23.0	15.0	4.6	4.8	72.1	16.3	2.3	4.7	0
# 3 longspring (SC)	GA, KS, OK, TX	45	25.8	5.0	5.9	4.4	66.6	22.2	0	6.7	0
# 3 coil, lam (BRI)	GA, KS, OK	20	25.9	10.0	11.8	0	80.0	10.0	5.0	5.0	0
# 3 coil (BRI)	KS, OK, NE, MI	30	37.7	20.0	9.3	0	70.0	16.7	3.3	10.0	0

Abbreviations

FO = flat offset, **P** = padded, **PM** = padded modified (4 coiled), **FOJ** = flat offset jaw, **OL** = offset laminated, **CC** = Coyote Cuff brand, **OLM** = offset laminated modified (4 coiled), **O** = offset PM = padded modified (4 coiled), **S** = longspring, **MSM** = Montana Special Modified, **NPCD** = non-powered cable device, **BEL** = Belisle foot snare, **MB650** = Minnesota Brand 650, and **MJ600** = Sterling 600

Table 5.2.5. Percentage of animals classed by worse injury (ISO standard 10990-5:1999 trauma classes) for coyotes and bobcats caught in BMP (Best Management Practices) approved traps, and for incidentally caught lynx in Maine. Injury scores for coyotes and bobcat were determined as part of the Association of Fish and Wildlife Agencies BMP trap research program 1998-2006. Lynx injuries were evaluated by Maine Department of Inland Fisheries and Wildlife biologists.

Statistical Description	None	Mild	Moderate	Mod. Severe	Severe
Mean % of Coyotes in this injury class	2.9%	41.7%	47.0%	1.8%	6.5%
Median % of Coyotes in this injury class	1.4%	42.9%	48.0%	1.4%	5.1%
Mean % of Lynx in this injury class	47%	47%	0	0	6%
Mean % of Bobcats in this injury class	9.5%	67.4%	19.5%	1.0%	2.7%
Median % of Bobcats in this injury class	3.0%	72.2%	20.0%	0.0	1.6%

communication) in a foothold trap, which may account for the low rate of injury among incidentally caught lynx.

The only severe injury related to foothold trapping was associated with a trap set on a drag. This lynx suffered a broken leg, was rehabilitated, released in the wild, and lived another 5.5 years. Of the 32 incidental lynx captures in foothold traps, from 1999 to 2007, where the method of anchoring the trap was known, 63% (n = 20) of the traps

were set with drags, and 38% (n = 12) were staked (Table 4.1). The injury rate for lynx incidentally caught in traps set with drags compared to the injury rate of lynx caught in staked traps was very similar, with 3 out of 7 lynx caught in staked traps not having any visible injury as compared to 3 out of 8 lynx caught in traps attached to a drag (i.e., injuries determined by MDIFW staff; Table 4.1). We know of only one serious injury out of 20 incidental captures where drags were used (5% serious injury rate).

Unfortunately, MDIFW biologists were only able to examine 8 of the 20 lynx caught in traps set with a drag. If we only consider the 8 lynx that biologists examined, the small sample size increases the rate of serious injury to 1 out of 8, or approximately 13% of the incidentally caught lynx with known injuries had a serious injury. The former serious injury rate is similar to the serious injury rate for BMP foothold traps for coyotes but higher than the serious injury rate for bobcats caught in foothold traps (Tables 5.2.3, 5.2.4, 5.2.5). All BMP foothold traps were staked when tested on coyotes and bobcats (AFWA 2003, 2006b).

We raised the question of whether it was practical to pass a regulation that would prohibit the use of drags by trappers within the lynx range (WMDs 1-11). The booklet "How to avoid the incidental take of lynx..."(USFWS and IAFWA 2003) recommends staking traps to avoid entangling the drag chain around solid objects¹⁷. The possibility of this happening was compared with the benefits of a drag allowing a lynx to move from the trap site into cover. If a trapped animal can conceal itself, it is less likely to be disturbed by humans or other animals, and it is less likely to injure itself in a trap. In

¹⁷ A chain that is entangled around an object; that is not adequately swiveled, may result in a broken limb or lacerations if the animal becomes excited and struggles against the trap.

general, animals usually do not struggle for long periods after being trapped (e.g., Kreeger et al. 1990), unless they are disturbed by animals or people. We concluded that the risk of injury from being disturbed by people outweighed the risk that the drag chain would become entangled in a way that would cause serious injury to the leg or foot of a lynx.

We did not think it is practicable to prohibit the use of drags on foothold traps used in the lynx range given that (1) drags may prevent trap injuries by allowing a lynx to move out of open areas and into cover for security, (2) very few lynx (5% to 13%) of the lynx caught in foothold traps employing drags in Maine sustained a serious injury, (3) the rate of no injury or mild injuries was similar for staked traps and traps with drags, and (4) such a regulation would impose a hardship on trappers, since trappers commonly use drags in sets along roads to decrease the chance that people traveling the road will disturb or steal trapped animals or traps.

We do not feel it is practicable to require trappers to use specific traps or make additional modifications to their traps because 1) the rate of injury and the severity of injuries of incidentally caught lynx is as low or lower than for coyotes or bobcat caught in BMP approved traps; 2) requiring that trappers use specific traps would be an economic hardship for Maine trappers, especially after they have been encouraged to purchase BMP approved traps; 3) using BMPs as a regulatory mechanism would break a trust¹⁸

¹⁸ Maine trappers were told at the beginning of the BMP trap testing process that it was MDIFW's intention to only use the results of the BMP testing program to make recommendations to trappers, and it was not the Department's intention to use BMP results as a regulatory tool. This stipulation was key point

between MDIFW and trappers, 4) trappers already modify¹⁹ many of their traps to reduce trap related injuries, pull-outs (escapes) and fur damage; thus, blanket regulations that prohibit a certain trap type may be unnecessarily restrictive; and 5) securing the long-term cooperation of trappers is more likely achieved if changes in trap modifications are first pursued through an information and education program rather than through regulatory measures.

5.3 Measures to Mitigate Unavoidable Impacts

The USFWS' mitigation program and standards for HCPs state that mitigation actions under HCPs usually consist of one or more of the following: (1) avoiding the impact (to the extent practicable), (2) minimizing the impact, (3) rectifying the impact, (4) reducing or eliminating the impact over time, and (5) compensating for the impact. Furthermore, the Service states that, "mitigation programs should be based on sound biological rationale; they should also be practicable and commensurate with the impacts they address" (USFWS 1996).

in convincing trappers to participate in the testing program and to accept the results from the program. If BMPs are used as a regulatory tool, the Department would lose the trust and cooperation of many trappers. Such a loss in trust, would negatively impact Department efforts to minimize the incidental take of lynx.

¹⁹ Common modifications to foothold traps include attaching swivels to the trap and trap chain, adding in-line shock springs to the trap chain, modifying the jaws of the trap by welding a metal rod to the upper surface jaw (lamination) or adding padding to the jaws, strengthening the base plate, installing pan stops, modifying the springs of the trap, and using double staking or earth anchors (AFWA 2003, 2006a). Lamination and padding increases the surface area of the face of the jaw that grips and animal's paw. The greater surface area disperses the force of the jaw strike over a larger area of the animals extremity; thereby, lowering the risk of lacerations and severe contusions. Once the trap is shut the greater surface area lessens the chance of lacerations as the animal tries to pull out of the trap. Some trap modifications (e.g., offset jaws, flat jaws, padded jaws) are done by the trap manufacturer, but many other modifications are made by the trapper after purchasing the trap.

Under the Plan being proposed by MDIFW, the requested level of incidental take does not exceed minimum standards stipulated by the ESA or USFWS. That is the level of incidental take does not: a) "appreciably reduce the likelihood of the survival and recovery of the species in the wild", and b) it does not "jeopardize the continued existence of" any federally listed species. Where jeopardize is defined as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of the species in the wild by reducing the reproduction, numbers, or distribution of the species" (USFWS 1996). Furthermore, the requested level of incidental take, based on modeling results (Sec. 5.1.1 and Appendix 7), likely would have little effect on the lynx population at current population levels. Although the biological impact at the requested take levels would be negligible, MDIFW, as a wildlife management agency is, or is planning to, conduct a number of activities that are beneficial to Maine's lynx population, may improve the monitoring of lynx populations, and reduces the mortalities and injuries to incidentally trapped lynx.

The Department has already taken a number of steps to reduce the number of lynx incidentally trapped and to reduce the impact of its trapping program on lynx (Table 5.2.1). These steps were described in detail in Section 5.2 and will only be outlined here. Under the USFWS mitigation standards, these steps would fall under mitigation types 1, 2, and 4. They include (SEE NEXT PAGE)

- *Promulgation of rules to limit the placement of conibear traps* - These rules were crafted specifically to eliminate incidental lynx captures and trapping mortalities. The first year these rules were adopted (2007) resulted in no lynx captures in conibears and no lynx mortalities.
- *Instituting a lynx hotline* - In addition to improving the reporting of incidentally trapped lynx, this hotline allows biologists to assess whether the lynx was injured in the trapping incident and allows law enforcement to check compliance with trapping laws and rules.
- *Development of a lynx injury assessment protocol and a network of cooperating veterinarians* (Appendix 8 and 8.1) *that are willing to care for injured lynx.*
- *Trapper Education* - The Department includes information in its annual trapper mailing on lynx identification, lynx tracks, and how to avoid incidentally catching lynx.
- *Trap Improvement* - MDIFW is committed to lowering the probability of lynx incidental catches by working with trappers to improve trapping methods.

While the above measures reduce the frequency and / or impacts from incidental trapping, there are additional programs and efforts underway that effectively compensate for any lynx mortalities that may occur as a result of an incidental trapping incident (i.e., the 5th form of mitigation addressed by the USFWS). We point out that the compensation being offered for mortalities associated with incidental trapping is not being offered to restore the lynx population to its "pre-trapping" level. There would be a

negligible impact on the lynx population under the mortality levels requested in this permit. Rather, such compensation would be aimed at offsetting the loss of individual animals. As a state wildlife agency, our efforts to manage lynx are directed at the population level and are more comprehensive than any effort to insure that there is adequate habitat to support an additional 4 or 5 lynx in the state over a 15-year period. Without Maine's cooperative pursuit of lynx research, land management agreements, and population monitoring the USFWS would have little information on lynx in Maine and few tools to affect future lynx management. Both agencies are pursuing common goals in lynx management and MDIFW has a track record of going to considerable lengths to work on lynx issues (e.g., 9 years of lynx research). We submit that Maine's existing land management agreements and MDIFW's continued efforts to ensure adequate habitat for lynx are a form of compensatory mitigation. As the state's lead wildlife agency MDIFW is committed to the management of lynx and to assuring that adequate habitat will be maintained for lynx.

Under this permit a total of 5 lynx mortalities would be allowed over a 15 year period. If the Department needed to acquire conservation agreements on land to compensate for 5 lynx mortalities, MDIFW would need to provide sufficient habitat to allow at least 5 additional lynx to be produced over the same time period. If sufficient habitat were provided to allow at least one additional pair of lynx to reproduce at a normal rate, more than enough offspring would reach adulthood to replace the 5 lynx that might be killed by incidental trapping. This assumes that offspring from this pair would disperse and have survival and reproduction rates similar to other lynx in Maine. To determine the amount of land necessary needed to support an additional pair of lynx we considered

lynx densities at the lynx research site in Maine (i.e., approximately 10 lynx / 100 km²; Vashon et al. 2008) and that there would be a 1:1 mitigation ratio for lynx killed to land needed to support lynx. We also assumed the additional mitigation habitat would be connected to other suitable habitat at the landscape scale that could support additional lynx. Under this scenario 20 km² (4,942 acres or approximately 1/4 of a township) of suitable habitat would be needed to support an additional breeding pair of lynx.

Suitable habitat consists of regenerating spruce / fir saplings, that exist in stands with > 55,000 stem cover units / ha (Litvaitis et al 1985).

The Department proposes a method to directly compensate for any lynx mortalities that result from incidental trapping. This method is described below in the *Existing Agreements* Section. The premise for this form of mitigation is that the creation of suitable habitat for lynx would increase the carrying capacity for lynx and result in a greater number of lynx in Maine. In addition, to this direct compensation measure the Department lists other examples of its commitment to lynx management to be considered as mitigation measures (Table 5.3.1). Again, these measures are broad in scope and their value to ensuring the persistence of the lynx population will exceed the replacement value of lynx that might be killed in an incidental trapping incident. These include management agreements, efforts to acquire additional conservation easements, protection of lynx habitat, and research efforts to determine the habitat features that need protection. Collectively from these examples, it should be clear that MDIFW's efforts far exceed the mitigation needed to compensate for any lynx mortalities that result from incidental trapping.

Table 5.3.1. Proposed mitigation measures for the incidental trapping of Canada lynx in Maine, along with methods for monitoring these mitigation efforts, and reporting requirements. Mitigation types follow the USFWS' handbook on Habitat Conservation Plans and Incidental Take Permit Processing and include (1) avoiding the impact (to the extent practicable), (2) minimizing the impact, (3) rectifying the impact, (4) reducing or eliminating the impact over time, and (5) compensating for the impact.

Mitigation Proposed or in Effect	Objectives	Mitigation Type(s)	Monitoring Methods	Reporting Requirements
Conferring with trappers on incidentally caught lynx	Reduce incidental catch rate	1, 2, and 4	Document key meetings with trapping organizations	Information presented at annual meeting between MDIFW and USFWS
Annual trapper mailing with information on lynx & bobcat identification, the Lynx Hot Line, releasing incidentally caught lynx, and informational brochure on how to avoid the incidental take of lynx	Reduce incidental catch rate; improve reporting rate of incidental takings and information gathering; and minimize the effects of any lynx injuries due to trapping	1, 2, 3 and 4	Provide updates to USFWS	Information presented at annual meeting between MDIFW and USFWS
Standardize operating procedures for handling incidentally caught lynx	Improve information gathered from incidental takings, and minimize the effects of any lynx injuries due to trapping	3 and 4	Provide updates to USFWS	Information presented at annual meeting between MDIFW and USFWS
Conferring with other jurisdictions on incidental take issues	Reduce incidental catch rate	1 and 4	Provide updates to USFWS	Information presented at annual meeting between MDIFW and USFWS

Table 5.3.1 Cont'

Mitigation Proposed or in Effect	Objectives	Mitigation Type(s)	Monitoring Methods	Reporting Requirements
Restricting use of visible bait used in trapping; requiring conibears to be set on leaning poles within the lynx range	Reduce the incidental catch rate and injury rates to lynx	1, 2, and 4	Gather information at each incidental capture. Each incidental capture will be reviewed to determine if current restrictions are working	Incidental captures are reported to USFWS within 24 hr. Review of capture incidents will occur at the annual USFWS / MDIFW meeting, or if catch rates trigger a meeting w/ the USFWS
Guidelines for evaluating lynx injuries; contact list for backup veterinarian care and rehabbers developed	Minimize the effects of any lynx injuries due to trapping	2 and 3	Gather information at each incidental capture and note mortalities of any tagged animals. Send annual letter to all cooperating veterinarians and rehabbers	Updates will be presented at annual meeting between MDIFW and USFWS
Keep trapper information program current on avoiding lynx incidental captures	Reduce incidental catch rate; improve reporting rate of incidental takings and information gathering; and minimize the effects of any lynx injuries due to trapping	1, 2, 3 and 4	Provide updates to USFWS	Information presented at annual meeting between MDIFW and USFWS

Table 5.3.1 Cont'

Mitigation Proposed or in Effect	Objectives	Mitigation Type(s)	Monitoring Methods	Reporting Requirements
Mandatory reporting of lynx incidental catches	Improve reporting rate of incidental takings and information gathering; and minimize the effects of any lynx injuries due to trapping	2, 3, 4	Each incidental capture will be reported to USFWS; violations to law will be reported	Incidental captures will be reported to USFWS within 24 of MDIFW being notified. All captures
Maine Bureau of Parks and Lands memorandum of understanding for creating or managing an additional 5000 acres of favorable lynx habitat	Provide enough habitat to support one lynx pair, which should more than compensate for any lynx mortalities that occur over the 15 yr MDIFW's ITP is in effect	5	a), Verify potential and existing lynx habitat on MBPL lands. b.) Develop forest management prescriptions & an MOU between MDIFW and MBPL c. Verify mgmt. activities using site visits and habitat maps	Updates will presented at annual meeting between MDIFW and USFWS
Maine Forest Product Council assistance with mapping current lynx habitat	Provide mechanism to track changes in lynx habitat. This would be a major asset to a lynx management program	2, 5	GIS mapping and Landsat imagery would be used in a time-series to track changes in early successional habitat	Updates will presented at annual meeting between MDIFW and USFWS
Conservation agreements and regulatory efforts	Assure the conservation of lynx habitat	2, 5	Provide updates to USFWS	Information presented at MDIFW and USFWS annual meeting

Table 5.3.1 Cont'

Mitigation Proposed or in Effect	Objectives	Mitigation Type(s)	Monitoring Methods	Reporting Requirements
Conduct periodic presence / absence surveys for lynx	1. Provide data on statewide lynx occurrences to help assess changes in population trends. 2. Assess habitat use and mgmt. recommendations	2, 5	Existing snow track protocols will be used. Surveys will be conducted in different regions of the state periodically	Updates will be presented at annual meeting between MDIFW and USFWS
Lynx Management	Sustain the lynx population in Maine	2, 5	A management system will be developed that includes specific methodologies and a time table for monitoring efforts	Annual Federal Aid reports and Updates will be presented at annual meeting between MDIFW and USFWS
Lynx Research	Provide critical information on lynx for lynx management. The ultimate objective is to sustain the lynx population in Maine and other jurisdictions.	2, 5	Comparative statistics and specific analytical procedures will be used to analyze radiotelemetry data, snowshoe hare trends, habitat use, and lynx population demographics	Updates will be presented at annual meeting between MDIFW and USFWS
Development of Best Management Practices	To provide large landowners with guidance on how to manage for lynx habitat	2, 5	Provide updates to USFWS	Information presented at annual meeting between MDIFW and USFWS

Existing Agreements

The State of Maine's Department of Conservation has in place a policy detailing a cooperative agreement between MDIFW, the USFWS, and other agencies concerning habitat management on state lands for endangered, threatened, or candidate species. This mitigation effort would directly compensate for any lynx mortalities that might occur as a result of incidental trapping.

The Maine Bureau of Parks and Lands (MBPL) Integrated Resource Policy reads (p. 44):

The U.S. Fish and Wildlife Service and the National Marine Fisheries Service are the lead agencies in matters pertaining to federally listed threatened and endangered species, and MDIFW and MNAP (*Maine Natural Areas Program*) are the lead agencies for state listed species. The Bureau will cooperate with those agencies in activities such as the delineation of critical habitat and recovery plans on Bureau lands.

In cooperation with MDIFW and consistent with the purposes of the Endangered Species Act (16 USC 1531 et. seq.) and the Maine Endangered Species Act, the Bureau will identify and promote the conservation of all state and federally listed, endangered, threatened, or candidate species of plants and animals and their critical habitats within the boundaries of lands managed by the Bureau. As necessary, the Bureau will control visitor access to and uses

of critical habitats, and it may close such areas to entry for other than official purposes. Active management programs will be conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystems on which they depend. The Bureau also will identify all state and federally listed threatened and endangered species and their critical habitats that are native to and present on its lands. Protection and management of endangered and threatened species and their critical habitats will be integrated into all levels of management planning activities, and new information on these species will be incorporated as it becomes available.

Continuing on page 74: Threatened & Endangered species - Timber harvesting will comply with all Federal and State regulations concerning listed threatened and endangered species, and species of special concern. Compartment exams/prescriptions and any subsequent timber sale planning will research the presence of these species and manage accordingly.

Maine's Bureau of Parks and Lands manages well over 100,000 acres (ca. 405 km²) of Public Reserved Lands in the core of Maine's lynx range, and could potentially create more than enough early successional habitat (i.e., > 4,942 acres) to support an additional breeding pair of lynx as mitigation for any lynx mortalities that result from incidental trapping. Although the MBPL has formally expressed interest in managing their habitat for lynx and other threatened and endangered species, the Bureau has received only general guidance on how to achieve this management goal. Although

MDIFW is on track to develop Best Management Practices for lynx habitat and a lynx management plan, these documents are not yet available for forest industry or MBPL use. Currently, the MPLP's forest management creates very little early successional habitat because of their preferential use of selection and extended shelterwood harvests, which maintain canopy cover and are not optimal for creating stands of dense regenerating conifers. These forest harvest techniques only have created 100 to 200 acres of early successional habitat annually, based on an average annual harvest (2003 to 2007) of 8,468 acres and overstory removal²⁰ of approximately 840 acres (MBPL unpublished data).

Maine's Department of Inland Fisheries and Wildlife is committed to providing MDOC with the necessary guidance to help them meet their commitment to managing habitat for lynx and other threatened and endangered species. For lynx, this would include providing them with Best Management Practices for lynx management, and working with them to integrate their forest management plans with the habitat needs of lynx. Our Department staffs a full-time biological liaison to work with MBPL on forest management plans and cutting prescriptions. Through this position, and at other administrative levels within our agency, MDIFW's intent to work with the MBPL to increase the amount annual of early successional habitat they are creating. Our goal would be to create at least 5,000 acres of early successional habitat, favorable for lynx in the next 10 to 15 years or sooner. The Department is currently working on a memorandum of understanding (MOU) with MBPL for this agreement. When the MOU

²⁰ Overstory removal lets more sunlight reach the forest floor, which allows conifers to regenerate at a stem density that is favorable for snowshoe hare.

is finalized the Department will inform the USFWS and the agreement can be appended to MDIFW's ITP application.

Future Lynx Management Agreements

The Department is currently in negotiations with representatives of Maine's forest industry (i.e., Maine Forest Product Council - MFPC) and the USFWS over the proposed designation of Critical Habitat in Maine. As part of these discussions, agreements are being drafted which could potentially form the cornerstone of lynx management in Maine. As a signatory to this agreement, the Department is again demonstrating its commitment to lynx habitat management.

Key features of the proposed agreement:

- MFPC will support the efforts of the University of Maine to complete the mapping of Canada lynx habitat throughout Maine (See Sec. 5.4 *Time Series Analysis of Habitat* for more details);
- MFPC will financially support periodic updates to the mapping product;
- MFPC member companies will assist with verification of the remote-sensing mapping product;
- MFPC, through the Cooperative Forestry Research Unit (CFRU) at the University of Maine, will support collaborative lynx research efforts;
- The Parties to this Agreement will continue existing programs and add new lynx habitat management information and education components as they become available;

- The Parties to this Agreement will disseminate new information on lynx, as it becomes available through a variety of media;
- The Parties to this Agreement will work collaboratively and implement measures based on sound research to improve Canada lynx habitat management under the adaptive management and continuous improvement process; and
- MFPC and MDIFW will prepare an annual report to the USFWS at the end of each calendar year that summarizes actions taken in support of this Agreement.

Ratification of this agreement is contingent upon the USFWS accepting the agreement and excluding lands owned by members of the MFPC from Critical Habitat designation. The USFWS has proposed designating 6.8 million acres of Critical Habitat for lynx in Maine, of which approximately 6.2 million acres is on private lands. These private lands are primarily owned by the forest product industry which is represented by the MFPC. The MFPC wishes to have their member's land excluded from Critical Habitat designation and has made their participation in this agreement contingent on this exclusion. The consequences of not ratifying this agreement are addressed in Section 8.2 of this document.

Conservation Agreements and Regulatory Efforts

The Department works with Maine's Land Use Regulation Commission (LURC), state and federal agencies, and non-profit organizations (NGOs) to ensure the responsible

use of Maine's unorganized towns, and that lynx habitat will continue to be conserved and created. For example, the Department is currently involved in negotiations to acquire conservation easements for lands as part of the Plum Creek development proposed for the Moosehead Lake area. The conservation agreements proposed for this development alone total over 430,000 acres, much of which is in the core lynx range.

The Department, along with the USFWS and Maine's Department of Environmental Protection, regularly conduct environmental reviews on permit applications submitted by landowners and developers. These reviews help minimize the environmental impacts from forest harvesting and development projects on lynx and other important natural resources. Permit reviews may be triggered under Maine's site law, Natural Resource Protection Act (Title 38, Chap. 3 § 480A), or by Maine's Land Use Regulation Commission (Title 38, Chap. 3 § 480E-1).

Department staff design and conduct surveys (e.g., ecoregional surveys) to determine what areas of the state are occupied by lynx and other wildlife species of concern. Without this information NGOs such as The Nature Conservancy or the Forest Society of Maine would have little information to base their habitat conservation efforts on. While some of these efforts may not directly result in the acquisition of conservation lands or easements, they do facilitate the management of conservation lands and easements.

Lynx Management

Implementation of a lynx management system will be the primary way the Department produces a positive effect for the species. Public goals for lynx management and a lynx management system should be in place in 2008. Part of this management effort will be the development of best management practices for landowners to assist them in maintaining lynx habitat on the landscape.

Lynx Research

As previously described in Sections 5.2 and 2.2.1, the Department, in collaboration with the USFWS and other entities, has an ongoing lynx research project. The Department initiated a lynx radiotelemetry study in Maine in 1999 at a time when there was little information about lynx in the conterminous United States. Research efforts have expanded the current knowledge and understanding of lynx abundance, space requirements, habitat use, mortality factors and rates, and reproduction. Maine is one of the leaders in lynx research on southern lynx populations, and this research has contributed to a greater understanding of this population. Recently, biologists working on the Maine lynx study organized a symposium on Canada lynx habitats for the 2006, 13th Annual Meeting of The Wildlife Society, in Anchorage, AK, where their research results were presented. Two papers from this presentation are currently in press in the Journal of Wildlife Management.

Currently, the Department's research project is contributing to lynx recovery goals by providing critical knowledge on lynx productivity, habitat selection, and distribution. This information has been used by: a) MDIFW and outside reviewers to make

recommendations for listing state threatened and endangered species; b) landowners, MDOT, and NGOs for assessing the impact of land development projects on lynx; c) other lynx researchers throughout the U.S. (e.g., Federal Lynx Biology Team) to better understand the ecology of lynx in their own jurisdictions; and d) forest landowners for assessing the impact forest harvesting practices have on lynx. Department biologists are working towards finalizing research results and will use them to develop a management system for lynx, scientific publications in peer reviewed journals, and Best Management Practices for lynx habitat management (will be distributed to large landowners throughout the state).

The study objectives for the remainder of MDIFW's lynx research project are

1. Identify the variability in lynx population demographics (survival, reproduction) and behavior (home-range size, habitat use, activity patterns) during varying snowshoe hare densities.
2. Identify the threshold snowshoe hare density needed to sustain lynx in Maine.
3. Identify forest management recommendations that will promote snowshoe hare and lynx habitat in Maine.

The following is a set of needs identified by the USFWS in their recovery outline for lynx (September 15, 2005) that MDIFW's research has or will attempt to address.

Development of best management practices – the USFWS recognizes the need to develop and implement best management practices and long-term management agreements for lynx on non-federal land. Large landowners in Maine have indicated considerable interest in any land management guidelines the Department could provide. The Department is collaborating with all partners to develop habitat management guidelines.

Hare densities in relation to lynx and habitat type – a primary objective in the USFWS' recovery outline is to establish and implement long term habitat guidance. In order to achieve this objective, there must be a clear understanding of how lynx and their primary prey, snowshoe hare, utilize different forest management regimes. Utilization of habitat types will, of course, vary with changes in lynx or hare population densities. The need to understand lynx/hare/habitat relationships is reiterated in another recovery objective proposed by the USFWS, i.e., continue and complete studies necessary to gather basic information on the ecological requirements of lynx.

Habitat Use and Movements – The USFWS recommends further study to determine the importance of different habitats for lynx. This has been a primary objective of MDIFW's lynx research project since inception.

Limiting factors – the USFWS is interested in determining the risk that anthropogenic activities such as, roads, trapping, and hunting pose to lynx populations.

Basic lynx ecology – USFWS recommends that studies gather basic information on the ecological requirements of lynx be continued or completed. This has been one of the primary objectives of MDIFW's lynx research project since inception.

5.4 Monitoring and Reporting

The USFWS requires monitoring to assess compliance and project impacts in all HCPs. The scope of monitoring in this Plan involves the monitoring of incidental take by trappers and the effect, if any, this incidental take might have on the lynx population.

Monitoring Incidental Take

Prior to 2008, the reporting of lynx incidentally caught by trappers was a voluntary program. While the Department felt that compliance with its requests for trappers to report all lynx that were incidentally trapped was relatively good, it was also apparent that not all trappers were voluntarily reporting incidental catches of lynx. In an effort to improve the reliability of the Department's estimate of the number of lynx incidentally caught, and to better assess lynx injury rates due to incidental trapping, the Department will propose rule changes that will make the reporting of incidentally trapped lynx mandatory. Currently, MDIFW reports all lynx mortalities and incidental takings to the

USFWS within 24-hr from the time the Department's Wildlife Division staff learns about the event. This reporting regime is expected to continue into the foreseeable future. If granted an Incidental Take Permit, MDIFW will file an annual report on incidental captures, as required, with the USFWS.

Current Department policy directs MDIFW staff to respond on-site to all reports of a lynx captured in a trap, unless: 1.) conditions make it unsafe for the animal to remain in the trap for the period of time it would take Department staff to travel to the site, 2.) it is dangerous for Department staff to travel to the site, 3.) a trapper has released the lynx because circumstances made it impossible for the trapper to contact the Department, or 4.) if it will take Department staff more than 4 hours to get to the site (Appendix 8).

Department staff follow set protocols for chemical immobilizing lynx, assessing injuries, taking biological measurements, tagging or radiocollaring lynx, and reporting the incident to MDIFW administration, Maine Wardens, and USFWS Special Agents and recording information into a database (Appendix 8 and 9). Each incidental catch is reviewed by MDIFW and USFWS biologists and special agents. Any trends in incidental catches will be discussed with the USFWS on an as needed basis and included in the annual report to the USFWS.

Monitoring Lynx Populations and Habitat

Monitoring the lynx population for the express purpose of assessing the impact that the incidental trapping is having on the lynx population may not be feasible or necessary. Lynx are difficult to monitor because of their secretive nature and the low density which

they occur on the landscape. Both of these factors make it very labor intensive to detect lynx using standard surveys -- especially if large areas of the state need to be surveyed. The USFWS, in its 2005 Recovery Outline, recognizes that techniques currently do not exist to precisely monitor a lynx population on a statewide or regional scale. Rather the Service recommends monitoring the amount of habitat suitable to lynx and snowshoe hares, on a landscape or regional scale, as a surrogate for population monitoring of lynx (USFWS 2005). While habitat monitoring can provide an estimate of how many lynx an area can support, and may benefit lynx by alerting managers to changes in the amount of suitable habitat available for lynx, it is not suitable for monitoring whether mortalities that may result from incidental trapping of lynx have any effect on the lynx population. Furthermore, the USFWS' five point policy (65 FR 35253) states, "Monitoring measures should be commensurate with the scope and duration of the project and the biological significance of its effects." MDIFW contends that the primary impact of incidental trapping on Maine's lynx population would come from lynx mortalities associated with incidental trapping, and that the level of lynx mortalities associated with Maine's trapping program is too low to have a significant impact on the lynx population in Maine (See Sec. 5.11).

The Department concurs with the USFWS that there currently is not an accurate way to monitor lynx population trends. Although indices such as the number of lynx incidentally caught by trappers may give some indication of lynx population trends, the number of lynx incidentally caught is too low to give an accurate picture of the degree that the lynx population may be changing. The Department is committed to working with the

University of Maine to find better ways to monitor lynx and snowshoe hare; however, the methodology to do this is still being developed. A variety of monitoring methods were considered. Examples of some of the more promising methods and their limitations follow.

1. Population Monitoring - We considered regional presence and absence monitoring to detect changes in the lynx range. In addition, population monitoring may be needed to verify continued use of suitable habitats as delineated by habitat maps and models. Presence or absence monitoring would be done at the township scale following existing lynx survey protocols (MDIFW unpublished data), and would be repeated every 5 years.

Limitations of this method -- A) Only gross changes in the lynx population could be detected. B) The ephemeral nature of lynx habitat would limit the usefulness of repeated measures (e.g., the occupancy of a township over time). C) Township sampling would be prioritized by species specific habitat models and maps. These habitat maps would likely be created from remote sensing data, which is often dated and difficult to use for categorizing early successional habitat (e.g., detecting regenerating conifer stands under a shelterwood cut).

Conclusion -- Despite the limitation of this method, population monitoring surveys are being considered as part of MDIFW lynx management strategy, and would be used in conjunction with habitat based predictive models.

2. Time Series Analyses of Habitat -- Dissertation work on the "Spatial and Temporal Dynamics of Habitat Supply for Canada Lynx (*Lynx canadensis*) and American Martens (*Martes americana*) on Commercial Forestlands in Maine" is being concluded in 2008 at the University of Maine (Simons, Wildlife Ecology Department, University of Maine, Orono, pers. comm.). In her research, Simons used a retrospective time series analysis of forest habitat information from Landsat Thematic Mapper satellite imagery, classified the imagery with the Maine GAP land cover map, and modified the imagery using change detection techniques based on the Normalized Difference Vegetative Index. Using this technique she was able to delineate early successional habitats used by lynx and snowshoe hare, and predict the effects of forest management actions on lynx occurrences.

Limitations of this method -- A) The imagery is costly and the technique is labor intensive. Costs may be prohibitive if the technique was applied to most of northern Maine. B) Although the techniques Simons developed can be used to predict lynx occurrences, ground surveys would be needed to confirm the use of lynx habitat. C) Lynx population monitoring using this technique would not have the accuracy needed to detect small changes in the lynx population.

Conclusion -- This technique represents the best available technology for independent monitoring of early successional habitat. In connection with the USFWS' Critical Habitat designation for lynx, the Department is in discussions with

representatives of Maine's forest industry (i.e., the MFPC), and the USFWS, on developing an agreement whereby the MFPC would financially support the periodic mapping of Maine's industrial forest lands to assess lynx / snowshoe hare habitat. In addition, under the agreement currently being developed the MFPC would assist in the verification of remote sensing maps produced in this effort, and sponsor forums to disseminate lynx research and management information.

We also continue to pursue a better understanding of minimum snowshoe hare levels needed to support lynx with researchers at the University of Maine, and are cooperating in joint USFWS, University of Maine studies to better understand snowshoe hare habitat relationships. Both of these research endeavors should help us assess the quantity and quality of habitat lynx need to persist in Maine.

Mitigation Monitoring

A brief synopsis of the monitoring measures proposed for MDIFW's mitigation efforts is given in Table 5.3.1. Many of the monitoring measure will simply entail providing the USFWS with updates at the annual meeting between MDIFW and the USFWS (e.g., update of changes to MDIFW's trapper training program). Several of the mitigation measures (i.e., additional lynx habitat creation with MBPL, Maine Forest Product Council habitat mapping project, lynx management system, best management practices) are still in the development stage. Therefore, the exact monitoring methods used for these mitigation efforts may change. When plans have been finalized for these mitigation measures, MDIFW will submit an updated description of the mitigation effort

complete with monitoring and reporting measures to the USFWS as an addendum to this ITP application.

6.0 Funding

6.1 Funding for Minimization and Mitigation Measures

6.1.1 Minimization Measures

The minimization measures to protect lynx, mentioned in Sec. 5.2, fall into three MDIFW programs: Law Enforcement, Wildlife Management, and Information and Education (Table 6.1). These programs are collectively supported by revenues from trapping, hunting, and fishing licenses; federal matching dollars (Pitman-Robertson (PR) funds); general funds from the Maine Legislature; USFWS Section 6 funds (threatened and endangered species funds); non-game revenues from conservation license plate sales; funds from the USFWS State Wildlife Grant program, and grants from a number of private organizations. Although funding for some programs has been flat for over 10 years, the Department does not foresee funding shortfalls that would prevent the minimization measures from being carried out. Fieldwork for the lynx research project is slated to end in 2010. When this project ends, responsibilities for responding to trapped lynx will shift to other staff. Funding for these staff should not be an issue.

6.1.2 Mitigation Measures

Funding for the Department's Canada lynx project has come from the USFWS (administrative funds, Section 6, State Wildlife Grant Program), funds from the sales of Maine conservation plates, competitive grants, NGOs, private industry, and Departmental funds. In all, over \$1 million has been expended for lynx research. Funding for the remaining years of the lynx project is expected to come primarily from State Wildlife Grant monies, forest industry, Section 6 funds, conservation plate funds, and grants from NGOs. Although fieldwork for the lynx research project will end in 2010, many of the mitigation products discussed in Section 5.3 will be produced after the fieldwork is completed. Several of the principal investigators on the lynx project are permanent Department staff and will produce these products as part of their normal duties. Staff salaries are funded with license revenues, matching PR funds, and revenues from conservation plate sales. The Department does not foresee funding shortfalls that would prevent the mitigation measures from being carried out.

Table 6.1 Approximate costs of activities specifically undertaken to reduce or mitigate the incidental catch of lynx by trappers and programmatic costs of related activities. Cost of the Plan's element may include personnel time, equipment expenses, and other expenses. In most cases, personnel costs are not additional costs to the agency but rather represent the loss of personnel time to other wildlife management or law enforcement activities. When there are no additional costs for performing an activity related to the Plan, because that activity is considered part of a program's normal duties, programmatic costs or expenses are given.

Activity	Section activity is found in	Frequency	Cost of Element	Programmatic Cost
Enforcement of trapping regulations to limit incidental take	5.2 Measures to Minimize Impacts	Annually each trapping season	No additional cost	\$70,000
Trapper Information and Education Program	5.2 Measures to Minimize Impacts	Annually	No additional cost	\$126,600 / yr includes admin. costs for hunter ed. too
Mailing trapper guide on how to avoid catching a lynx	5.2 Measures to Minimize Impacts	Annually	\$2700/yr	N/A
Editing the trapper mailing to reflect regulatory changes and enhance information on incidental trapping	5.2 Measures to Minimize Impacts	Annually	\$300/yr	N/A
Maintain lynx and hotline	5.2 Measures to Minimize Impacts	Annually	\$500/yr	N/A
Formulate specific guidelines detailing when an injured lynx should receive medical attention	5.2 Measures to Minimize Impacts	One time event w/ periodic reviews	Done	N/A

Table 6.1 (Cont')

Activity	Section activity is found in	Frequency	Cost of Element	Programmatic Cost
Establish a network of veterinarians and rehabilitators for dealing with injured lynx (See Appendix 8)	5.2 Measures to Minimize Impacts	One time event with periodic updates (note there are no training costs)	Done	N/A
Cost of rehabilitating lynx	5.2 Measures to Minimize Impacts	Estimated 1 serious injury every 5 years	\$1,200	N/A
Conferring with other jurisdictions about their programs to reduce incidental take	5.2 Measures to Minimize Impacts	Annually at technical committee meetings	No additional cost	\$800
Dept. of Conservation costs to implement habitat management plans for snowshoe hare and lynx	5.3 Measures to Mitigate Unavoidable Impacts	Periodically	No additional costs - funds are raised from timber sales from these activities	See costs of maintaining MDIFW Liaison with MDOC
Maintain MDIFW Liaison with Dept. of Conservation	5.3 Measures to Mitigate Unavoidable Impacts	Annual	No Additional Costs;	\$66,000 MDOC \$22,000 MDIFW
MFPC Agreement Expenses for reports, outreach, and communication	Sections 5.2 and 5.3	Annual	\$6,600	N/A
Land Acquisition and Conservation Easement Work	5.3 Measures to Mitigate Unavoidable Impacts	Annual	No Additional Costs	\$80,000
Land Regulatory Efforts and permit review for DEP and LURC	5.3 Measures to Mitigate Unavoidable Impacts	Annual	No Additional Costs	\$185,000
Lynx Research	5.3 Measures to Mitigate Unavoidable Impacts	Annual; Scheduled to 2010	No Additional Costs	up to \$254,000
Lynx Management	5.3 Measures to Mitigate Unavoidable Impacts	Annual	No Additional Costs	\$74,000

Table 6.1 (Cont')

Activity	Section activity is found in	Frequency	Cost of Element	Programmatic Cost
Trap Improvement	5.3 Measures to Mitigate Unavoidable Impacts	Sporadic	\$500/event	N/A
Habitat Analysis - time series analysis of Landsat data	5.4 Monitoring and Reporting	Periodically, e.g., 1 time / 5 years	No Additional Cost	This would primarily be paid by MFPC. MDIFW costs may reach \$3000 for GIS analysis and interpretation
Alternative Habitat Analysis Methods, e.g., forest inventory data	5.4 Monitoring and Reporting	Periodically, e.g., 1 time / 5 years	No Additional Cost	\$5,600
Investigate incidental lynx and captures and inform USFWS of these events	5.4 & 8.2 Monitoring and Reporting	Multiple times each year	\$10,000/yr	N/A
Annual review of lynx captures with USFWS	5.4 & 8.2 Monitoring and Reporting	Once a year	\$1000/yr	N/A
Consultations with USFWS and MTA when incidental catch rates reach their trigger points	5.4 & 8.2 Monitoring and Reporting	Infrequent; less than once per year	\$1000/event	N/A
Review of trapping effort and if necessary consult with USFWS and MTA	5.4 & 8.2 Monitoring and Reporting	Reviews -- annually; consultations -- fewer than once per year	\$300/yr	N/A

7.0 Alternatives

7.1 Discontinue Trapping Statewide

The alternative action considered was to discontinue trapping statewide.

This alternative would result in no take of Canada lynx by trapping. The benefit of any reduced take from this action would be relatively minor relative to other sources of human related mortality (e.g., animal-vehicle collisions) that have a greater impact on lynx populations.

Trapping cannot be replaced with an alternative activity that effectively harvests furbearing animals and provides a similar outdoor recreational experience. In 1973, Maine's legislature directed MDIFW's Commissioner to establish open seasons for the trapping of furbearing animals (Title 12, Chapter 301, § 1960 A). Discontinuing trapping statewide would be contrary to the legislature's original directive. Although lynx have been caught in trapping sets suitable for fox, coyote, bobcat, marten, and fisher, to our knowledge, no lynx have been caught in traps set for beaver, raccoon, mink, skunk, or weasel. Discontinuing trapping for species that have not been associated with incidental capture of lynx would be unreasonable and would not, in itself, help reduce the incidental take of lynx.

Given these considerations, the Department did not consider this an acceptable alternative.

7.2 Discontinue Trapping Selectively

Another alternative action considered would be to discontinue trapping for species that have been associated with the incidental capture of lynx in areas where lynx occur.

This alternative would likely result in no Canada lynx being taken.

Lynx are distributed primarily in the northern half of the state (Fig 2.1; essentially WMDs 1 - 11; Fig 3.1); have been taken in traps set for canines, marten, and fisher; and would be vulnerable to traps set for bobcat. Discontinuing trapping in all these WMDs for these species would reduce the statewide trapping harvest for these species accordingly: marten – (86%), fisher – (35%), coyote -- (< 31%), red fox -- (< 31%), and bobcat – (ca. 5%) (Table 3.2). Coyote and fox are hunted as well as trapped; therefore, the reduction in harvest, if trapping were to cease in these WMDs, would be somewhat less than 31% (unknown amount). The Department did not believe it is practicable to ask the public to incur a significant loss of fur trapping opportunity on the outside chance that a lynx may incidentally be killed in a trap set for upland furbearers. Especially when the mortality allowance requested in Maine's Plan is not detrimental to Maine's lynx population. Consequently, the Department is not recommending trapping

be discontinued for upland furbearers in the core lynx range, and does not consider this an acceptable alternative.

7.3 Existing Program Modifications

7.3.1 Modify existing coyote and fox trapping regulations

- a.) limit the number of foxes or coyotes a trapper could take in a season,**
- b.) restrict canid trapping to permit-only trapping within the lynx range, or**
- c.) close portions of the lynx range to canid trapping.**

The Department considered whether current levels of lynx incidental take warranted modifying Maine's canid trapping regulations to reduce lynx incidental take, trapping injuries, or mortalities. The level at which lynx are being incidentally trapped and the injuries associated with incidental trapping do not appear to be having a significant biological impact on Maine's lynx population (see Sec. 4.2 and 5.1.1). Because further trapping restrictions would have no effect on the lynx population at this time, the Department does not view additional trapping restrictions for canid trappers as being necessary or practicable. However, if trapping effort for canids were to increase (e.g., because of substantially higher pelt prices) or if there were some other compelling reason to reduce trapping effort in the lynx range, the Department may revisit these options.

7.3.2 Eliminate 220 conibear traps, or eliminate all conibear trapping in areas where lynx occur.

The two lynx killed, to date, from incidental trapping have been killed in conibear traps (#120 and #220). To address the vulnerability of lynx to conibear traps the Department promulgated regulations in 2007 to restrict how conibears can be set in the lynx range (Appendix 5). It is the opinion of the Department and others (USFWS and IAFWA 2003) that if conibears are set following the guidelines described in Appendix 5, lynx will not be caught in these traps. The Department preferred promulgating regulations restricting how conibears can be set over outright banning the use of conibears, and therefore, does not consider eliminating conibear traps to be an acceptable alternative.

7.3.3 Propose rules or laws to require more frequent tending of conibears.

In Maine, all restraining traps (e.g., foothold traps) must be checked every 24 hr to minimize the stress and injury to captive animals. Conibears, which kill target animals quickly, must be checked every 3 days in organized towns and every 5 days in unorganized towns in Maine. This alternative action addresses the concern that if a lynx was caught in a conibear by the forelimb, the animal might have a better chance of surviving or of avoiding a debilitating injury if trappers had to check their traps more frequently. Lynx can be non-lethally captured in a conibear by one of their limbs if they reach through the conibear to get at the bait that is being used as an attractant. To

date, 2 lynx have been caught by the limb in conibears (and successfully released) and 2 lynx were killed when they stuck their head into conibears.

Most of Maine's lynx occur in unorganized towns; therefore, shortening the 5-day tending time is the primary option that was considered in this Plan. The 5-day tend was instituted to allow trappers to check their traps only on weekends, and to give trappers that are running multiple trap lines or traveling long distances more flexibility as to when they had to check their traps. It is also a tending time that is convenient for young trappers that are attending school during the week.

The Department addressed the above concern by adopting regulations that dramatically reduce the likelihood that a lynx would get caught in a conibear (Appendix 5). The regulatory change made it illegal to set a conibear for an upland species unless the conibear was 4 ft off of the ground and was affixed to a pole or tree < 4 inches in diameter and $\geq 45^\circ$ from the ground. This regulation follows the recommendations of the booklet "How to avoid incidental take of lynx while trapping or hunting bobcats and other furbearers" (USFWS and IAFWA 2003), and modified by MDIFW. The trap placement recommended in this booklet is considered by leading experts to be very effective in deterring lynx from investigating a conibear set. Therefore, if lynx are effectively deterred from investigating conibears set in this manner, there is no need for addressing tending time for conibears.

Given the above considerations the Department did not consider this to be an acceptable alternative.

7.3.4 Propose rules or laws to address chaining and swivel requirements for foothold traps.²¹

The Department and the MTA are committed to lowering trapping injury rates. The Department and trappers from the Association participated in AFWA's trap testing program for the development of trapping BMPs. In addition, Department biologists helped write the USFWS and IAFWA (2003) booklet "How to avoid incidental take of lynx". Both of these efforts stress the voluntary nature of improving trapping through trap and set modifications. Trappers by nature are constantly modifying their traps to improve their performance. If there is a need to improve the swiveling on traps, trappers should be receptive to the idea without resorting to more regulations.

The Department did not consider requiring a specific swivel combination on traps as an acceptable alternative. There is little evidence of the need for such a requirement. In addition, such a regulation would be difficult to enforce, since swivels and the traps chain are commonly buried underground and would not be visible to Wardens checking the traps.

²¹ The matter of concern here was that there is an increased risk for a debilitating injury to a lynx when a lynx is caught in a trap that is improperly swiveled to the chain that anchors the trap.

7.3.5 Require 3rd party inspections²²

Although 3rd party inspections were used to verify incidental takings in the Department's snaring program, these inspections would not be practicable for MDIFW's trapping program. This approach would be fraught with logistical problems: there are thousands of trappers; few lynx are incidentally caught relative to the total number of traps set for fox and coyotes; trappers are under no obligation to take someone with them, as opposed to snarers who were working as contractors for the Department; and this approach would be highly inflammatory to trappers.

The Department did not consider setting up a 3rd party inspection system to be a practicable alternative.

²² Third Party Inspections refer to someone other than Department personnel (Game Warden or Wildlife Biologist) to make sure trappers are reporting incidental takings.

8.0 Plan Implementation / Changed and Unforeseen Circumstances

8.1 Plan Implementation

Public Participation

The Department anticipates that the USFWS will provide the required public comment period (i.e., 60-90 days) for the proposed Plan. Following the public comment period, the Department, in consultation with the USFWS, will consider changes to its Plan based on the comments received.

Plan Implementation

In anticipation of submitting its Plan, the Department began promulgating rule changes, augmenting its informational and educational efforts (e.g., MDIFW's trapper information course), and clarifying lynx handling protocols (Appendix 8) in 2007. Regulations that mandate the reporting of incidentally caught lynx will be in place by the 2008 trapping season. For the proposed mitigation effort that would create an additional 5000 acres of early successional habitat for lynx, the Department will begin working with MBPL in 2008 to increase the amount of early successional habitat that is being set aside in MBPL's forest management plans. Other actions described in this document will be implemented upon acceptance of this Plan by the USFWS.

8.2 Changed Circumstances

The USFWS addresses two types of changed circumstances: 1.) those that can be anticipated and planned for, i.e., changed circumstances and 2.) those that cannot be anticipated, i.e., unanticipated or extraordinary circumstances (USFWS 1996). We address both types of circumstances in Sections 8.2 and 8.3 with an emphasis on changed circumstances.

Change in the Lynx Range

If the lynx population were to become established in other areas of Maine outside WMDs 1-11, the Department will promulgate rule changes that would modify the trapping regulations in those areas to make them consistent with the trapping regulations in the rest of the lynx range (Table 8.2.1). This action would only be undertaken if there was evidence from repeated surveys, sightings, or incidental captures that lynx were residing in a WMD outside of the current lynx range. Single sightings of lynx outside of the current lynx range may only indicate a dispersal attempt by an individual and not an established sub-population. Sightings of lynx outside of their current range will be discussed with at the annual USFWS - MDIFW meeting on lynx incidental take to determine whether additional surveys or regulatory action is warranted.

Change in Trapping Effort

If trapping effort increases considerably, the number of lynx incidentally caught in traps may also increase. Trapping effort is generally measured in terms of trap nights, where one trap set for a 24 hr period is equal to one trap night. The Department has not been successful in collecting information on trap nights from trappers. As a surrogate to trap nights, the Department tracks the number of land trappers, i.e., the number of trappers that catch and tag at least 1 coyote, fox, marten, fisher, or bobcat. While the number of land trappers may not reflect the true amount of trapping effort (e.g., it does not capture changes in the number of traps set out by individuals), it should reflect general trends in trapping effort.

If the number of land trappers appears to be increasing in the lynx range by $> 50\%$ ²³ over a 3-year period²⁴, and the incidental catch rate of lynx ≥ 10 , MDIFW will consult with the USFWS and the MTA as to what the best course of action may be for lowering the incidental catch rate of lynx (Table 8.2.1). The Department has a variety of tools at its disposal for regulating trapping, including rules governing trapping methods, season length, area closures, and emergency closures. Trapping regulations can be modified if

²³ There were approximately 538 (Standard Deviation = 163; Range = 353 to 701) land trappers in the lynx range from 1986 to 2006. The mean number of land trappers was determined from cumulative totals of land trappers tagging fur in the historic wildlife management units that made up the current lynx range. It does not represent the number of individual trappers in the lynx range, since some trappers may have trapped in more than one wildlife management unit in a given year. The Department can track individual trappers in the lynx range; however, these data were not immediately available for this analysis.

²⁴ A 3-year period is needed to compare land trapper numbers because of strong alternate year variability in trapper numbers. Annual marten and fisher harvests in the lynx region regularly alternate from high to low harvests, and are frequently either double or half of the previous year's harvest. Land trapper numbers also follow this trend. If land trapper numbers are compared on the 1st and 3rd years the alternate year periodicity will be negated and the comparison will better reflect trends in trapper numbers.

circumstances warrant such action. Rather than specifying a specific action at this time to address a hypothetical problem, the Department recommends choosing the best response based on the actual circumstances.

Unanticipated Lynx Behavior

Current trapping regulations governing the use of conibears in the lynx range are based on long term observations of lynx behavior by wildlife biologists and trapping experts (USFWS and IAFWA 2003). There is no guarantee that all lynx will respond the same way to conibears set on small diameter leaning poles, but our experience indicates that this type of set is highly effective in deterring lynx from investigating a baited trap. However, if a lynx should get caught in a conibear, MDIFW will confer with the USFWS on whether any modifications need to be made to conibear sets (Table 8.2.1). These might include devices (e.g., small wire cage) to exclude lynx from reaching into or entering a conibear, or other modifications to how the trap is set. Should an unanticipated problem occur with foothold traps and lynx, the Department would also confer with the USFWS on the appropriate response (Table 8.2.1).

Monitoring and Evaluation

Monitoring lynx incidental trapping does not require high levels of funding, and thus is less likely to be impacted by funding shortfalls than habitat or population monitoring efforts (Table 8.2.2). In addition, these activities often fall within the normal activities of wildlife biologists and wardens, and could be carried out at little additional cost. A

Table 8.2.1 Circumstances that may affect MDIFW's trapping regulations, and descriptions of how the Department will respond to those circumstances. The USFWS will generally be made aware of changed circumstances in MDIFW's annual report on lynx incidental takings or at a special meeting with the USFWS after a response is triggered (e.g., >10 lynx are incidentally trapped in a given year).

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Change in the lynx range	Trapping regulations in relation to injury and mortality rates	> 2 sightings of lynx in a township outside of the current lynx range in a given year, or other evidence of a lynx home range or reproduction in a township	<ol style="list-style-type: none"> 1. Meet with the USFWS to determine if current trapping regulations need to be modified 2. Modify regulations to be consistent with those in the current lynx range 	Lynx may be more vulnerable to injury in conibears that are not set as required in the current lynx range.
Change in trapping effort	Trapping regulations in relation to the rate of incidental take	> 10 lynx incidentally captured in one year and number of trapper pursuing upland furbearers increases by 50%	If the incidental take rate appears as if it will exceed permit levels changes in trapping regulations (e.g., bag limits, area restrictions, permit only trapping) could be instituted	Minor impact on the lynx population. If trapping restrictions are enacted, trapping opportunities for Maine trappers may decrease
Lynx do not respond to as expected to leaning pole sets or other trapping sets	Trapping regulations in relation to the rate of incidental take, injury, and mortality rates	Any lynx caught in a conibear trap that was set according to current regulations, or 2 lynx severely injured in any particular trapping set	<ol style="list-style-type: none"> 1. Review circumstances of take with USFWS 2. Consider modifications to trapping regulations 3. Consider other devices to exclude lynx from conibears. 4. Modify information and education efforts 	Little if any impact to the lynx population if corrected. Mitigation measures would already be in place if this occurs.

funding shortfall that would curtail these activities may even be considered an extraordinary circumstance.

We point out that neither lynx habitat or population trend monitoring would be practicable for monitoring the impact of mortalities from incidental trapping on the lynx population. Modeling work (Appendix 7) indicates that the mortality allowance requested in this proposal would not significantly affect the lynx population even at very low population levels. Rather these monitoring efforts are part of the Department's overall lynx management program.

Rejection of the critical habitat agreement between forest industry and the USFWS or a funding shortfall in either the wood products industry or in MDIFW may impact plans to use a time-series analysis of Landsat imagery to map changes of lynx habitat. This would affect the Department's ability to determine the carrying capacity of the habitat in northern Maine to support lynx and snowshoe hare. Consequently, it would impact lynx management in the state. If the Department were unable to use a time-series analysis of Landsat imagery to map changes of lynx habitat, MDIFW would work with forest industry to obtain the best habitat information available (Table 8.2.2). This might include an arrangement whereby MDIFW would provide lynx and snowshoe hare occurrence models to various large landowners, and the landowners would use their proprietary stand maps to quantify the amount of suitable lynx habitat available. Alternatively, forest inventory data collected by the Maine Forest Service could be used

to get a general picture of the availability of lynx and snowshoe hare habitat (e.g., Jakubas and Cross 2001).

A funding shortfall in MDIFW or a change in work priorities may compromise the Department's ability to conduct lynx or snowshoe hare surveys (Table 8.2.2). If such events occurred, surveys may be delayed or terminated. If plans for conducting surveys were terminated, the Department would have to rely on habitat maps for assessing changes in carrying capacity for snowshoe hare or lynx, and would have a limited ability to confirm habitat use or changes in populations were not directly tied to habitat availability.

The loss of key personnel or key personnel taking leave may temporarily affect the monitoring of lynx and snowshoe hare populations and habitat mapping, but likely would have little effect on the monitoring of incidental take (Table 8.2.2). Department study leaders and supervisory personnel could cover key staff duties related to these activities. The exception might be if other high priority tasks would not allow the lynx study or mammal group leaders time to attend to field studies related to lynx or snowshoe hare survey efforts (Table 8.2.2). In such cases the survey work would be delayed or terminated. The Department's habitat group has several GIS specialists who could cover the duties of the person assigned to work on lynx habitat issues, as long as other work priorities did not interfere. Therefore, delays to habitat mapping tasks would likely only be temporary. Should key field personnel permanently leave a position, the

Table 8.2.2 Circumstances that may affect MDIFW's monitoring and evaluation efforts, and descriptions of how the Department will respond to those circumstances. The USFWS will generally be made aware of changed circumstances in MDIFW's annual report on lynx incidental takings.

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Rejection of the Critical Habitat Agreement between the MFPC, MDIFW, and the USFWS	Use of time-series Landsat imagery to track changes in lynx habitat	Rejection of the Critical Habitat Agreement	<ol style="list-style-type: none"> 1. Explore alternative, less expensive mapping techniques. 2. Explore using industry stand maps to track changes 	<ol style="list-style-type: none"> 1. Assessment of carrying capacity for lynx 2. Verification of management agreements 3. Biological rationale for trends in incidental take or lynx population
Change in funding status	Use of time-series Landsat imagery to track changes in lynx habitat	Notification by the Maine Forest Product Council that they can no longer fund the habitat mapping project as originally proposed	<ol style="list-style-type: none"> 1. Scale back area being mapped 2. Explore alternative, less expensive mapping techniques. 3. Explore using industry stand maps to track changes 	<ol style="list-style-type: none"> 1. Assessment of carrying capacity for lynx 2. Verification of management agreements 3. Biological rationale for trends in incidental take or lynx population

Table 8.2.2 Cont'

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Change in funding status	Lynx ecoregional surveys	Inability to fund one winter's survey	<ol style="list-style-type: none"> 1. Use alternative indices 2. Delay survey schedule one or more years 3. Rely solely on habitat maps for assessing lynx trends 4. Seek alternative funding 	May impact MDIFW's ability to detect changes in the distribution of Maine's lynx population, or target areas for further surveys
Change in funding status	Snowshoe hare surveys	Inability to fund one year of survey work	<ol style="list-style-type: none"> 1. Use habitat based models to track changes in SSH carrying capacity rather than monitor SSH population trends. 2. Delay survey schedule one or more years 3. Seek alternative funding 	May impact MDIFW's ability to interpret status of lynx populations in Maine
Change in funding status	Monitoring incidental trapping. Includes biologists and wardens investigating incidental trapping events	Severe funding shortfall that would cut staffing levels	Reduce or reprioritize other duties to maintain incidental take investigations	A reduction in the percentage of incidental trapping events that would be visited by a biologist (unlikely)

Table 8.2.2 Cont'

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Loss of key field personnel	1. Monitoring of incidental take 2. Lynx or snowshoe hare surveys	Lynx field coordinator requires extended leave or resigns from position	Duties would be covered by lynx study leader, other mammal group personnel or regional personnel. Replacements can usually be hired in < 6 mo time.	Ideally there would be no reduction in incidental take monitoring. Other field activities may be delayed or at least temporarily reduced
Loss of lynx study leader or mammal group leader	1. Lynx research and management activities 2. Coordination of incidental take monitoring and reporting	Mammal group leader or lynx study coordinator require extended leave or resign from position	Mammal group leader would cover the duties of the lynx study leader until a replacement is found. The lynx study leader would cover duties of the mammal group leader until the position is filled	A reduction in lynx project oversight, grant administration, or productivity may occur until the vacant position is filled again.
Loss of key GIS personnel	Monitoring of lynx populations through habitat maps and modeling	Personnel normally assigned to lynx habitat mapping leave position	Duties would be assigned to other GIS specialists in the Habitat Group	Any impact would be temporal in nature and shouldn't affect lynx management or monitoring
Loss of key personnel i.e., lynx study leader, mammal group leader	ITP reporting	Extended leave or resignation of personnel in key position	Duties would likely be covered by remaining key personnel or section or division supervisors	Delay in annual meeting between MDIFW and USFWS

Mammal Group leader or lynx study leader usually covers their duties until a permanent replacement is hired (~ 6 mo).

The Department has several options to insure that the monitoring of lynx incidental take continues even if key personnel are unavailable. If the lynx study leader or lynx field study coordinator are not available to respond to an incidental lynx capture, the Department's Mammal Group leader and another biologist from the Mammal Group and/or Management Section, who are trained in chemical immobilization will respond to the incidental capture. Handling protocols and injury evaluation procedures are already in place (e.g., Appendix 8 and 9) to aid personnel that are not intimately familiar with handling lynx. In addition, Mammal Group personnel, other than the lynx crew, (i.e., up to 4 additional wildlife biologists who are on permanent staff) will occasionally assist in lynx incidental captures to insure adequate cross-training should they be required to become the primary responders to an incidental capture. Management Section biologists within the lynx range routinely respond to lynx incidental captures, and are available as back-up in case members of the lynx crew are unable to respond.

Minimization and Mitigation Efforts

A major change in the Department's funding status or the willingness of cooperators to continue their support for existing or proposed programs would have little impact on the Department's core mitigation efforts. The Department's primary mitigation measures: creating additional lynx habitat through existing land management agreements with MBPL; regulatory activities by the Department; the development of a lynx management

system; and the development of best management practices would least likely be affected by funding shortfalls (Table 8.2.3). Activities most vulnerable to funding changes include lynx research projects, and information and education efforts by the MFPC.

The existing public land management agreement between MBPL and MDIFW would not likely be affected by vagaries in state funding levels. Timber management is used by MBPL as a revenue producing activity for land management and other programs in their agency. Hence a loss of funds would affect other programs in their agency before their timber management agreements (i.e., revenue producing activities). If more timber was cut to support MBPL programs (i.e., not likely unless it was allowed in an existing management plan) this additional cutting would likely be beneficial to lynx when the regenerating forest reached a suitable age for snowshoe hare.

Department biologists regularly conduct environmental reviews, work with NGOs and other organizations on conservation agreements, and develop and maintain management systems. These are core activities for the Department and are unlikely to be severely affected by state funding levels.

If a funding shortfall resulted in the cessation of the lynx research project for more than 6 mo, it would likely result in loss of key personnel and could jeopardize future field efforts. Department staff would continue to analyze existing data and disseminate information through a variety of publications. Any key lynx management questions that

remained unanswered would likely be addressed through new research proposals with the University of Maine -- if new funding sources could be found.

Lynx management activities, other than monitoring habitat and populations, that might be affected by funding shortfalls would include public outreach efforts related to BMPs for lynx habitat management and the MFPC habitat mapping effort. Currently, under the draft agreement workshops and training sessions on lynx habitat management are proposed between forest industry representatives, MDIFW and the USFWS. Funding shortfalls in either MDIFW or forest industry may affect the frequency and scope of such workshops (Table 8.2.3). In addition, funding shortfalls may make it necessary to seek less expensive alternatives to disseminating BMP information (e.g., greater use of the internet). Activities most vulnerable to the loss of key personnel include the development of management systems and best management practices, and lynx research projects (Table 8.2.3). Less likely to be affected by the loss of key personnel are existing land management agreements with MBPL; regulatory activities by the Department; collaborative agreements with MDIFW; and information and education efforts.

Table 8.2.3 Circumstances that may affect MDIFW's mitigation and minimization efforts, and descriptions of how the Department will respond to those circumstances. The USFWS will generally be made aware of changed circumstances in MDIFW's annual report on lynx incidental takings.

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Change in funding status	Distribution of information on how to avoid incidental lynx takings	Any major change in the current way information is presented on avoiding incidental lynx captures	<ol style="list-style-type: none"> 1. Shift to less expensive media (e.g., Internet) 2. Focus on most effective media 3. Ask MTA to step up their own educational efforts at rendezvous and meetings 	Information on avoiding lynx incidental takes would reach fewer trappers
Change in funding status	Maine's trapper education program (note: trapper training is required by law and cannot simply be discontinued)	Reduction in staff time or number of Department Staff that can be devoted to the program	<ol style="list-style-type: none"> 1. Wildlife biologists could become more involved in the program until funding issues are resolved. 2. Greater reliance on volunteers 3. Seek assistance from MTA 	<p>Volunteer instructors may receive less oversight. Instructional material may not be kept up to date.</p> <p>Fewer volunteer instructors may be recruited and trained</p>
Change in funding status	<ol style="list-style-type: none"> 1. Consulting with trappers 2. Trapped lynx hotline 3. Injured lynx rehabilitation 4. Conferring with other jurisdictions 5. SOPs for incidentally caught lynx 	Not applicable	Not applicable	These activities all can be conducted at nominal cost. The Dept. does not foresee a normal circumstance where funding would be an issue for these activities

Table 8.2.3

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Change in funding status	Lynx research	Loss of anticipated grant money	1. Seek money from an additional funding source 2. Curtail field activities	Money for the remaining field work for the lynx project appears to be secure. Very little chance of significant change in funding status
Change in funding status	Lynx management	Insufficient funds to carry out planned surveys, habitat mapping efforts, or meetings/workshops with collaborators	Put more emphasis on working with landowners rather than monitoring lynx or snowshoe hare populations. Monitoring efforts could be delayed.	Temporary data gaps Reliance on habitat maps over surveys Less than ideal communication with landowners. Potential long-term impact on lynx population
Change in funding status	ME Bureau of Parks and Lands (MBPL) / MDIFW habitat management agreement	Very unlikely considering timber mgmt. is used by MBPL to raise revenue	Delay habitat management activities until the funding situation improves	May delay the creation of additional lynx habitat. Little impact on Maine's lynx population
Change in funding status	MFPC habitat mapping agreement	See Table 8.2.1	See Table 8.2.1	See Table 8.2.1
Change in funding status	Conservation agreements and regulatory efforts	Not applicable - these are core Department activities		
Change in funding status	Best Management Practices (BMPs)	Insufficient funds for proposed workshops, training sessions, or publications	1. Decreased frequency of workshops and training. 2. Use of less expensive media to disseminate info.	Largest owners of lynx habitat in ME may not be familiar with all BMPs or their rationale

Table 8.2.3

Changed Circumstance	Activity Affected	Response Trigger	Possible Responses	Potential Impacts
Loss of key personnel i.e., lynx study leader, field coordinator, mammal group leader	Lynx management Lynx research BMP recommendations	Extended leave or resignation of personnel in key position	1. Temporary or permanent curtailment of research field activities. 2. Duties are covered remaining key personnel 3. Delay (6 mo) in management system or BMP recommendations	May jeopardize remaining lynx field work in research project May delay creation or review of key management documents
Loss of key administrative personnel	Conservation agreements and regulatory efforts including MBPL habitat management memorandum of understanding	Extended leave or resignation of personnel in key position	Duties would be covered by other administrative personnel or reassigned	May result in up to a 6 mo delay in formulating the MBPL MOU. May delay the initiation of other conservation or regulatory efforts
Change in work directives	1. Lynx management 2. ITP reporting 3. BMP recommendations 4. MBPL memorandum of understanding 5. Information and education efforts 6. Lynx research 7. Habitat Mapping 8. Lynx monitoring	Legislative or upper administrative directive to shift work priorities	Activities would be prioritized to maintain key agreements in the Plan i.e., monitoring of incidental take, attending to injured lynx, ITP reporting, and mitigation measures	Could delay or end certain lynx management or research activities

The temporary loss of key personnel because of reasons related to health, family, or other employment opportunities, has resulted in the delay of species management systems and other planning efforts in the past. The mammal group leader is often tasked with finishing management or planning documents, but the group leader's ability to do this is highly dependent on other work priorities. Commonly, there is a 6 mo to 1 yr delay in producing these documents, if new personnel are hired or if existing personnel return from leave (Table 8.2.3). Currently, there is a legislative resolve for MDIFW to develop habitat management plans for a number of species that live in northern Maine, including lynx. As part of this planning effort, a lynx species assessment, management system, and best management recommendations will be written. Therefore, it will be a Department priority to cover any unforeseen loss of personnel time and keep lynx planning efforts on schedule. Loss of key personnel that work on other mitigation activities would likely be covered by other staff, or new staff may be hired. Therefore, any loss of key personnel should result in only temporary delays (< 6 mo) in attending to these other mitigation activities (Table 8.2.3).

Shifts in departmental work priorities are not uncommon. However, maintaining the key elements of the ITP agreement will remain a top Department priority in order to ensure the welfare of Maine's lynx population and the continuation of trapping activities in northern Maine (Table 8.2.3). Although certain activities connected to lynx management may be curtailed (e.g., snowtrack surveys for lynx), the Department does not foresee circumstances that would lead to discontinuing the monitoring of incidental take during the period the ITP is in affect.

Declining Populations

The Department did not foresee circumstances where a declining lynx population would lead to significant changes in the effects of incidental trapping on the lynx population. Consequently, no contingencies were developed to address a declining lynx population for the core elements of the Department's ITP application. Furthermore, using a deterministic model (Appendix 7), the Department concluded that the allowable mortality rate requested in this application would not have a significant effect on Maine's lynx population even if there were only 25 breeding females.

It is uncertain at this time whether the proportion of lynx caught in traps would increase or stay the same in a declining population (see Sec. 4.1 for further explanation).

However, even if the probability of killing a lynx increased 10-fold (i.e., 50 lynx over a 15 year period, with 10 females and 20 kittens being killed in year 5; a starting population of 25 breeding males and 25 breeding females; and carrying capacity was limited to 100 females²⁵), the population would only be reduced by ~ 6% after 15 years, compared to the same population that had no mortalities from incidental trapping. Research with similar species (i.e., bobcat) indicates that harvest rates need to approach 20% of the population to have a detrimental effect on population growth (Knick 1990). Obviously, there are other biological and ecological factors (e.g., inbreeding and stochastic events) that would pose a greater threat to the lynx population than incidental trapping, if it declined to very low levels.

²⁵ The model indicates that as carrying capacity increases, mortalities from incidental trapping have less of an effect on population growth. We assumed that the carrying capacity for female lynx in Maine was 1000 animals. In this example we used 1/10 that level to demonstrate how little impact these mortalities would have on the lynx population.

Declining Habitat

Lynx population growth is closely tied to snowshoe hare population levels and the habitat that supports snowshoe hare. Therefore, any significant change in the habitat that supports snowshoe hare would likely have ramifications for the lynx population. Currently, the Department is in discussions with the MFPC on initiating a program where the forested habitat in northern Maine would be periodically mapped using a time series analysis of Landsat imagery (see Sec. 5.4). If this initiative is adopted, MDIFW will have the necessary tools to delineate changes in habitat types preferred by lynx. If the initiative is not adopted, habitat trends would be tracked using data from other sources (e.g., forest inventory data; Sec. 5.4). We will use the most appropriate model (depending on habitat metrics and new developments) to predict changes in snowshoe hare densities and to estimate the number of hare in the lynx range. If predictive models indicate that snowshoe hare habitat, over a period ≤ 10 years, has declined to a point where it now supports 30% fewer (or less) snowshoe hare the Department will confer with the USFWS and MFPC as to what steps can be taken to reduce this decline in hare habitat. Other than suggesting ways (e.g., increased harvest rates) to increase the amount of suitable habitat for snowshoe hare, or supporting changes to Maine's Forest Practices Act that would allow more extensive use of clearcutting, the Department is limited in its ability to influence forest cutting practices on private lands (approximately 90% of the core lynx range in Maine is on private land). Fortunately, the forest industry has shown a willingness to work with the Department on lynx management issues. The lynx deterministic model (Appendix 7) used to review the

impact of potential incidental trapping mortalities on lynx, indicates that even if the carrying capacity declined to 100 female lynx, incidental trapping mortalities would only result in approximately a 5% change in the lynx population over the 15 years of the permit. Therefore, unless there were other concurrent issues that warranted a re-examination of the Plan's mortality limits, MDIFW would not anticipate that a decline in habitat suitability or availability for lynx would necessitate a change in its Plan.

Changes in the vulnerability of an animal to trapping may affect the number of animals caught each year. Lynx vulnerability to trapping may occur if significant habitat changes occur that alter the availability or suitability of habitat for snowshoe hare or lynx. As Maine's forests age, the possibility exists that the availability of suitable habitat may decrease to a point where lynx dispersal and emigration increases. Lynx that are dispersing generally have higher mortality rates than resident lynx because they are unfamiliar with areas they are traveling through. In unfamiliar areas, lynx are more likely to not know the best areas to hunt for food, be confronted by other territorial lynx, encounter predators that will try to kill them, and encounter human-related mortality factors (vehicles, trapping, and hunting). This unfamiliarity with their surroundings may make them less wary, and hence more vulnerable, to traps baited with food. While the Department acknowledges that changes in habitat may result in a change in lynx vulnerability to trapping, the trapping and mortality limits requested in this Plan are below the level which would significantly impact Maine's lynx population. Should trapping and mortality levels exceed those requested in this Plan, there would be an

automatic review of the Department's permit and the circumstances surrounding the excess catches.

8.3 Unforeseen Circumstances

Congress recognized in the Section 10 amendments to the U.S. Endangered Species Act that circumstances and information may change over time and original HCPs may need to be revised (USFWS 1996). To that end, applicants for long-term permits are required to include a procedure whereby parties will address “unforeseen circumstances”. Such circumstances might include instances where the permittee seeks significant modifications to the original plan, instances of significant failure to carry out aspects of the plan, significant biological changes, or listing of new species within the habitats and geographic area encompassed by the original plan.

If a new species were to be listed as federally threatened or endangered species, or an existing endangered species (e.g., wolf [*Canis lupus*]) were to become established in Maine, the Department, in consultation with the USFWS, would review whether trapping posed any threat to the species. If we determined that individuals of this species were at significant risk from incidental trapping, the Department would initially limit this risk by raising the awareness of trappers to the problem, and/or by imposing regulatory measures to protect this species. Concurrent to these measures, the Department would begin formulating a Plan for this species or seek other protection for its trapping program under Section 4(d) of the ESA from the USFWS.

Unanticipated circumstances might also include disasters such as hurricanes that would devastate Maine's infrastructure, war, sudden climate change, a new disease that would threaten Maine's lynx population, or a change in public attitude towards trapping. Such circumstances may affect MDIFW's ability to monitor the lynx incidental take, Maine's trapping program, and lynx population levels. If a disaster occurs, MDIFW will review its Plan as soon as it is feasible, denote any changes in the Department's ability to monitor incidental take levels, and report these changes as soon as possible to the USFWS. If there is a severe unanticipated impact on the lynx population, the Department will assess the impact on the lynx population to the best of its ability through modeling, ground surveys, and if warranted additional research. Concurrent with this activity, the Department will review the mortality rates from incidental trapping and whether they might pose a risk to the lynx population. The Department will work closely with the USFWS and try to reach a consensus of the most appropriate actions to take. The Department will use all appropriate tools (e.g., season closures, information and education, bag limits) needed to ensure that trapping will not threaten Maine's lynx population.

Other unforeseen circumstances, such as requests by MDIFW for significant modifications to the original Plan, or a failure to carry out aspects of the Plan, would be brought up as items for discussion in the annual review of the Department's Plan with the USFWS. Should it be determined that any action violated the Department's implementation agreement with the USFWS, the Department will attempt to correct this

deficiency as soon as possible or work out an acceptable agreement with the USFWS, in order to avoid suspension or revocation of the ITP.

Other Measures as Required by Director

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

9.0 Literature Cited

Alaska Department of Fish and Game. 2004. Furbearer management report of survey-inventory activities 1 July 2000 to 30 June 2003. C. Brown (editor), Juneau, Alaska. 363pp.

Armstrong, J. B., A. N. Rossi. 2000. Status of avocational trapping based on the perspectives of state furbearer biologists. *Wildlife Society Bulletin* 28:825-832.

Association of Fish and Wildlife Agencies (AFWA). 2003. Best management practices for trapping coyotes in the eastern United States.

Association of Fish and Wildlife Agencies (AFWA). 2006a. Best management practices for trapping in the United States introduction.

Association of Fish and Wildlife Agencies (AFWA). 2006b. Best management practices for trapping bobcats in the United States introduction.

Aubry, K. B., G. M. Koehler, J. R. Squires. 2000. Ecology of Canada lynx in southern boreal forests. Pp. 373 – 396 *in* L. F. Ruggiero, K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, J. R. Squires, (editors). Ecology and Conservation of Lynx in the United States. University Press of Colorado, Boulder, Colorado, USA.

Bailey, R. G. 1997. Map: Ecoregions of North America (rev.). Washington, DC: USDA ForestService in cooperation with The Nature Conservancy and the U.S. Geological Survey. 1:15,000,000.

Bailey, T. N., E. E. Bangs, M. F. Portner, J. C. Malloy and R. J. McAvinchey. 1986. An apparent overexploited lynx population on the Kenai Peninsula, Alaska. *Journal of Wildlife Management* 50:279-290.

Bennett, D. B. 1988. Maine's natural heritage. For the Maine Critical Areas Program, State Planning Office, Augusta, ME. 285pp.

Boone, R. B. and W. B. Krohn. 1998. Maine Gap Analysis vertebrate data – Part I: distribution, habitat relations, and status of amphibians, reptiles, and mammals in Maine. Final contract report to the U.S. Geological Survey's Biological

Resources Division, Gap Analysis Program, Moscow, Idaho. 175pp plus appendices.

Brand, C. J., and L. B. Keith. 1979. Lynx demography during a snowshoe hare decline in Alberta. *Journal of Wildlife Management* 43:827-849.

Buskirk, S. W., L. F. Ruggiero, C. J. Krebs. 2000. Habitat fragmentation and interspecific competition: implications for lynx conservation. Pp. 83-100 *in* L. F. Ruggiero, K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, J. R. Squires, (editors). *Ecology and Conservation of Lynx in the United States*. University Press of Colorado, Boulder, Colorado, USA.

Carroll, C. 2007. Interacting effects of climate change, landscape conversion, and harvest on carnivore populations at range margin: marten and lynx in the northern Appalachians. *Conservation Biology* 21:1092-1104.

Caughley G. 1977. *Analysis of vertebrate populations*. John Wiley & Sons, London. 234pp.

Caughley G., and A. R. E. Sinclair. 1994. *Wildlife Ecology and Management*. Blackwell Science, Cambridge, MA. 334pp.

Department of Conservation, Maine Forest Service. 2005. The 2005 Biennial Report on the State of the Forest and Progress Report on Sustainability Standards. Report to the Joint Standing Committee of the 122nd Legislature on Agriculture, Conservation and Forestry. Maine Department of Conservation: Augusta. 124pp.

Flather, Curtis H.; Brady, Stephen J.; Knowles, Michael S. 1999. Wildlife resource trends in the United States: A technical document supporting the 2000 RPA Assessment. Gen. Tech. Rep. RMRS GTR-33. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 79pp.

Fuller, A. K. 1999. Influence of partial harvesting on American marten and their primary prey in northcentral Maine. M.S. thesis, University of Maine, Orono, Maine. 141pp.

Fuller, A. K. 2006. Multi-scalar responses of forest carnivores to habitat and spatial pattern: case studies with Canada lynx and American martens. Ph.D. Dissertation, University of Maine, Orono, Maine. 223pp.

Gawler, S. C., J. J. Albright, P. D. Vickery, and F. C. Smith. 1996. Biological diversity in Maine – an assessment of status and trends in the terrestrial and freshwater

landscape. Maine Natural Areas Program, Department of Conservation, Augusta, Maine. 80pp plus appendices.

Homyack, J. A., D. J. Harrison, J. A. Litvaitis, and W. B. Krohn. 2006. Quantifying densities of snowshoe hares in Maine using pellet plots. *Wildlife Society Bulletin* 34:74-80.

Homyack, J. A., D. J. Harrison, W. B. Krohn. 2007. Effects of precommercial thinning on snowshoe hares in Maine. *Journal of Wildlife Management* 71:4-13.

- Homyack, J. A., J. H. Vashon, C. Libby, E. L. Lindquist, S. Loch, K. L. Pilgrim, and M. K. Schwartz. 2008. Canada lynx-bobcat (*Lynx canadensis* 3 *L. rufus*) hybrids at the southern periphery of lynx range in Maine, Minnesota and New Brunswick. *American Midland Naturalist* 159:504–508
- Hoving, C. L. 2001. Historical occurrence and habitat ecology of Canada lynx (*Lynx canadensis*) in eastern North America. M.S. Thesis, University of Maine, Orono, Maine, USA.
- Hoving, C. L., D. J. Harrison, W. B Krohn, W. J. Jakubas, and M. A. McCollough. 2004. Canada lynx *Lynx canadensis* habitat and forest succession in northern Maine, USA. *Wildl. Bio.* 10:285-294.
- Jakubas, W. J. 1997. Lynx in Maine. Report to U.S. Fish and Wildlife Service on lynx survey results and historic lynx records in Maine, April 16, 1997. Unpublished report. Maine Department of Inland Fisheries and Wildlife, Bangor, ME. 18pp.
- Jakubas, W. J., and R. Cross. 2001. Snowshoe hare (*Lepus americanus*) assessment. Unpublished report, Maine Department of Inland Fisheries and Wildlife, Bangor, Maine. 60pp.

- Knick, S. T. 1990. Ecology of bobcats relative to exploitation and a prey decline in southeastern Idaho. *Wildlife Monographs* 108. 42 pp.
- Kreeger, T. J., P. J. White, U. S. Seal, J. R. Tester. 1990. Pathological responses of red foxes to foothold traps. *Journal of Wildlife Management* 54:147-160.
- Lachowski, H. J. 1997. Relationships among prey abundance, habitat, and American marten in northern Maine. M.S. thesis, University of Maine, Orono, Maine. 73pp.
- Litvaitis, J. A., J. A. Sherburne, and J. A. Bissonette. 1985. Influence of understory characteristics on snowshoe hare habitat use and density. *Journal of Wildlife Management* 49:866-873.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2005. Maine's Comprehensive Wildlife Conservation Strategy. Augusta, Maine.
http://www.maine.gov/ifw/wildlife/groups_programs/comprehensive_strategy/table_contents.htm
- _____. 2006. Recommended changes to Maine's endangered and threatened species January 2, 2007. Bangor, ME. 40pp.
- Maine Forest Service. 1995. 1994 Silvicultural activities report compiled from the 1994 landowner reports. Augusta, Maine. 4pp.

- Maine Forest Service. 2006. 2005 Silvicultural activities report including annual report on clearcutting and precommercial activities compiled from the 2005 landowner reports and other survey instruments. Augusta, Maine. 6pp.
- McMahon, J. S. 1990. The biophysical regions of Maine: patterns in the landscape and vegetation. Orono, Me. 120pp.
- Monthey, R. W. 1986. Responses of snowshoe hares, *Lepus americanus*, to timber harvesting in northern Maine. Canadian Field Naturalist 100:568-570.
- Mowat, G, B. G. Slough, and R. Rivard. 1994. A comparison of three live capturing devices for lynx: capture efficiency and injuries. Wildlife Society Bulletin 22:644-650.
- Mowat, G, B. G. Slough, and S. Boutin. 1996. Lynx recruitment during a snowshoe hare population peak and decline in Southwest Yukon. Journal of Wildlife Management 60(2):441-452.
- Muth, R. M., R. R. Zwick, M. E. Mather, J. F. Organ, J. J. Daigle, and S. A. Jonker. 2006. Unnecessary source of pain and suffering or necessary management tool: attitudes of conservation professionals toward outlawing leghold traps. Wildlife Society Bulletin 34:706-715.

- Nowak, R. M., and J. L. Paradiso. 1983. Walker's Mammals of the World, 4th Edition. John Hopkins University Press, London. 1,362pp.
- Parker, G. R., J. W. Maxwell, L. D. Morton, and G. E. J. Smith. 1983. The ecology of the lynx (*Lynx canadensis*) on Cape Breton Island. Canadian Journal of Zoology 61:770-786.
- Pollack, K.H., S.R. Winterstein, C.M. Bunck, and P.D. Curtis. 1989. Survival analysis in telemetry studies: the staggered entry design. Journal of Wildlife Management 53:7-15.
- Poole, K. G. 1994. Characteristics of an unharvested lynx population during a snowshoe hare decline. Journal of Wildlife Management 58:608-618.
- Poole, K. G. 2003. A review of the Canada Lynx, *Lynx canadensis*, in Canada. Canadian Field-Naturalist 177:360-376.
- Quinn, N. W. S., J. E. Thompson. 1987. Dynamics of an exlpopulation in Ontario. Journal of Wildlife Management 51:297-305.
- Responsive Management. 2005. Ownership and use of traps by trappers in the United States in 2004.

- Robinson, L. 2006. Ecological relationships among partial harvesting, vegetation, snowshoe hares, and Canada lynx in Maine. M.S. Thesis, University of Maine, Orono. 184pp.
- Seymour, R. S., A.S. White, and P.G. deMaynadier. 2002. Natural disturbance regimes in northeastern North America-evaluating silvicultural systems using natural scales and frequencies. *Forest Ecology and Management* 155:357-367.
- Slough, B. G. and G. Mowat. 1996. Lynx population dynamics in an untrapped refugium. *Journal of Wildlife Management* 60:946-961.
- Steury, T. D., and D. L. Murray. 2004. Modeling the reintroduction of lynx to the southern portion of its range. *Biological Conservation* 117:127-141.
- U.S. Department of Interior. 2006. Endangered and Threatened Wildlife and Plants -- Proposed Critical Habitat Designations; Proposed Rule. Fish and Wildlife Service. *Federal Register* 71:176 (Sept. 12, 2006).
- U.S. Fish and Wildlife Service (USFWS). 1996. Habitat conservation planning and incidental take permit processing handbook. Washington, D.C. 88pp.

- U.S. Fish and Wildlife Service (USFWS), and International Association of Fish and Wildlife Agencies (IAFWA). 2003. How to avoid the incidental take of lynx while trapping or hunting bobcats and other furbearers. 20pp.
- U.S. Fish and Wildlife Service (USFWS). 2005. Recovery outline, contiguous United States distinct population segment of the Canada lynx. Fish and Wildlife Service (Sept. 2005). 21pp.
- Vashon, J. H., S. M. Crowley, W. J. Jakubas, and G. J. Matula Jr. 2005. Reproduction and Mortality of Canada lynx (*Lynx canadensis*) in northern Maine. Unpublished report, Maine Department of Inland Fisheries and Wildlife, Bangor, ME. 14pp.
- Vashon, J. H., A. L. Meehan, W. J. Jakubas, J. F. Organ, A. D. Vashon, C. R. McLaughlin, G. J. Matula, S. M. Crowley. 2008. Spatial ecology of a lynx population in northern Maine. *J. Wildl. Manage.* In Press.
- Villemure, M., and H. Jolicoeur. 2004. First confirmed occurrence of a wolf, *Canis lupus*, south of the St. Lawrence River in over 100 years. *Canadian Field-Naturalist* 118:608-610.

Appendix 1

Maine's Conservation Statutes Related to Department Authority, Trapping, and Threatened and Endangered Species as of December 31, 2007

Title 12: CONSERVATION

**Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2
(new); Pt. D, §7 (aff); c. 614, §9 (aff)**

**Subpart 2: DEPARTMENT ORGANIZATION HEADING: PL 2003, c. 414, Pt. A, §2
(new); Pt. D, §7 (aff); c. 614, §9 (aff)**

**Chapter 903: DEPARTMENT OF INLAND FISHERIES AND WILDLIFE HEADING: PL
2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)**

**Subchapter 1: DEPARTMENT ESTABLISHED HEADING: PL 2003, c. 414, Pt. A, §2
(new); Pt. D, §7 (aff); c. 614, §9 (aff)**

§10051. Department established

The Department of Inland Fisheries and Wildlife is established to preserve, protect and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

The department consists of the Commissioner of Inland Fisheries and Wildlife, a deputy commissioner, the Bureau of Administrative Services, the Bureau of Resource Management and the Bureau of Warden Service. The department also includes the Advisory Board for the Licensing of Guides, the Junior Maine Guides and Trip Leaders' Curriculum Board and whatever state agencies that are designated. The department is under the control and supervision of the commissioner. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

§10053. Bureau of Resource Management

The Bureau of Resource Management is established within the Department of Inland Fisheries and Wildlife. The bureau is equal in organizational level and status with other major organizational units within the department or its successors. The bureau is administered by a director who is immediately responsible to the deputy commissioner. The director possesses full authority and responsibility for administering all the powers and duties of the bureau, subject to the direction of the commissioner and except as otherwise provided by statute. The responsibilities of the bureau include, but are not limited to: [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

1. Wildlife management. The management of the wildlife resources in the State for their preservation, protection, enhancement and use;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Fisheries management. The management of the inland fisheries resources in the public waters of the State for their preservation, protection, enhancement and use;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Propagation of fish. The propagation of fish for the effective management of inland fisheries resources in public waters of the State;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

4. Habitat management. The management of habitat for the protection, preservation, enhancement and use of inland fisheries and wildlife resources;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Wildlife sanctuaries; wildlife management areas. The management of wildlife sanctuaries and wildlife management areas for the State as designated in chapter 925;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

6. Data collection. The collection of data for the effective management of inland fisheries and wildlife resources;

[2003, c. 655, Pt. B, §14 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

7. Research. Research activities for the effective management of inland fisheries and wildlife resources;

[2003, c. 655, Pt. B, §14 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

8. Animal damage control. The coordination of animal damage control functions throughout the State, including supplemental assistance for the control of coyotes and other nuisance wildlife that exceeds normal funding and staffing levels within the department; and

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

9. Rules. The development of rules governing the effective management of the inland fisheries and wildlife resources of the State.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B14 (AMD). 2003, c. 414, §D7 (AFF).

2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§10054. Bureau of Warden Service

The Bureau of Warden Service is established within the Department of Inland Fisheries and Wildlife. It is equal in organizational level and status with other major organizational units within the department or its successors. The bureau is administered by a director who is immediately responsible to the deputy commissioner. The director is the Game Warden Colonel and is employed pursuant to section 10103, subsection 3 and Title 5, chapter 59, which are applicable to this position. The director possesses full authority and responsibility for administering all the powers and duties of the bureau, subject to the direction of the commissioner and except as otherwise provided by statute. The responsibilities of the bureau include, but are not limited to: [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

1. General enforcement. Enforcement of laws or rules as designated by this Part, or as specified;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Wildlife and fisheries enforcement. Enforcement of laws and department rules pertaining to the management and protection of inland fisheries and wildlife resources as further designated by section 10353;

[2003, c. 655, Pt. B, §15 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Snowmobile, watercraft and all-terrain vehicle enforcement. Enforcement of laws and department rules pertaining to the registration and operation of snowmobiles, watercraft and all-terrain vehicles;

[2003, c. 655, Pt. B, §15 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

4. Search and rescue. The coordination and implementation of all search and rescue operations as specified under section 10105, subsection 4;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Safety. Assistance with programs for hunter safety and for the safe operation of snowmobiles, watercraft and all-terrain vehicles;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

6. Data collection. The collection of data as needed for the management and protection of the inland fisheries and wildlife resources; and

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

7. Other. Such responsibilities as specified in state law.

[2003, c. 655, Pt. B, §16 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B15,16 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

Title 12: CONSERVATION

**Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2
(new); Pt. D, §7 (aff); c. 614, §9 (aff)**

**Subpart 2: DEPARTMENT ORGANIZATION HEADING: PL 2003, c. 414, Pt. A, §2
(new); Pt. D, §7 (aff); c. 614, §9 (aff)**

**Chapter 903: DEPARTMENT OF INLAND FISHERIES AND WILDLIFE HEADING: PL
2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)**

**Subchapter 2: COMMISSIONER: POWERS AND DUTIES HEADING: PL 2003, c.
414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)**

§10101. Appointment

The commissioner is appointed by the Governor, subject to review by the joint standing committee of the Legislature having jurisdiction over fisheries and wildlife matters and to confirmation by the Legislature. The commissioner serves at the pleasure of the Governor. Any candidate for the office of commissioner must have a record of demonstrated support for, and an understanding of, the basics of modern wildlife and fisheries management and have experience in hunting, fishing or trapping. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

§10103. Duties

In addition to other duties set out in this Part, the commissioner has the following duties.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

1. Appointment of deputy. The commissioner shall appoint, to serve at the commissioner's pleasure, the Deputy Commissioner of Inland Fisheries and Wildlife, who must be qualified by training and experience in fisheries and wildlife management or conservation law enforcement. Under the commissioner's direction, the deputy commissioner assists in the administration of the department. The deputy commissioner serves as the commissioner if the commissioner is disabled or absent or if the office of the commissioner becomes vacant. The commissioner may appoint an appropriate administrative officer in the department to perform the functions of the commissioner if both the commissioner and deputy commissioner are disabled or absent.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Administration and enforcement. Except as provided by statute, the commissioner has general supervision of the administration and enforcement of the inland fisheries and wildlife laws and has the responsibility for the management of all inland fish and wildlife in the State. The commissioner has responsibility for investigations carried out on behalf of the State in matters related to the status and needs of any inland fisheries and wildlife species and is the representative of the State in providing information associated with the status and needs of these natural resources to municipalities, political subdivisions of the State and the Federal Government.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Employment of personnel. The commissioner shall employ, subject to the Civil Service Law, such employees as are necessary to carry out the duties of the department, except that persons in the following positions are appointed by and serve at the pleasure of the commissioner: deputy commissioner; Game Warden Colonel; and Assistant to the Commissioner for Public Information.

The Game Warden Colonel is appointed from among the game wardens of the department. In the event that the Game Warden Colonel is not reappointed, the Game Warden Colonel has the right to be restored to the classified position from which the Game Warden Colonel was promoted or to a position equivalent in salary grade in an agency, without impairment of personnel status or the loss of seniority, retirement or other rights to which uninterrupted service in the classified position would have entitled the Game Warden Colonel. If service in that unclassified supervisory position is terminated for cause, the right to be restored to that position must be determined by the State Civil Service Appeals Board.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

4. Report to Governor. The commissioner shall make a report to the Governor on or before the 31st day of December of each year for the year ending the previous June 30th.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Code of operating procedure of warden service. The commissioner shall prepare a written code covering the operating procedure of the warden service that is consistent with the Civil Service Law and contractual agreements.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

6. Administration of department. The commissioner shall adopt written policies establishing procedures to control the use of department equipment and vehicles. The commissioner shall review and control all administrative expenses, including reimbursement of moving expenses.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

7. Copies of laws for town clerks or agents. The commissioner shall keep on hand at all times sufficient copies of abstracts of the inland fisheries and wildlife laws to furnish to all town clerks or agents authorized to issue licenses, so that they have copies available to issue with every license.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

8. Biennial revision of fish and wildlife laws. As soon as practicable after the adjournment of the Legislature, the Revisor of Statutes, with the assistance of the commissioner, shall issue a revision of all the public laws relating to inland fisheries and wildlife. The revision must be printed in a pamphlet of the same size pages as the Maine Revised Statutes Annotated, and its printing and distribution must be the same as that of the biennial laws, except that the commissioner may issue as many extra copies of this Part as necessary in a pamphlet of whatever size seems best to inform the people about the fish and wildlife laws. Fees may be established to offset the cost of printing extra copies of this Part as provided in this subsection.

[2003, c. 655, Pt. B, §18 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

9. Availability of financial statement. The commissioner shall make the annual financial statement for the department available for public inspection within 180 days after the close of the fiscal year that is the subject of the report.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

10. Water level danger zones. The commissioner may establish, in accordance with section 10104, subsection 1, water level danger zones. These zones are areas of rivers and streams below water impoundment that are subject to rapidly changing water levels. The commissioner may adopt rules to protect individuals using those areas for hunting, fishing, trapping and boating purposes. The commissioner may not regulate the flow of water under this section. Rules adopted pursuant to this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

[2003, c. 655, Pt. B, §19 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

11. Report to Legislature. The commissioner shall submit an annual report to the joint standing committee of the Legislature having jurisdiction over appropriations and financial affairs and the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters. This report must identify all specific extended responsibility services provided by the department to individuals who do not pay a particular fee to the department for the provision of that service, including all search and rescue activities conducted by the department. This report must include an estimate of the total cost of providing the identified extended responsibility services. The report must be submitted on or before January 1st of each year. Upon receipt of the report, the joint standing committee of the Legislature having jurisdiction over appropriations and financial affairs and the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters shall give

separate consideration to funding the department's estimated cost of providing the identified extended responsibility services.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

12. Criminal history record information. The commissioner shall collect and maintain criminal history record information pertinent to violations of this Part. The commissioner may collect and maintain other records and information pertinent to other functions of the department, including the enforcement of civil violations.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

§10104. Rule-making power

In addition to other powers granted in this Part, the commissioner has the following powers. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

1. Rules. The commissioner may, with the advice and consent of the advisory council and in conformity with Title 5, Part 18, and except as otherwise provided, adopt, amend and repeal reasonable rules, including emergency rules, necessary for the proper administration, implementation, enforcement and interpretation of any provision of law that the commissioner is charged with the duty of administering. These rules duly adopted have the full force and effect of law and are effective upon filing with the Secretary of State, unless a later date is required by statute or specified in the rule.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Filing of rules. The commissioner may file certified copies of all rules adopted by the commissioner and any and all amendments to the rules with the clerks of the

District Court and Superior Court. These certified copies are considered official publications of the State for all purposes, including, but not limited to, the Maine Rules of Civil Procedure, Rule 44(a)(1) and the Maine Rules of Evidence, Rule 902 (5), and judicial notice must be taken accordingly. A facsimile of the signature of the commissioner imprinted by or at the commissioner's discretion upon any such certificate of true copy has the same validity as the commissioner's written signature.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

Title 12: CONSERVATION

Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subpart 2: DEPARTMENT ORGANIZATION HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Chapter 903: DEPARTMENT OF INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subchapter 3: ADVISORY COUNCIL, BOARDS AND COMMITTEES HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

§10151. Inland Fisheries and Wildlife Advisory Council

1. Appointment. The Inland Fisheries and Wildlife Advisory Council, established by Title 5, section 12004-G, subsection 20 and referred to in this Part as the "advisory

council," consists of 10 members representing the 16 counties of the State in the following manner: one member representing Androscoggin County, Kennebec County and Sagadahoc County; one member representing Aroostook County; one member representing Cumberland County; one member representing Franklin County and Oxford County; one member representing Hancock County; one member representing Knox County, Lincoln County and Waldo County; one member representing Penobscot County; one member representing Piscataquis County and Somerset County; one member representing Washington County; and one member representing York County. Members of the advisory council are appointed by the Governor, subject to review by the joint standing committee of the Legislature having jurisdiction over fisheries and wildlife matters and to confirmation by the Legislature. The commissioner is a nonvoting, ex officio member of the advisory council, but may vote to break a tie.

An employee of the department may not serve as a member of the advisory council prior to the expiration of one year from that employee's last day of employment with the department. A Legislator may not serve as a member of the advisory council. A former Legislator who was a member of the joint standing committee of the Legislature having jurisdiction over fisheries and wildlife matters may not serve as a member of the advisory council prior to the expiration of one year from that former Legislator's last day of membership on that committee.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Length of terms. Appointments are for a term of 3 years and until successors are appointed and qualified. A person may not serve more than 2 consecutive 3-year terms. On the death, resignation or removal from office of any person appointed to

the advisory council, the Governor shall appoint a member to serve for the unexpired term.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Expenses. The members of the advisory council are entitled to compensation as provided in Title 5, chapter 379.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

4. Duties. The advisory council shall perform the following duties.

A. The advisory council shall render to the commissioner information and advice concerning the administration of the department and carry out other duties specifically delegated by this Part. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. The advisory council shall hold regular meetings with the commissioner or the commissioner's deputy in December and May of each year and may hold special meetings at such other times and places as are advisable. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Meetings. All regular and special meetings of the advisory council must be public meetings and must be held in a public meeting place convenient for the public. Public comment must be accepted at regular and special meetings of the advisory council. Comments may be restricted to subjects before the advisory council at the meeting and consistent with any applicable requirements and limitations of the Maine Administrative Procedure Act. Public notice of all regular and special advisory council meetings must be published in a daily newspaper of general circulation in the geographic area where the meeting is scheduled at least 7 days and not more than

21 days prior to the meeting. That notice must include an agenda or statement of purpose of the meeting. That notice may be combined with any other notice of the meeting required by law.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

6. Officers. At the meeting held in May of each year, the advisory council may elect one member as chair and one member as vice-chair.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

Title 12: CONSERVATION

Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subpart 2: DEPARTMENT ORGANIZATION HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Chapter 903: DEPARTMENT OF INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subchapter 4: FINANCES HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

§10201. Power to raise revenue

1. Sale of publications. If the commissioner determines it advisable for the more effective dissemination of factual information, information of public interest or

information tending to promote better public relations, the commissioner may fix the price, if any, of certain publications and materials of the department and sell and deliver them. Publications and materials included within this authority are all publications, articles, biological and statistical data, professional and technical service reports by departmental personnel and other materials in the department's possession and pertaining to the department, except publications of the laws as described in section 10103, subsection 7. These publications may not carry any advertising of a political nature but may carry commercial advertising. The commissioner shall accept commercial advertising in the department's general circulation magazine entitled "Maine Fish and Wildlife" and any successor or similar publication developed by the department.

The commissioner may sell or lease video and audio recordings, photographs and negatives owned by the department and may fix the price, if any, giving consideration to their fair market value.

[2003, c. 655, Pt. B, §37 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Sale of advertising in abstracts of fish and wildlife laws. The commissioner may sell advertising, except advertising of a political nature, in abstracts of laws published by the department pursuant to section 10103, subsection 7. All revenue derived from the sale of advertising in these publications must be used to offset the cost of printing these publications.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Sale of general merchandise. The commissioner may engage in the selling and marketing of general merchandise products such as T-shirts, aprons, coffee mugs

and greeting cards when the express purpose is to accommodate public demand and generate supplemental funds. These funds may not be used for any costs associated with a quarterly magazine produced by the department.

A. The commissioner may create dedicated accounts to deposit money received from the sale of general merchandise pursuant to this subsection. [2003, c. 655, Pt. B, §38 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

B. Funds received by the commissioner from the sale of general merchandise products pursuant to this subsection must be deposited in a dedicated account to be used only for the purposes described in section 10108, subsection 2. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 655, Pt. B, §38 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

4. Promotion and education on lead sinkers and lures. The commissioner may accept money, goods or services donated to the department for the purpose of educating the public on ways to minimize the threat to loons and other bird species from discarded or lost lead sinkers and lures. Any money, goods or services accepted by the commissioner under this subsection may be used only for those purposes.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Design of migratory waterfowl permit; sale of prints. The design of migratory waterfowl permits pursuant to section 11157 and sale of prints must be as follows.

A. The commissioner may provide for the reproduction, sale, licensing, distribution and other disposal of any art created in conjunction with the permit. The commissioner shall establish by rule the procedures governing the design of the permit and the reproduction, sale, licensing, distribution and other disposal of any art created in

conjunction with the permit. Rules adopted pursuant to this paragraph are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A. [2003, c. 655, Pt. B, §39 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

B. The design of the permit and any art created in conjunction with it may be selected through an art contest. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 655, Pt. B, §39 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

6. Donations. The commissioner may accept money, goods and services donated to the department to support specific programs carried out by the department. Any money donated to the department in support of a specific program must be deposited into a dedicated account for the purpose of funding activities carried out by that program.

[2003, c. 655, Pt. B, §40 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B37-40 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§10202. Department funds

1. Appropriation. The amount of funds appropriated to the department in each fiscal year may not be less than the dollar amount collected, received or recovered by the department from license and permit fees, fines, penalties and all other money received by the department, except for any funds received from the Federal Government and money relating to the following:

- A. The department's account for the acquisition of waterfowl habitat set forth in section 10206, subsection 4; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
 - B. Whitewater rafting; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
 - C. The Maine Endangered and Nongame Wildlife Fund established in section 10253; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
 - D. The watercraft fund of the Department of Marine Resources; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
 - E. The Snowmobile Trail Fund of the Department of Conservation, Bureau of Parks and Lands; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
 - F. The ATV Recreational Management Fund of the Department of Conservation; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
 - G. Boating access sites. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]
- [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Additional funding. The appropriation of certain additional funds is governed by the following.

- A. Appropriations to the department for costs that are associated with search and rescue are not considered amounts appropriated to the department under the Constitution of Maine, Article IX, Section 22. The liability of the General Fund for search and rescue costs is limited to the amount appropriated. [2003, c. 655, Pt. B, §41 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]
- B. General Fund appropriations to the Fiscal Stability Program under subsection 9 are not considered amounts appropriated to the department under the Constitution of Maine, Article IX, Section 22. [2003, c. 655, Pt. B, §41 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

[2003, c. 655, Pt. B, §41 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Revenues. Actual revenues received in excess of that estimated and allocated by the Legislature may not be expended without allocation by the Legislature, except that excess federal revenues received are subject to the expenditure provisions of Title 5, section 1669.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

4. Unencumbered balances. Any unencumbered allocated balances, including existing balances, must be carried forward into the next fiscal year and may not be expended without allocation by the Legislature, except as provided in this section. Unencumbered balances in the boating access sites account are nonlapsing and must be carried forward to be used for the same purpose.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Nonlapsing appropriations. General Fund appropriations to the department are nonlapsing and must be carried forward in a separate General Fund program to be used by the department for the purposes described in section 10801, subsection 5. The department, in accordance with the Constitution of Maine, Article IX, Section 22, shall seek legislatively authorized transfers from this program to meet the various costs associated with the department's other programs.

[2003, c. 655, Pt. B, §42 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

6. Savings fund; offset against future fee increases. A savings fund, referred to in this subsection as the "fund," is established in the department. Appropriations to the fund are considered funds appropriated to the department under the meaning of the Constitution of Maine, Article IX, Section 22. Money appropriated to the fund does not

lapse but must be carried forward and may be used by the department only to offset license fee increases if the use of that money for that purpose is approved by the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

7. Cash reserve. The department shall maintain as practical a cash reserve for the purpose of ensuring an adequate cash flow.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

8. Snowmobile enforcement expenditures not to diminish. In every fiscal year, the department shall budget from appropriations to the enforcement operations program an amount for snowmobile enforcement activities that is not less than the average General Fund expenditures from that program for those purposes over the previous 2 fiscal years. Expenditures from the Snowmobile Enforcement Fund, established in section 10258, may not be included in calculating average expenditures.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

9. Fiscal Stability Program. The Fiscal Stability Program is established to ensure that the general public and hunters and anglers share the cost of the fish and wildlife conservation programs of the department. To achieve this goal, beginning with the 2010-2011 biennial budget and for each biennial budget thereafter, the biennial budget submitted by the executive branch must include an additional General Fund appropriation of 18% in excess of the department's requested biennial budget.

[2007, c. 240, Pt. O, §1 (AMD) .]

10. Review of budget. The joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters shall review that part of the

current services budget bill and any supplemental budget bills pertaining to the department in accordance with Title 5, section 522-A.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

11. Review of license and permit fees, fines and penalties. The joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters shall review license and permit fees, fines, penalties and all other money received by the department and shall submit a written report to the joint standing committee of the Legislature having jurisdiction over appropriations and financial affairs on or before March 1st of each year.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

12. Monthly report. By the 15th day of each month, the department shall submit a report to the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters. When the Legislature is in session, the department shall submit its report at a meeting of the committee. When the Legislature is not in session, the department shall mail the report to each member of the committee with a copy to the Executive Director of the Legislative Council. The report must identify for the immediately preceding month:

- A. Revenues of the department; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]
- B. Expenditures of the department; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]
- C. The difference between the projected revenues and expenditures of the department and the actual revenues and expenditures. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

13. Equipment. The department shall notify the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters of any vehicle or heavy equipment purchase prior to that purchase, including the name of the item and expected cost. In addition, the department shall develop and implement a formal replacement schedule for the department's radio communication system. The joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters shall review the replacement schedule.

[2003, c. 655, Pt. B, §44 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

14. Bond issue. The department shall submit to the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters plans for a bond issue prior to submission of the bond issue to the full Legislature.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

15. Temporary assessment on licenses, permits and registrations.

[2005, c. 12, Pt. III, §1 (RP) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B41-45 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF). 2005, c. 12, §§Z1, III1 (AMD). 2007, c. 240, Pt. O, §1 (AMD).

Title 12: CONSERVATION

Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subpart 4: FISH AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Chapter 917: TRAPPING HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subchapter 1: LICENSE REQUIREMENTS AND FEES HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

§12201. Trapping license

1. License required. Except as otherwise authorized pursuant to this Part, a person may not trap unless that person has a valid license issued under this section. Each day a person violates this subsection that person commits a Class E crime for which a minimum fine of \$50 and an amount equal to twice the applicable license fee must be imposed.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

1-A. Trapping by agents of commissioner. The commissioner may authorize a full-time department employee to trap wild animals without a license for purposes of animal damage control. A person serving as an agent of the commissioner for purposes of animal damage control, including animal control officers appointed

pursuant to Title 7, section 3947, must satisfy the licensing requirements of this section prior to trapping or attempting to trap a wild animal.

[2003, c. 655, Pt. B, §209 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Eligibility. The following persons are eligible to purchase a trapping license, subject to the provisions of subsection 3.

A. A resident 16 years of age or older is eligible to purchase a resident trapping license.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. A resident 10 years of age or older and under 16 years is eligible to purchase a resident junior trapping license. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. A resident under 10 years of age may trap without a license. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

D. A nonresident is eligible to purchase a nonresident trapping license. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

Nonresident aliens are ineligible to purchase a trapping license.

[2003, c. 655, Pt. B, §211 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Successful completion of trapper evaluation program required for license. A person who applies for a state license to trap, other than a junior license, must submit proof of having successfully completed an education course of the type described in section 10108, subsection 7 or satisfactory evidence of having previously held an adult license to trap in this State or any other state, province or country in any year beginning with 1978.

When proof or evidence can not otherwise be provided, the person may substitute a signed affidavit that that person has previously held the required adult trapping

license or that that person has successfully completed the required trapper education course.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

4. Issuance. The commissioner, or the commissioner's agent, may issue a license to engage in trapping. Clerks or other agents appointed by the commissioner shall charge a fee of \$2 for each trapping license issued. The commissioner shall charge a fee of \$1 for each trapping license issued by department employees.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Expiration. All licenses issued under this section are valid for one year commencing July 1st of each year.

A resident junior trapping license issued to a person who has passed that person's 15th birthday is valid through the year for which the license was issued.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

6. Trapping fees. The fees for trapping licenses are as follows:

A. A resident junior trapping license, for a person 10 years of age or older and under 16 years of age, is \$9; [2005, c. 12, Pt. III, §23 (AMD).]

B. A resident trapping license, for a person 16 years of age or older, is \$35; and [2005, c. 12, Pt. III, §23 (AMD).]

C. A nonresident trapping license is \$310. [2005, c. 12, Pt. III, §23 (AMD).]

[2005, c. 12, Pt. III, §23 (AMD) .]

7. Supervision of junior trappers. The following provisions must be observed.

A. A person under 10 years of age may not trap unless that person is accompanied at all times while trapping by a parent or guardian or by an adult at least 18 years of age

approved by a parent or guardian. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. A person over 10 years of age and under 16 years of age may not trap unless that person:

(1) Holds a junior trapping license; and

(2) Is accompanied by an adult at all times while trapping, unless the holder of the junior trapping license submits proof of having successfully completed an education course of the type described in section 10108, subsection 7. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

8. License violations. The following penalties apply to violations of restrictions of licenses under this section.

A. A person who violates a restriction of a license issued under this section commits a civil violation for which a fine of not less than \$100 nor more than \$500 may be adjudged. [2003, c. 655, Pt. B, §211 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

B. A person who violates a restriction of a license issued under this section after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2003, c. 655, Pt. B, §211 (NEW); 2003, c. 655, Pt. B, §422 (AFF).] Each day a person violates a restriction of a license issued under this section is a separate offense.

[2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §211 (RPR) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B209-211 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF). 2005, c. 12, §III23 (AMD).

Title 12: CONSERVATION

Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subpart 4: FISH AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Chapter 917: TRAPPING HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subchapter 2: TRAPPING SEASON, REQUIREMENTS AND RESTRICTIONS HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

§12202. Trapping by landowner

A resident and a member of the resident's immediate family, as long as the trapper's license to trap is not under suspension or revocation, may trap for wild animals, except beaver, without a trapping license issued under section 12201 on land: [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

1. Possession. To which they are legally entitled to possession;

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Domiciled. On which they are actually domiciled; and

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Agricultural purposes. That is used exclusively for agricultural purposes.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

§12251. Closed seasons

1. General. Except as otherwise provided in this Part and except as the commissioner may establish by rule that is not inconsistent with this chapter, there is a perpetual closed season on trapping any wild animal or wild bird.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Unity Utilities District. There is a continued closed season on all wild animals and wild birds on property owned by the Unity Utilities District located on Route 139 and Prairie Road in the municipality of Unity in Waldo County.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Closed season violation. A person may not trap, or attempt to trap, any wild animal or wild bird during the closed season or possess any wild animal or wild bird taken during the closed season on that wild animal or wild bird.

A person who violates this subsection commits a Class E crime.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 655, Pt. B, §213 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B213 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12252. Unlawful trapping methods

1. Unlawfully rigging traps. A person may not use auxiliary teeth on any leg-hold trap set on land.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Use or possession of prohibited implements or aids. A person may not:

A. Set or tend a snare for the purpose of trapping any wild animal or wild bird, except as provided in section 10105, subsection 1 and section 12259; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Set or tend a set gun for the purpose of killing, taking, catching, wounding, harming or molesting any wild animal or wild bird; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. Deposit any poisonous or stupefying substance for the purpose of killing, taking, catching, wounding, harming or molesting any wild animal or wild bird, except that a landowner or member of the landowner's immediate family may use gas cartridges on the landowner's own land for woodchuck control; or [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

D. Sell, advertise, give notice of the sale or keep for sale any set gun or poisonous substance for the taking of wild animals or wild birds, except that a person may sell, advertise, give notice of sale of or keep for sale rodenticide for orchard mouse control and gas cartridges for woodchuck control. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Use of pole traps. A person may not use or set any steel trap on the top of a pole, constituting a device commonly known as a "pole trap" for the purposes of catching any wild bird.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

4. Penalty. A person who violates this section commits a Class E crime.

[2003, c. 655, Pt. B, §214 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B214 (AMD). 2003, c. 414, §D7 (AFF).
2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12253. Consent to trap

1. Trapping without written consent. A person may not, without first obtaining the written consent of the landowner or occupant, trap any wild animal on land in any organized or incorporated place or on the cultivated or pasture area of land that is used for agricultural purposes in any unorganized place and on which land there is an occupied dwelling. The provisions of this subsection do not apply to:

A. Beaver trapping; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Trapping with drowning sets in navigable rivers and streams; or [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. Trapping with drowning sets on state-owned land and public rights-of-way. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §215 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Trapping near occupied dwelling without written consent. A person may not trap any wild animal within 200 yards of an occupied dwelling without first obtaining the written consent of the owner or occupant of the land on which the trap is to be set. The provisions of this subsection do not apply to beaver trapping or trapping with drowning sets on state-owned land or public rights-of-way.

A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §215 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Trapping near compact, built-up portion of city or village. A person may not trap outside that person's land within 1/2 mile of the compact, built-up portion of a city or village, except:

A. A person may trap within 1/2 mile of the built-up portion of a city or village with drowning sets; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. A person who has a written permit from the landowner may trap on that landowner's land with cage-type live traps within 1/2 mile of the built-up portion of a city or village. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 655, Pt. B, §215 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3-A. Penalties. The following penalties apply to violations of subsection 3.

A. A person who violates subsection 3 commits a civil violation for which a fine of not less than \$100 nor more than \$500 may be adjudged. [2003, c. 655, Pt. B, §215 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

B. A person who violates subsection 3 after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period

commits a Class E crime. [2003, c. 655, Pt. B, §215 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

[2003, c. 655, Pt. B, §215 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

4. Proof of ownership of land. Before any prosecution is made under subsection 1 or 2, the landowner or occupant shall provide proof to the commissioner of that landowner's ownership or that occupant's occupancy of the land in question.

[2003, c. 655, Pt. B, §215 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

5. Permission to trap on land of another. This section does not give license or permission to set, place or tend traps on property that is owned by another person.

[2003, c. 655, Pt. B, §215 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B215 (AMD). 2003, c. 414, §D7 (AFF).
2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12254. Labeling traps

1. Prohibition. A person may not set a trap for any wild animal without having the trap plainly labeled with that person's full name and address.

[2003, c. 655, Pt. B, §216 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Penalties. The following penalties apply to violations of this section.

A. A person who violates subsection 1 commits a civil violation for which a fine of not less than \$100 nor more than \$500 may be adjudged. [2003, c. 655, Pt. B, §216 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

B. A person who violates subsection 1 after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2003, c. 655, Pt. B, §216 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

[2003, c. 655, Pt. B, §216 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

2003, c. 655, §B422 (AFF). 2003, c. 655, §B216 (RPR).

§12255. Tending traps

1. Failure to visit traps. A person shall:

A. While trapping in an organized or incorporated place:

- (1) Check each trap, except killer-type traps, at least once in every calendar day; and
- (2) Check each killer-type trap at least once in every 3 calendar days; and [2003, c. 655, Pt. B, §217 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

B. While trapping in an unorganized place fail to:

- (1) Check each trap, except killer-type traps and drowning sets, at least once in every calendar day; and
- (2) Check each killer-type trap or drowning set at least once in every 5 calendar days. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

This subsection does not apply to under-ice drowning sets for beaver and muskrat. For the purposes of this subsection, "check" means to visit or cause to be visited.

A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §217 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Failure to remove animal from trap. A person shall remove or cause to be removed from that person's trap an animal found caught in that trap.

A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §217 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Carrying a firearm while trapping. Notwithstanding section 11205, subsection 1, paragraph A and section 11206-A, subsection 1, paragraph A, a person who holds a valid trapping license may carry a firearm at any time during the open trapping season for the sole purpose of dispatching trapped animals.

[2003, c. 655, Pt. B, §217 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B217 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12256. Disturbing traps of another

A person may not disturb or take a trap or a wild animal from a trap, other than that person's own trap, without the consent of the owner of the trap, except that a landowner or occupant of land that the landowner or occupant is legally entitled to possess may remove any trap found on the land if permission has not been granted under section 12253, subsection 1 or 2 or the person has not obtained a written permit from the landowner to trap on that landowner's land with cage-type live traps within 1/2 mile of a

built-up portion of a city or village. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

A person who violates this section commits a Class E crime. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

§12257. Trapping by certain department employees

1. Prohibition. A department biologist or warden may not trap wild animals for profit while on duty within the district to which that person is assigned.

[2003, c. 655, Pt. B, §218 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Penalties. The following penalties apply to violations of this section.

A. A person who violates subsection 1 commits a civil violation for which a fine of not less than \$100 nor more than \$500 may be adjudged. [2003, c. 655, Pt. B, §218 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

B. A person who violates subsection 1 after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime.

[2003, c. 655, Pt. B, §218 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

[2003, c. 655, Pt. B, §218 (NEW); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

2003, c. 655, §B422 (AFF). 2003, c. 655, §B218 (RPR).

§12258. Eel permit for licensed trappers

1. Issuance. The commissioner may issue a permit to any licensed trapper to take eels for baiting traps.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Restrictions. A licensed trapper who holds a valid eel permit may for purposes of baiting traps take eels by eel pots or hook and line. A person harvesting eels under this subsection may not use any means other than eel pots or hook and line to take eels and may not take more than 20 pounds of eels annually.

[2003, c. 655, Pt. B, §219 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Penalties. The following penalties apply to violations of a restriction of a permit issued in accordance with this section.

A. A person who violates a restriction of a permit issued in accordance with this section commits a civil violation for which a fine of not less than \$100 nor more than \$500 may be adjudged. [2003, c. 655, Pt. B, §220 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

B. A person who violates a restriction of a permit issued in accordance with this section after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2003, c. 655, Pt. B, §220 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

Each day a person violates a restriction of a permit issued in accordance with this section is a separate offense.

[2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §220 (RPR) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B219,220 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12259. Trapping beaver

1. Snares. A person may use snares to trap for beaver during the open beaver trapping season.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Rules. All rules adopted pursuant to section 10104, subsection 1 pertaining to the trapping of beaver with killer-type traps also apply to the trapping of beaver with snares.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Nonresident trapping beaver. A nonresident may not trap beaver in this State.

A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §221 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B221 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12260. Trapping bear

1. Open and closed season. There is an open season on trapping bear from September 1st to October 31st annually.

A. The commissioner may shorten the open season on bear in any part of the State as long as:

(1) The demarcation of the areas with a shortened season follows recognizable physical boundaries such as rivers and railroad rights-of-way; and

(2) The decision is made and published prior to February 1st of any year. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. The commissioner may terminate the open season on bear at any time in any part of the State if, in the commissioner's opinion, an immediate emergency action is necessary due to adverse weather conditions or severe hunting or trapping pressure. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Unlawful trapping of bear. A person may not catch a bear in a trap and cause or allow another person to kill or register that bear. A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §222 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Setting bear traps. Setting traps for bear is governed by this subsection.

A. A person may use a cable trap with a closing diameter of not less than 2 1/2 inches to trap bear in the State during the open season on bear. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. A person may not set a bear trap other than a cable trap, unless it conforms to the following specifications.

(1) The trap must be enclosed by at least 2 strands of wire, one strand 2 feet from the ground and one strand 4 feet from the ground.

(2) The wire must be securely held in position.

(3) The wire must be not less than 5 yards nor more than 10 yards at any point from the enclosed trap.

(4) The trap enclosure must be marked by substantial signs with the words "BEAR TRAP" in letters not less than 3 inches in height.

(5) The signs must be spaced around each enclosure at intervals of not more than 20 feet.

(6) Each sign must be securely fastened to the top strand of wire. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

A person who violates this subsection commits a Class E crime.

[2003, c. 655, Pt. B, §222 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

4. Trapping bear after having killed one. A person may not trap a bear after that person has killed or registered one during any open season. A person who violates this subsection commits a Class D crime for which the court shall impose a sentencing alternative involving a term of imprisonment not too exceed 180 days and a fine of not less than \$1,000, none of which may be suspended.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Exceeding bag limit on bears. Except as otherwise provided in this Part, a person may not possess more than one bear in any calendar year. A person who violates this subsection commits a Class D crime for which the court shall impose a sentencing alternative involving a term of imprisonment not to exceed 180 days and a fine of not less than \$1,000, none of which may be suspended.

[2003, c. 655, Pt. B, §222 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

6. Trapping bear near dumps. Trapping bear near dumps is governed by this subsection.

A. The commissioner, or the commissioner's agent, shall establish a line of demarcation at least 500 yards from sites permitted or licensed for the disposal of solid waste.

[2003, c. 655, Pt. B, §223 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

B. A person may not trap within the demarcation area established under paragraph A. The commissioner, or the commissioner's agent, is exempt from this prohibition for the purpose of live trapping of nuisance bears.

(1) A person who violates this paragraph commits a civil violation for which a fine of not less than \$100 nor more than \$500 may be adjudged.

(2) A person who violates subparagraph 1 after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2003, c. 655, Pt. B, §224 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

[2003, c. 655, Pt. B, §§223, 224 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B222-224 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12260-A. Bear trapping permit

1. Permit required. Except as otherwise authorized pursuant to this Part a person may not trap for bear without a valid bear trapping permit during the open bear trapping season under section 12260, subsection 1.

Each day a person violates this subsection, that person commits a Class E crime for which a minimum fine of \$50 and an amount equal to twice the applicable license fee must be imposed.

[2007, c. 168, §7 (NEW); 2007, c. 168, §8 (AFF) .]

2. Eligibility; trapping license required. A person who possesses a valid trapping license may obtain a permit to trap bear from the commissioner or the commissioner's authorized agent.

[2007, c. 168, §7 (NEW); 2007, c. 168, §8 (AFF) .]

3. Issuance; permit fee. The commissioner, through the commissioner's authorized agent, shall issue a bear trapping permit to an eligible person. The annual fee for each permit issued is \$27 for residents and \$67 for nonresidents.

[2007, c. 168, §7 (NEW); 2007, c. 168, §8 (AFF) .]

SECTION HISTORY

2007, c. 168, §7 (NEW). 2007, c. 168, §8 (AFF).

§12261. Beagle clubs; trapping snowshoe hares

The commissioner may issue a license to an organization recognized as a beagle club by the commissioner to take live snowshoe hares. [2007, c. 45, §1 (NEW).]

1. License required. Except as otherwise authorized pursuant to this Part, a beagle club may not trap a snowshoe hare without a valid license issued under this section.

A. A person who violates this subsection commits a civil violation for which a fine of not less than \$100 or more than \$500 may be adjudged. [2007, c. 45, §1 (NEW).]

B. A person who violates this subsection after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2007, c. 45, §1 (NEW).]

[2007, c. 45, §1 (NEW) .]

2. Traps labeled and checked daily. A beagle club may not set a trap for a snowshoe hare unless that trap is plainly labeled with the name of the beagle club and the telephone number of a contact person and is checked at least once every calendar day.

A. A person who violates this subsection commits a civil violation for which a fine of not less than \$100 or more than \$500 may be adjudged. [2007, c. 45, §1 (NEW).]

B. A person who violates this subsection after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2007, c. 45, §1 (NEW).]

[2007, c. 45, §1 (NEW) .]

3. Use of snowshoe hares. A snowshoe hare trapped pursuant to this section may not be used for anything other than to stock the running areas of the licensee and may not be given to any other beagle club or entity.

A. A person who violates this subsection commits a civil violation for which a fine of not less than \$100 or more than \$500 may be adjudged. [2007, c. 45, §1 (NEW).]

B. A person who violates this subsection after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2007, c. 45, §1 (NEW).]

[2007, c. 45, §1 (NEW) .]

4. Transport out of State. A snowshoe hare trapped pursuant to this section may not be transported out of the State.

A. A person who violates this subsection commits a civil violation for which a fine of not less than \$100 or more than \$500 may be adjudged. [2007, c. 45, §1 (NEW).]

B. A person who violates this subsection after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2007, c. 45, §1 (NEW).]

[2007, c. 45, §1 (NEW) .]

5. Trapping season for snowshoe hares. A beagle club may not trap for snowshoe hares except between September 1st and April 30th of each calendar year.

A. A person who violates this subsection commits a civil violation for which a fine of not less than \$100 or more than \$500 may be adjudged. [2007, c. 45, §1 (NEW).]

B. A person who violates this subsection after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2007, c. 45, §1 (NEW).]

[2007, c. 45, §1 (NEW) .]

6. Cottontail rabbits. A beagle club may not keep and must release immediately a cottontail rabbit caught in a trap.

A. A person who violates this subsection commits a civil violation for which a fine of not less than \$100 or more than \$500 may be adjudged. [2007, c. 45, §1 (NEW).]

B. A person who violates this subsection after having been adjudicated as having committed 3 or more civil violations under this Part within the previous 5-year period commits a Class E crime. [2007, c. 45, §1 (NEW).]

[2007, c. 45, §1 (NEW) .]

7. Reporting of trapped cottontail rabbits. As a condition of licensure under this section, a beagle club shall file with the department no later than July 1st of each calendar year a report of cottontail rabbits trapped pursuant to this section.

[2007, c. 45, §1 (NEW) .]

SECTION HISTORY

2007, c. 45, §1 (NEW).

Title 12: CONSERVATION

Part 13: INLAND FISHERIES AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subpart 4: FISH AND WILDLIFE HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Chapter 925: FISH AND WILDLIFE MANAGEMENT AND RESEARCH HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

Subchapter 3: ENDANGERED SPECIES; MANAGEMENT AND RESEARCH HEADING: PL 2003, c. 414, Pt. A, §2 (new); Pt. D, §7 (aff); c. 614, §9 (aff)

§12801. Declaration of purpose

The Legislature finds that various species of fish or wildlife have been and are in danger of being rendered extinct within the State of Maine, and that these species are of esthetic, ecological, educational, historical, recreational and scientific value to the people of the State. The Legislature, therefore, declares that it is the policy of the State to conserve, by according such protection as is necessary to maintain and enhance

their numbers, all species of fish or wildlife found in the State, as well as the ecosystems upon which they depend. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

This subchapter and chapter 631 are established to carry out the purposes of this section. [2003, c. 573, §5 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 573, §5 (AMD). 2003, c. 414, §D7 (AFF).
2003, c. 573, §8 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §§C3,6 (AFF).

§12802. Commissioner's authority, investigations and programs

1. Investigations. The commissioner may conduct investigations in order to develop information relating to population size, distribution, habitat needs, limiting factors and other biological and ecological data relating to the status and requirements for survival of any species of fish or wildlife occurring in the State, whether endangered or not.

[2003, c. 655, Pt. B, §308 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

2. Programs. The commissioner may develop programs to enhance or maintain the populations described in subsection 1.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §B308 (AMD). 2003, c. 414, §D7 (AFF).
2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12803. Designation of endangered species

1. Standards. The commissioner shall recommend a species to be listed as endangered or threatened whenever the commissioner finds one of the following to exist:

A. The present or threatened destruction, modification or curtailment of its habitat or range; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Overutilization for commercial, sporting, scientific, educational or other purposes; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. Disease or predation; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

D. Inadequacy of existing regulatory mechanisms; or [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

E. Other natural or manmade factors affecting its continued existence within the State. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Commissioner's duties. In recommending a species to be listed as endangered or threatened, the commissioner shall:

A. Make use of the best scientific, commercial and other data available; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Consult, as appropriate, with federal agencies, other interested state agencies, other states having a common interest in the species and interested persons and organizations; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. Maintain a list of all species that the Legislature has designated to be endangered or threatened, naming each species by both its scientific and common name, if any, and specifying over what portion of its range each species so designated is endangered or threatened. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Legislative authority. The Legislature, as sole authority, shall designate a species as a state endangered or state threatened species. The list of state endangered or state threatened species by common name, scientific name and status is as follows:

A. Least tern, *Sterna antillarum*, endangered; [2007, c. 166, §1 (AMD).]

B. Golden eagle, *Aquila chrysaetos*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

C. Piping plover, *Charadrius melodus*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

D. Sedge wren, *Cistothorus platensis*, endangered; [2007, c. 166, §1 (AMD).]

E. Grasshopper sparrow, *Ammodramus savannarum*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

F. Box turtle, *Terrapene carolina*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

G. Black racer, *Coluber constrictor*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

H. Roseate tern, *Sterna dougallii*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

I. Northern bog lemming, *Synaptomys borealis*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

- J. Blanding's turtle, *Emydoidea blandingii*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- K. Black tern, *Chlidonias niger*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- L. American pipit, *Anthus rubescens* (breeding population only), endangered; [2007, c. 166, §1 (AMD).]
- M. Peregrine falcon, *Falco peregrinus* (breeding population only), endangered; [2007, c. 166, §1 (AMD).]
- N. Roaring Brook mayfly, *Epeorus frisoni*, endangered; [2007, c. 166, §1 (AMD).]
- O. Ringed boghaunter, *Williamsonia lintneri*, threatened; [2007, c. 166, §1 (AMD).]
- P. Clayton's copper, *Lycaena dorcas claytoni*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- Q. Edwards' hairstreak, *Satyrrium edwardsii*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- R. Hessel's hairstreak, *Callophrys hesseli*, endangered; [2007, c. 166, §1 (AMD).]
- S. Katahdin arctic, *Oenis polixenes katahdin*, endangered; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- T. Spotted turtle, *Clemmys guttata*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- U. Bald eagle, *Haliaeetus leucocephalus*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- V. Razorbill, *Alca torda*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- W. Atlantic puffin, *Fratercula arctica*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]

- X. Harlequin duck, *Histrionicus histrionicus*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- Y. Arctic tern, *Sterna paradisaea*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- Z. Upland sandpiper, *Bartramia longicauda*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- AA. Swamp darter, *Etheostoma fusiforme*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- BB. Tidewater mucket, *Leptodea ochracea*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- CC. Yellow lampmussel, *Lampsilis cariosa*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- DD. Tomah mayfly, *Siphonisca aerodromia*, threatened; [2003, c. 573, §6 (NEW); 2003, c. 573, §8 (AFF); 2003, c. 655, Pt. C, §§3, 6 (AFF).]
- EE. [2007, c. 166, §1 (RP).]
- FF. Twilight moth, *Lycia rachelae*, threatened; [2007, c. 166, §1 (AMD).]
- GG. Pine barrens zanclognatha, *Zanclognatha martha*, threatened; [2007, c. 166, §1 (AMD).]
- HH. Redfin pickerel, *Esox americanus americanus*, endangered; [2007, c. 166, §1 (NEW).]
- II. Juniper hairstreak, *Callophrys gryneus*, endangered; [2007, c. 166, §1 (NEW).]
- JJ. Rapids clubtail, *Gomphus quadricolor*, endangered; [2007, c. 166, §1 (NEW).]
- KK. New England cottontail, *Sylvilagus transitionalis*, endangered; [2007, c. 166, §1 (NEW).]

LL. Black-crowned night heron, *Nycticorax nycticorax*, threatened; [2007, c. 166, §1 (NEW).]

MM. Common moorhen, *Gallinula chloropus*, threatened; [2007, c. 166, §1 (NEW).]

NN. Great cormorant, *Phalacrocorax carbo* (breeding population only), threatened; [2007, c. 166, §1 (NEW).]

OO. Short-eared owl, *Asio flammeus* (breeding population only), threatened; [2007, c. 166, §1 (NEW).]

PP. Purple lesser fritillary, *Boloria chariclea grandis*, threatened; [2007, c. 166, §1 (NEW).]

QQ. Sleepy duskywing, *Erynnis brizo*, threatened; [2007, c. 166, §1 (NEW).]

RR. Boreal snaketail, *Ophiogomphus colubrinus*, threatened; [2007, c. 166, §1 (NEW).]

SS. Brook floater, *Alasmidonta varicosa*, threatened; [2007, c. 166, §1 (NEW).]

TT. Barrow's goldeneye, *Bucephala islandica*, threatened; and [2007, c. 166, §1 (NEW).]

UU. Least bittern, *Ixobrychus exilis*, endangered. [2007, c. 166, §1 (NEW).]
[2007, c. 166, §1 (AMD) .]

4. Process for recommendation; notice and hearings. Prior to recommending an addition, deletion or other change to the endangered and threatened species listed in subsection 3, the commissioner shall provide for public notice and public hearings on that proposed recommendation in accordance with the provisions of Title 5, chapter 375, subchapter 2.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

5. Designation by Legislature. The Legislature may not amend the list of endangered or threatened species in subsection 3 except upon the recommendation of the commissioner.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 573, §6 (AMD). 2003, c. 414, §D7 (AFF).

2003, c. 573, §8 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §§C3,6 (AFF). 2007, c. 166, §1 (AMD).

§12804. Conservation of endangered species

1. Conservation of nongame and endangered species. The commissioner may establish such programs as are necessary to bring any endangered or threatened species to the point where it is no longer endangered or threatened, including:

A. Acquisition of land or aquatic habitat or interests in land or aquatic habitat; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Propagation; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. Live trapping; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

D. Transplantation. Prior to the transplantation, introduction or reintroduction of an endangered or threatened species in the State, the commissioner shall, in conjunction with the Atlantic Salmon Commission, when appropriate, develop a recovery plan for that species, conduct a public hearing on that recovery plan pursuant to Title 5, Part 18 and submit that plan to the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters. The introduction or reintroduction of that species must be conducted in accordance with

the recovery plan developed under this paragraph and may not begin sooner than 90 days after all conditions of this paragraph have been met; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

E. In the extraordinary case where population pressures within a given group ecosystem can not be otherwise relieved, regulated taking. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Habitat. For species designated as endangered or threatened under this subchapter the commissioner may by rule identify areas currently or historically providing physical or biological features essential to the conservation of the species and that may require special management considerations. Rules adopted pursuant to this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

[2003, c. 655, Pt. B, §309 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Protection guidelines. The commissioner may by rule develop guidelines for the protection of species designated as endangered or threatened under this subchapter. Rules adopted pursuant to this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

[2003, c. 655, Pt. B, §309 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

4. Annual report. The commissioner shall submit a written report by January 1st of each year to the joint standing committee of the Legislature having jurisdiction over inland fisheries and wildlife matters and the joint standing committee of the Legislature having jurisdiction over marine resources matters describing the status of

all current and planned programs, activities and rules of the department pertaining to the conservation or management of endangered or threatened species. When appropriate, this report may be combined with any transplantation report required under subsection 1, paragraph D. The commissioner shall notify the Legislature by January 1st of each year that the report has been delivered.

[2003, c. 573, §7 (AMD); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 573, §7 (AMD). 2003, c. 655, §B309 (AMD).
2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF).

§12805. Cooperative agreements

The commissioner may enter into agreements with federal agencies, other states, political subdivisions of this State or private persons for the establishment and maintenance of programs for the conservation of endangered or threatened species and may receive all federal funds allocated for obligations to the State pursuant to these agreements.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

§12806. State and local cooperation

1. Review. A state agency or municipal government may not permit, license, fund or carry out projects that will:

A. Significantly alter the habitat identified under section 12804, subsection 2 of any species designated as threatened or endangered under this subchapter; or [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Violate protection guidelines set forth in section 12804, subsection 3. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

The commissioner shall make information under section 12804 available to all other state agencies and municipal governments for the purposes of review.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Variance. Notwithstanding subsection 1, state agencies and municipal governments may grant a variance from this section provided that:

A. The commissioner certifies that the proposed action would not pose a significant risk to any population of endangered or threatened species within the State; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. A public hearing is held on the proposed action. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

3. Pending applications. Notwithstanding Title 1, section 302, applications pending at the time of adoption of habitats and guidelines under section 12804, subsections 2 and 3 are governed by this section.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

§12807. Introduction of wolves to State; approval

A person may not release a wolf in the State for the purpose of reintroducing that species into the State without the prior approval of both Houses of the Legislature and the commissioner. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

A person who violates this section commits a Class E crime. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

§12808. Misuse of endangered or threatened species

For the purposes of this section, "to take," "take" and "taking" mean the act or omission that results in the death of any endangered or threatened species. [2003, c. 655, Pt. B, §310 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF).]

1. Prohibited acts regarding endangered or threatened species; negligence.

Except as provided in subsections 2 and 3, a person may not negligently:

A. Import into the State or export out of the State any endangered or threatened species. A person who violates this paragraph commits a Class E crime; [2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §311 (RPR).]

B. Hunt, take, trap or possess any endangered or threatened species within the State. A person who violates this paragraph commits a Class E crime; [2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §311 (RPR).]

C. Possess, process, sell, offer for sale, deliver, carry, transport or ship, by any means whatsoever, any endangered or threatened species or any part of an endangered or threatened species. A person who violates this paragraph commits a Class E crime; OR [2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §311 (RPR).]

D. Feed, set bait for or harass any endangered or threatened species. A law enforcement officer, as defined in Title 25, section 2801-A, subsection 5, must issue a warning to a person who violates this paragraph for the first time. A person who violates this paragraph after having previously been given a warning under this paragraph commits a Class E crime. [2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §311 (RPR).]

[2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF); 2003, c. 655, Pt. B, §311 (RPR) .]

1-A. Prohibited acts regarding endangered or threatened species; intentional.

Except as provided in subsections 2 and 3, a person may not intentionally:

A. Import into the State or export out of the State any endangered or threatened species. A person who violates this paragraph commits a Class D crime; [2003, c. 655, Pt. B, §312 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

B. Hunt, take, trap or possess any endangered or threatened species within the State. A person who violates this paragraph commits a Class D crime; [2003, c. 655, Pt. B, §312 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]

C. Possess, process, sell, offer for sale, deliver, carry, transport or ship, by any means whatsoever, any endangered or threatened species or any part of an endangered or

threatened species. A person who violates this paragraph commits a Class D crime;
 or [2005, c. 477, §23 (AMD).]

D. Feed, set bait for or harass any endangered or threatened species. A law enforcement officer, as defined in Title 25, section 2801-A, subsection 5, must issue a warning to a person who violates this paragraph for the first time. A person who violates this paragraph after having previously been given a warning under this paragraph commits a Class D crime. [2003, c. 655, Pt. B, §312 (NEW); 2003, c. 655, Pt. B, §422 (AFF).]
 [2005, c. 477, §23 (AMD) .]

2. Exceptions for certain purposes. Notwithstanding subsections 1 and 1-A or section 10650 as it applies to rules adopted in accordance with this subchapter, the commissioner may:

A. Under such terms and conditions as the commissioner may prescribe, permit any act prohibited by this section or by rule for educational or scientific purposes or to enhance the propagation or survival of an endangered or threatened species; and
 [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Under such terms and conditions as the commissioner may prescribe, permit any endangered or threatened species that enters the State and is being transported to a point outside the State to be so entered and transported without restriction in accordance with the terms of any federal or state permit. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 655, Pt. B, §313 (AMD); 2003, c. 614, §9 (AFF); 2003, c. 655, Pt. B, §422 (AFF) .]

3. Exceptions; incidental take plan. Notwithstanding subsection 1, the commissioner may:

A. Permit the taking of any endangered species or threatened species if:

- (1) Such taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity;
- (2) The taking will not impair the recovery of any endangered species or threatened species; and
- (3) The person develops and implements an incidental take plan approved by the commissioner to take an endangered species or threatened species pursuant to paragraph B; and [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Allow a plan that minimizes the incidental taking of an endangered species or threatened species that specifies the following:

- (1) A description of the specific activities sought to be authorized by the incidental take permit and an analysis of potential alternatives;
- (2) The individual and cumulative effects that may reasonably be anticipated to result from the proposed actions covered by the plan;
- (3) The recovery measures the applicant will implement to prevent, minimize and mitigate the individual and cumulative effects and any provisions that are necessary to prevent, minimize and mitigate circumstances that are likely to impair the recovery of any endangered or threatened species covered by the plan;
- (4) The procedures for monitoring the effectiveness of the recovery measures in the plan;
- (5) The anticipated costs of implementing the plan and the availability of necessary funding for the applicant to implement the plan; and

(6) Other modifications to the plan or other additional measures, if any, that the department may require and such other matters as the department determines to be necessary for the recovery of species consistent with this section. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

The department shall seek input from knowledgeable individuals or groups on each incidental take plan for endangered or threatened species.

If any person fails to abide by the terms of any permit authorizing the incidental taking of an endangered or threatened species, the permit must be immediately suspended or revoked.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 655, §§B310-313 (AMD). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF). 2003, c. 655, §B422 (AFF). 2005, c. 477, §23 (AMD).

§12809. Judicial enforcement

1. General. In the event of a violation of this subchapter, any rule adopted pursuant to this subchapter or any license or permit granted under this subchapter, the Attorney General may institute injunctive proceedings to enjoin any further violation, a civil or criminal action, or any appropriate combination of those proceedings without recourse to any other provision of law administered by the department.

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

2. Restoration. The court may order restoration of any area affected by any activity found to be in violation of this subchapter, any rule adopted pursuant to this

subchapter or any license or permit granted under this subchapter, to its condition prior to the violation or as near to that condition as possible. When the court finds that the violation was willful, the court shall order restoration under this subchapter, unless the restoration would result in:

A. A threat to public health and safety; [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

B. Environmental damage; or [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

C. A substantial injustice. [2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF).]

[2003, c. 414, Pt. A, §2 (NEW); 2003, c. 614, §9 (AFF) .]

SECTION HISTORY

2003, c. 414, §A2 (NEW). 2003, c. 414, §D7 (AFF). 2003, c. 614, §9 (AFF).

Appendix 2

Maine Department of Inland Fisheries and Wildlife Trapping Rules.

09-137 DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

Chapter 4: HUNTING AND TRAPPING

4.01 Upland Game and Furbearing Animals

A. General Prohibition

It shall be unlawful for any person to have in possession, at any time, any wild bird or wild animal, or part thereof, taken in violation of these regulations. There shall be a closed season for the hunting or trapping of any wild bird or wild animal for which an open season is not herein specifically provided or is provided by law.

B. Limits

No person shall hunt, trap or have in his possession at any time more than the numerical limits of any given species of upland game or furbearing animal which are specifically set forth in these regulations.

C. Keeping Upland Game and Furbearing Animals Alive

No person shall keep alive any upland game or furbearing animal which such person has taken, whether by hunting or trapping, except in accordance with the provisions of 12 M.R.S.A. Sec. 7231, 7232, 7235, 7242 and 7771, as amended, providing, among other things, for the issuance of permits for such purposes by the Commissioner of Inland Fisheries and Wildlife.

G. Open Seasons for the Hunting and Trapping of Furbearing Animals

1. Beaver Trapping:

- 1.a. After the close of the Regular Statewide Trapping Season (#2 below), muskrats may still be trapped but only until March 31. and only in areas that are open to beaver trapping. After March 31st muskrats may be trapped only with the use of killer-type traps and colony traps, and all traps must be set so as to remain completely under water at all times. In addition, in any township of the State that is open to beaver trapping, any otter taken in a beaver or muskrat set, so-called, may be lawfully possessed by any licensed trapper.

1.b. Open and Closed Areas for Beaver Trapping

The open season for the trapping of beaver as established by Chapter 4.01 (G.1.) shall have **open and closed** areas for the 2007-2008 season as established in the following rules.

These rules do not include areas closed by other laws and rules covering, but not limited to state and federal parks and monuments, Indian lands within the boundaries specified by the Indian Land Claims Settlement, and other special public and private lands.

Wildlife Management Districts are those parts of the State as shown on page 37 of the Maine Hunting and Trapping Regulations Summary.

These rules apply to tributaries **only** in those cases where tributaries are specifically stated.

Locations and names as found in these regulations are the same as found on maps published by the U. S. Geological Survey, the County General Highway Map published by the Maine Department of Transportation, or The Maine Atlas and Gazetteer published by the DeLorme Publishing Company.

2. Statewide Regular Trapping Season: Bobcat, coyote, fox, mink, muskrat*, opossum, otter, raccoon, red squirrel, skunk, weasel: The Sunday preceding the first day of the open firearm season on deer through December 31.

Except as provided in 2-D below, during the statewide regular trapping season, any fisher or marten caught incidentally must be immediately released alive, or, if found dead in the trap, must be reported to a game warden as soon as possible *and* prior to removal of the animal from the trap and trap site location. Any such incidental catch found dead in the trap must be turned over to an agent of the commissioner within 48 hours from the time it was discovered.

- 2-A. Early Fox and Coyote Trapping Season Statewide.

There shall be an early fox and coyote trapping season statewide beginning on the Sunday 2 weeks prior to the opening of the regular fall trapping season and extending through the day prior to the opening of the regular fall trapping season. Any raccoon, skunk or opossum taken incidental to fox and coyote trapping may be lawfully possessed. During this early trapping season, except as provided in this section, it is unlawful to take or possess any furbearing animal other than fox, coyote, raccoon, opossum and skunk. Any other furbearing animal caught incidentally in a fox or coyote set must be immediately released alive, or, if found dead in the trap, must be reported to a game warden as soon as possible and prior to removal of the animal from the trap and trap site location. Any such incidental catch found dead in the trap must be turned over to an agent of the commissioner within 48 hours from the time it was discovered.

During this early fox and coyote trapping season, in addition to department rules and state laws which affect trapping in general, the following restrictions also apply;

- a. All traps must be set at or below ground level;
- b. Killer-type traps are prohibited;
- c. Traps may not be set in the water;
- d. The use of exposed bait or visible attractor at any trap site location is prohibited.

2-B. Early Muskrat Trapping Season in WMD's 1, 2, 3,4, 5, 6, 8, 10, 11

There shall be an early muskrat trapping season beginning on the Sunday 1 week prior to the opening of the regular fall trapping season, and extending through the day prior to the opening of the regular fall trapping season. Any raccoon or mink taken incidental to muskrat trapping may be lawfully possessed. During this early trapping season, except as provided in this section, it is unlawful to take or possess any furbearing animal other than raccoon and mink. Any other furbearing animal caught incidentally in a muskrat set must be immediately released alive, or, if found dead in the trap, must be reported to a game warden as soon as possible *and* prior to removal of the animal from the trap and trap site location. Any such incidental catch found dead in the trap must be turned over to an agent of the commissioner within 48 hours from the time it was discovered.

During this special muskrat trapping season, in addition to Department rules and State laws which affect trapping in general, the following restrictions also apply:

- a. All traps must be set at or below ground or water level;
- b. The use of exposed bait or visible attractor at any trap site location is prohibited;
- c. Killer-type traps may be used for muskrat trapping and must have a jaw spread no greater than 5 inches;
- d. The maximum foothold trap size for muskrat sets shall be No. 1 1/2 during this special season.

2-C. In any township of the State that is open to beaver trapping, any otter taken in a beaver or muskrat set, so called, may be lawfully possessed by any licensed trapper.

2-D. Marten and Fisher Trapping Season Statewide

There shall be a fisher and marten trapping season beginning on November 15th and extending through December 15th, annually.

3. Marten Limit

a. Marten Study Area

Except as otherwise provided in rules pertaining to the open trapping season on beaver and bear, the entire portions of townships T4 R11 WELS, T5 R11 WELS are closed to all trapping from October 19 through December 31, 1997.

- b. The harvest of marten will be limited to 25 marten per trapper statewide. Twenty-five numbered temporary transportation permits will be issued at the time of trapping license purchase/renewal (25 marten tags *only*) A temporary marten transportation permit must be signed, dated and attached to the captured marten at the time the animal is removed from the capture site. The temporary transportation permit must accompany the animal/pelt from the capture site until a permanent fur tag is affixed by a fur-tagging agent. Fur-tagging agents will retain the temporary transportation permit from each marten at the time a permanent fur tag is attached to the pelt.

It is unlawful for any person to use or possess any marten temporary transportation permit with a number that does not coincide with the number issued with their license, as so indicated on their trapping license.

Prior to the time the animal is tagged with a permanent fur tag, it is unlawful for any person to possess any marten, or pelt thereof, that is not accompanied by a signed and dated temporary marten transportation permit marked with the number coinciding with the number printed on their trapping license. Trappers who are not required by law to have a trapping license (residents under 10 years of age and residents trapping on their own land) may use, in lieu of the official temporary marten transportation permit, a substitute transportation permit (string tag) on which the name and address of the individual has been clearly written in ink. The substitute transportation tag must be signed, dated and attached to the captured marten in the same manner as an official temporary marten transportation permit at the time the animal is removed from the capture site.

Any marten caught in excess of the annual limit (25) must be immediately released alive, or, if found dead in the trap, must be reported to a game warden as soon as possible *and* prior to removal of the animal from the trap and trap site location. Any such incidental catch found dead in the trap must be turned over to an agent of the commissioner within 48 hours from the time it was discovered.

It is the intent of the Department of Inland Fisheries and Wildlife to revoke, pursuant to Title 12 MRSA, Section 7077, the trapping license of any person convicted of a violation of any provisions of these rules.

4. **Statewide hunting seasons for furbearing animals:** December 1 through February 14; **Coyote:** January 1 through December 31; **Raccoon:** October 1

through December 31; **Red Squirrel**: January 1 through December 31; **Skunk and opossum**: Monday after the opening of the Special Fox & Coyote Trapping Season through December 31; **Fox**: Monday after the opening of the Special Fox and Coyote Trapping Season through February 28.

H. Tagging and Registration Procedure

It shall be unlawful for any person to possess, sell, give away, buy, accept as a gift, offer for transportation or transport out of the State of Maine the raw skin of any fox, bobcat, marten, fisher, coyote, beaver, mink or otter unless each skin has been tagged.

For the purposes of this regulation, "raw skin" means the skin of the animal, whether removed from or attached to the carcass.

Notwithstanding this regulation, any person who lawfully possesses the untagged raw skin of any fox, bobcat, marten, fisher, coyote, beaver, mink or otter may transport that skin within the jurisdiction of the State for purposes of pelt preparation and tagging.

The raw skins of all fox, bobcat, marten, fisher, coyote, beaver, mink and otter must be presented to a warden, or other agent designated by the Commissioner, and each raw skin legally presented shall be tagged. All information requested

relating to the taking of each skin shall be accurately and truthfully reported. A fee of 25¢ shall be paid for each skin tagged.

The raw skins of all fox, bobcat, marten, fisher, coyote, beaver, mink and otter must be presented for tagging within 10 days after the closing of the open season thereon, except the raw skins of all bobcat taken during the open bobcat hunting season shall be presented, by the person who killed said bobcat, for tagging within 72 hours of killing said animal. Following ten days after the close of the open season thereon, it shall be unlawful for any person to possess the raw skin of any fox, bobcat, marten, fisher, coyote, beaver, mink or otter which does not have attached to it the necessary tag.

The raw skins of any fox, bobcat, marten, fisher, coyote, beaver, mink and otter that come into this State in any manner from any other state, country, or province shall bear the official stamp, tag, or seal of such other state, country, or province. Any such skins that come into this State from any other state, country, or province which does not require an official stamp, tag, or seal shall be tagged in accordance with this section by the person possessing such raw skins. The fee for tagging such imported raw skins shall be 25¢ for each tag so issued. Licensed taxidermists who import raw skins for the purpose of taxidermy are exempt from the provisions of this paragraph.

I. Raccoons

Raccoons may be hunted at night during the open season only when the hunter (i) is accompanied by a dog, (ii) uses an electric flashlight to locate raccoons that are treed, or held at bay, by a dog or dogs, and (iii) is in possession of, and uses a rifle, pistol, or revolver of no greater power or caliber than one which uses .22 caliber long rifle ammunition; said rifle to be loaded only when being used to dispatch a raccoon that is treed or held at bay by a dog or dogs.

J. Size of Traps

Animals may be trapped with any common ordinary steel trap except that in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11²⁶, no foothold trap (also known as a leghold trap) maybe used that has an inside jaw spread of more than 5 3/8 inches, except that a foothold trap with an inside jaw spread of more than 5 3/8 inches may be used if it is set so as to be fully or partially covered by water at all times. Inside jaw spread is the distance, with the trap in the set position, from the inside center of one jaw (at the dog) to the inside center of the opposite jaw when measured directly across the center of the pan and perpendicular to the base plate. Every foothold trap used in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11 that is not set so as to be fully or partially covered by water at all times must be equipped with at least one chain swivel. Killer-type traps with a jaw spread not to exceed 5 inches may be used, except as limited by paragraph K; or killer-type traps with a jaw spread not to exceed 8 inches may be used if set completely under water or at least four feet above ground level or snow. During the

²⁶ In 2008, this regulation was amended to also include WMD 7.

open season on beaver it shall be lawful to use a killer-type trap with a jaw spread larger than 8 inches when set completely under water. Killer-type traps shall include so-called Conibear trap and all other traps of that type. In Wildlife Management Districts 12, 15, 16, 17, 20, 21, 22, 23, 24, 25, and 26 it shall be unlawful to use any trap with teeth on the jaws unless completely covered with water, from the opening day of the trapping season to the opening day of the firearm season for deer annually.

It shall be lawful to trap furbearing animals with a common cage type live trap, except that in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11, no cage trap which has an opening of more than 13 inches in width or more than 13 inches in height may be used unless the cage trap is being used (1) for wildlife research and survey activities; (2) for the removal of animals that are causing damage to property; or (3) to capture bear. Furbearing animals may also be trapped with so-called colony traps having outside dimensions no greater than 7 inches high by 7 inches wide by 40 inches long, only if set so as to remain completely under water at all times.

Furbearing animals may be trapped with so-called egg traps, duffer traps and all other traps of that type that are designed primarily to catch raccoons and avoid incidental catches of other animals.

K. Location of and Preparation for Traps

No person shall stake, hook, fasten or position a trap at any trap site location in the fields, forests or waters of the State prior to the opening day of the trapping season.

No person shall make any advance preparation on the trapping grounds for the taking of beaver or muskrat previous to the open season on these animals.

No person shall use meat or fish as bait in trapping for beaver.

No person, except an agent of the Commissioner, shall place, set or tend any traps (i) within 10 feet of a beaver house, muskrat den or house, (ii) within 5 feet of a beaver dam, or (iii) within 4 feet of a beaver trap which has been set by another trapper

*In Wildlife Management Units 1 and 2 no person except an agent of the Commissioner shall place, set or tend any traps (i) within 25 feet of any muskrat den or house, (ii) within 10 feet of a beaver house, (iii) within 5 feet of a beaver dam, and (iv) within 4 feet of a beaver trap which has been set by another trapper.

*In Wildlife Management Units 3,4,5,6,7 and 8 no person except an agent of the Commissioner shall place, set or tend any traps (i) within 25 feet of any muskrat den or house, (ii) within 25 feet of a beaver house, (iii) within 10 feet of a beaver dam, and (iv) within 4 feet of a beaver trap which has been set by another trapper.

Steel foothold or killer-type traps must not be set within 50 yards of bait that is visible from above. Bait may be used for trapping if it is completely covered to prevent it from being seen from above, and it must be covered in such a way as to

withstand wind action and other normal environmental conditions. Bait is defined as animal matter including meat, skin, bones, feathers, hair or any other solid substance that used to be part of an animal. This includes live or dead fish. For the purposes of this paragraph, bait does not include animal droppings (scat), urine or animals, dead or alive, held in a trap as the result of lawful trapping activity.

No person may set, place, or tend any killer-type trap in Wildlife Management Districts 1 - 11 unless set completely underwater or at least 4 feet above the ground or snow level. except that killer-type traps with an inside law spread not to exceed 5 inches may also be used under the following conditions:

- (1) when set so as to be partially covered by water at all times, or
- (2) when set under overhanging stream banks, or
- (3) when used at blind sets as defined below.

For purposes of this paragraph, a blind set is defined as any set designed to catch a wild animal, without the use of bait, lure or visible attractor, by intercepting the animal as it moves naturally through its habitat. Bait, lure and visible attractor do not include animal droppings (scat) or urine.

All killer-type traps in Wildlife Management Districts 1 - 11 that rely on the rule requiring such traps to be set at least 4 feet above the ground or snow level must be affixed to a pole or tree that is at an angle of 45° or greater to the ground and that is no greater than 4 inches in diameter at 4 feet above the ground or snow level.

L. Destruction of Beaver Dams, etc.

No person except agents of the Commissioner or someone authorized by them shall damage, destroy, or molest any beaver house, beaver dam, muskrat house, or muskrat den.

M. *(Repealed effective September 2, 200, filing 2000-379)*

N. Zones for Trapping and Hunting Furbearers and Upland Games Defined

(Deleted 8-12-87, filing 87-279)

O. Mandatory Submission of Premolar Tooth

Whenever a bear is presented for registration a premolar tooth shall be removed from the bear and submitted to the Department by the person presenting the bear for registration

P. Bobcat Biological Data Collection

DELETED 8-12-87 (87-279)

4.04 Bear Hunting/Trapping Season

A. Open and Closed Seasons

1. There shall be an open season on hunting bear annually from the first Monday preceding September 1st to the last day of the regular deer hunting season.
2. There shall be an open season during which bait may be used to hunt bear annually from the first Monday preceding September 1st running for 4 weeks.
3. There shall be an open season on trapping bear from September 1 - October 31.
4. There shall be an open season on using a dog or dogs in conjunction with bear hunting starting on the 3rd Monday of the open bear hunting season and running until the Friday preceding the regular deer hunting season.

For the purposes of this rule, hunting bear with the use of bait includes hunting from an observation stand, blind or other location which overlooks any bait or food; except standing crops and foods that have been left as a result of normal agricultural operations or natural occurrence.

B. Bear Transportation Requirements

1. Bear Transportation Tag. To meet the requirements of 12 MRSA §7451 (4), the tag for transporting a bear must be a tag provided by the hunter bearing the full name, address, and hunting license number of the person killing the bear; or may be the bear permit or hunting license.
2. Invalidate license. In addition to the requirements of 12 MRSA §7452 (11 & 13), a person who kills a bear must immediately invalidate their license for bear hunting by completely removing the bear punchout from the hunting license.

(APA Office Note: the following additional subsection B was added by 99-325, filed August 2, 1999, effective August 7, 1999, and amended by 2001-240, filed July 3, 2001, effective July 8, 2001, and by 2007-147, filed April 23, 2007, effective April 28, 2007.)

B. Bear Trapping: Except as otherwise provided by State law, no person may set, place or tend any bear trap that is not in conformity with the following provisions:

1. No person may have more than 1 traps set for bear at any one time.
2. Bear may be trapped only with the use of cable traps (foot snares) or cage-type live traps.
3. Whenever a cage-type live trap is used to trap for bear, the trap must be enclosed and identified by signs in accordance with the provisions of Title 12 Section 12260, subsection 3.
4. Whenever a cable trap (foot snare) is used to trap for bear, the trap must be set at or below ground level in such a mannner as to catch the animal only by the foot or leg.
5. A bear caught in traps must be killed or released and not moved away from the catch site. A bear caught in a trap may not be used in conjunction with a hunt or to train a dog for bear hunting.

6. The placement of bait when trapping for bear must be done in accordance with the provisions of Title 12 Section 11301, subsection 1.

For purposes of this rule, cage-type live traps for bear are defined as traps designed as a cage, tunnel or other enclosure fitted with a door that, when tripped, closes in a manner that prevents escape of the bear. Traps must be heavily constructed to prevent damage from bears, and also must have adequate openings for ventilation and cooling inside when the door is closed. Traps must also be constructed with no sharp intrusions to injure bears, and be large enough for caught bears to turn around inside the closed trap.

4.11 Registration and Tagging of Big Game and Fur Bearing Animals

- A. These rules shall be applicable to the establishment of agents and the operation of registration and tagging stations for the purpose of registering and tagging big game and furbearing animals as required by law.
- B. Big Game Registration Agents and Station Operations
 1. Big game registration agents shall be selected by the Commissioner of Inland Fisheries and Wildlife on the basis of need, but shall not exceed one per city or town, except as follows:

- a. To provide for the maintenance of big game registration stations which operated in 1983 so long as the provisions of this rule are complied with, or
 - b. It is determined by the Inland Fisheries and Wildlife Commissioner that more than one big game registration agent is required to adequately service the hunting public. The need for additional agents shall be determined upon the following considerations:
 1. Number and location of major access routes within the city or town;
 2. Location of existing big game registration agents;
 3. Deer registration levels; and
 4. Areas with special deer hunting restrictions.
2. The Commissioner of Inland Fisheries and Wildlife shall enter into a written agreement with each big game registration agent which specified the minimum operating standards for registration stations. These standards shall include the following:

- a. Minimum time of operation - 8:00 A.M. to 6:00 P.M.
 - b. Minimum days of operation - Monday through Saturday
 - c. Minimum registration and tagging requirements
 - d. Station location
3. The operators of big game registration stations which were operational during 1983 shall be formally designated as big game registration agents upon entering into a written agreement with the Commissioner of Inland Fisheries and Wildlife regarding minimal operating standards. Failure to enter into the above agreement may result in the elimination of the station.
 4. Agents designated by the Commissioner for the purpose of operating big game registration shall be responsible for complying with all pertinent laws, regulations, and performance agreements regarding the registration of big game animals.

5. All agreements with big game registration agents shall remain in effect until:
 - a. The agent no longer wishes to operate a big game registration station at the agreed upon location and terminates the agreement with the Commissioner;
 - b. The agent changes the location of the station;
 - c. The agent sells or leases the station location to another person;
 - d. The designation is terminated by the Commissioner for failure to comply with pertinent laws, regulations, and performance agreement; or
 - e. The designation is terminated by the Commissioner because of changing conditions, circumstances, or legal requirements.
6. Agreements regarding the operation of big game registration stations are not transferable to another individual, location, business, corporation, etc.
7. Individuals interested in becoming a big game registration agent shall contact the District Game Warden within whose district they wish to

operate a registration station. When the need exists for a new registration station in a particular town, interested individuals will be given an application which must be completely and accurately completed and returned to the Commissioner by July 1 of the year in which the applicant wishes to become established as an agent. Applications will be considered only when there is a need for a new big game registration station in a city or town.

8. The selection of new big game registration stations shall be made by the Commissioner to provide the most convenient and accessible means of registering big game animals. All selections shall be based upon the following considerations:
 - a. Location of applicants in relation to the major access route(s) within a city or town.
 - b. Location of applicants in relation to big game registration stations which were previously operated in a city or town.

- C. Fur Tagging Agents and Tagging Operations.
1. Fur tagging agents shall be established by the Commissioner of Inland Fisheries and Wildlife on the basis of need, except that the total number of such stations shall not exceed 50 statewide.
 2. Agents shall be located so as to provide tagging stations at strategic locations throughout the State. All selections shall be based upon the following considerations:
 - a. Location of applicants in relation to the major access routes within the various sections of the State;
 - b. Location of applicants in relation to other fur tagging agents. New fur tagging agents shall be a minimum of 20 airline miles from an existing agent;
 - c. Location of applicants in relation to major fur buyers; and
 - d. Fur harvest characteristics of the various sections of the State.
 - e. Availability of personnel and facilities required to tag large lots of fur in an efficient and confidential manner.

3. The Commissioner of Inland Fisheries and Wildlife shall enter into a written agreement with each fur tagging agent which specifies the minimum operating standards for tagging stations.

These standards shall include the following:

- a. Minimum time of operation - 8:00 A.M. to 6:00 P.M.
 - b. Minimum days of operation - Monday through Saturday
 - c. Minimum registration and tagging requirements
 - d. Station location
 - e. A restriction prohibiting the agent from holding a trapping or hide buyers license.
4. The operators of tagging stations which were operational during 1983 shall be formally designated as fur tagging agents upon entering into a written agreement with the Commissioner of Inland Fisheries and Wildlife regarding the operation of the station according to minimal

operating standards. Failure to enter into the above agreement may result in the elimination of the station.

5. Agents designed by the Commissioner for the purpose of operating fur tagging stations shall be responsible for complying with all pertinent laws, regulations, and performance agreements regarding the tagging of the skins of furbearing animals.
6. All contracts with fur tagging agents shall remain in effect until:
 - a. The agent no longer wishes to operate a fur tagging station at the agreed upon location and terminates the agreement with the Commissioner;
 - b. The agent changes the location of the station;
 - c. The agent sells or leases the station location to another person, or
 - d. The designation is terminated by the Commissioner.
7. Agreements regarding the operation of fur tagging stations are not transferable to another individual, location, business, corporation, etc.

8. Individuals interested in becoming a fur tagging agent shall contact the Warden Lieutenant within whose Region they wish to operate a tagging station. When the need exists for a new tagging station in a particular area, interested individuals will be provided an application which must be completely and accurately completed and returned to the Commissioner by September 1 of the year in which the applicant wishes to become established as an agent. Applications will be considered only when there is a need for new fur tagging station(s) in a particular section of the State.

D. Termination of Services

1. Whenever it comes to the attention of the Commissioner that a big game registration agent or a fur tagging agent has violated any provision of these rules, the Commissioner may immediately terminate the services of that agent.
2. Whenever the services of a big game registration agent or a fur tagging agent are terminated, the Commissioner shall notify the agent in writing as to the circumstances surrounding the action and shall arrange to collect, from the agent, all state-owned wildlife registration and tagging materials. The Commissioner's notice shall state the ground for the termination, and shall give the specific factual basis if applicable. If the

agent wishes to contest the termination, he shall notify the Commissioner in writing within ten days, specifying all areas of disagreement with the notice. He may supplement his position with written statements of witnesses. After reviewing the materials submitted, the Commissioner may decide to take no further action thus maintaining the original termination, or he may modify the termination in such fashion, as he deems appropriate. Pending this determination, the original termination shall remain in effect.

Appendix 3

Chapter Titles and Content Standards from Maine's Trapper Education Manual (May 2008), and Supplemental Course Material on Lynx and Eagle Incidental Captures

CHAPTER 1 – INTRODUCTION

Content Standard

Students demonstrate an understanding of the purpose of trapping and trapper education in today's society. (Student Trapper Education Manual pages 2-8).

CHAPTER 2 – HISTORICAL CONSIDERATIONS

Content Standard

Students use knowledge of history, public attitudes about wildlife, and the North American Model of Wildlife Conservation to understand regulated trapping as a legitimate activity.

CHAPTER 3 – RESPONSIBLE TRAPPING

Content Standard

Students demonstrate awareness of their responsibilities to landowners, wildlife, other outdoor users, and the public.

CHAPTER 4 – RUNNING A TRAPLINEContent Standard

Students demonstrate an understanding of the knowledge, skills, and attitudes needed to safely and responsibly harvest furbearing animals using best management practices.

CHAPTER 5 – FURBEARER MANAGEMENTContent Standard

Students use knowledge of furbearer management principles, practices, and issues to explain current management programs in their state.

CHAPTER 6 –FURBEARERS

Content Standard – None.

CHAPTER 7 – BEST MANAGEMENT PRACTICESContent Standard

Students understand Best Management Practices for Trapping are needed to address animal welfare, trapping efficiency, selectivity, and safety in furbearer management programs (p. 52-52).

CHAPTER 8 – TRAPSContent Standard

Students demonstrate the ability to identify types of traps, prepare traps for use, and safely operate traps.

CHAPTER 9 – CABLE DEVICESContent Standard

Students demonstrate an understanding of cable devices, and responsible techniques for using them.

CHAPTER 10 – TRAPPING SAFETYContent Standard

Students demonstrate an understanding of potential risks to their personal health, safety, and welfare from trapping activities.

CHAPTER 11 – TRAPPING REGULATIONSContent Standard

Students demonstrate the ability to understand, support, and comply with trapping regulations.

CHAPTER 12 – USING FURBEARERSContent Standard

Students demonstrate an understanding of the full value of harvested furbearers.

CHAPTER 13 – HANDLING FURContent Standard

Students demonstrate an understanding of the knowledge, skills, and equipment needed to safely skin animals and prepare the pelts for market.

CHAPTER 14 – USING BAIT, LURE, AND URINEContent Standard

Students explain responsible use of lure, bait, and urine to attract furbearers to sets.

CHAPTER 15 – SELECTIVE TRAPPING TECHNIQUESContent Standard

Students demonstrate an understanding of trapping principles and techniques that increase selectivity of sets.

CHAPTER 16 – WATER SETSContent Standard

Students demonstrate an understanding of the procedures for making safe, effective, and selective sets in or near water.

CHAPTER 17 - LAND SETSContent Standard

Students demonstrate an understanding of the procedures for making safe, effective, and selective sets on land.

Content of Flyers On Avoiding the Incidental Catch of Lynx and Eagles Used in Trapping Education Course

AVOIDING INCIDENTAL CAPTURES

Bald Eagles

In past years, the single biggest factor leading to the incidental capture of bald eagles was the use of exposed bait. **This year is the first year trappers will be required to cover exposed bait that is within 50 yd of a trap. Bait must be covered so that it is not visible from above and be covered in such a way that the covering will not easily be blown off in the wind. Bait that must be covered includes feathers or other animal parts used as attractants, such as might be used to trap bobcat.**

Although eagles are fish eaters, they are attracted to a variety of carrion including large and small mammals. Examples of trapping sets where exposed bait resulted in an incidental eagle capture are fisher and marten sets, float sets for muskrats where more than one trap is set on the float (if multiple traps are set, eagles may get caught in one of the remaining traps), pocket sets along stream banks, and traps set near carrion.

Bald eagles are particularly attracted to sets where fish are used as bait. Do not depend on water hiding the bait. Several eagles have been caught in traps baited with fish when water levels dropped leaving the fish exposed.

It is imperative that trappers **report ALL incidental captures of lynx or eagles** by calling the Department at either 207-941-4466 during regular office hours (8 a.m. to 5 p.m. Monday – Friday) **or by calling the incidental capture hotline at 207-592-4734**.

The hotline is staffed 24 hours a day, seven days a week during the trapping season. If

you can report an incidental capture more quickly by directly contacting an IF&W biologist or game warden, you should do so. Unless circumstances make it impossible to promptly contact the Department, do not release a trapped lynx or eagle until you have spoken with, and received instructions from, an IF&W staff person.

Canada Lynx

If you are trapping in WMDs 1 through 11, lynx could be in the area. If you are trapping for fox, coyote, or bobcat and see lynx sign near the vicinity of your traps, please consider moving your traps to another location. There have been a number of changes to Maine's trapping regulations this year. These new regulations include:

1. a.) an **emergency rule** that complies with a Consent Decree issued by the United States District Court for the District of Maine on October 4, 2007. The Consent Decree resolves a lawsuit brought against the State by the Animal Protection Institute, alleging that the Department's licensure of trappers violated the federal Endangered Species Act. The purpose of this rule is to limit some of the trap types and sizes that may accidentally capture the federally threatened Canada lynx in northern Maine (Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11). The emergency rule [Chapter 4.01, Paragraph J] took effect on October 5, 2007 and reads as follows:

"Animals may be trapped with any common ordinary steel trap, except that in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11, no foothold trap (also known as a leghold trap) may be used that has an inside jaw spread of more than 5 3/8 inches, except

that a foothold trap with an inside jaw spread of more than 5 3/8 inches may be used if it is set so as to be fully or partially covered by water at all times. Every foothold trap used in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11 that is not set so as to be fully or partially covered by water at all times must be equipped with at least one chain swivel.

“It shall be lawful to trap furbearing animals with a common cage type live trap, except that in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11, no cage trap which has an opening of more than 13 inches in width or more than 13 inches in height may be used unless the cage trap is being used (1) for wildlife research and survey activities; (2) for the removal of animals that are causing damage to property; or (3) to capture bear.”

1. b.) The Department recommends that trappers not set on the ground in Wildlife Management Districts 1, 2, 3, 4, 5, 6, 8, 9, 10, and 11 foothold traps with an inside jaw spread of more than 5 inches unless such traps are equipped with offset jaws.

It is imperative that trappers **report ALL incidental captures of lynx or eagles** by calling the Department at either 207-941-4466 during regular office hours (8 a.m. to 5 p.m. Monday – Friday) **or by calling the incidental capture hotline at 207-592-4734.**

The hotline is staffed 24 hours a day, seven days a week during the trapping season. If you can report an incidental capture more quickly by directly contacting an IF&W biologist or game warden, you should do so. Unless circumstances make it impossible to promptly contact the Department, do not release a trapped lynx or eagle until you

have spoken with, and received instructions from, an IF&W staff person. **Tips on avoiding lynx captures can be found on the Department website**

[\[http://www.maine.gov/ifw/wildlife/management/lynx_avoid.htm\]](http://www.maine.gov/ifw/wildlife/management/lynx_avoid.htm).

2) **new regulations** governing the use of exposed bait and new regulations on the use of conibears or killer-type traps were passed this year to reduce the incidental catch of lynx and eagles. In WMDs 1-11, conibears must be set completely under water or at least 4 feet above the ground or snow level on poles or trees no greater than 4 inches in diameter and at an angle of at least 45° from the ground. [Some exceptions were made for mink trappers wishing to use small conibears in blind sets on the ground.] Please see the Hunting and Trapping 2007-08 Laws & Rules booklet for exceptions for traps that have an inside jaw spread of 5 inches or less. To reduce eagle captures, traps cannot be set within 50 yards of bait that is visible from above. Bait may be used if it is completely covered to prevent it from being seen from above. Please see the Hunting and Trapping Laws and Rule booklet for further details on this rule change.

IF YOU CATCH A LYNX OR EAGLE

It is imperative that trappers **report ALL incidental captures of lynx or eagles** by calling the Department at either 207-941-4466 during regular office hours (8 a.m. to 5 p.m. Monday – Friday) **or by calling the incidental capture hotline at 207-592-4734.**

The hotline is staffed 24 hours a day, seven days a week during the trapping season. If

you can report an incidental capture more quickly by directly contacting an IF&W biologist or game warden, you should do so. Unless circumstances make it impossible to promptly contact the Department, do not release a trapped lynx or eagle until you have spoken with, and received instructions from, an IF&W staff person. You may also contact the nearest regional office at one of the numbers listed in the back of this booklet. **Tips on avoiding lynx captures can be found on the Department website [http://www.maine.gov/ifw/wildlife/management/lynx_avoid.htm].**

Department personnel are available to help release lynx or eagles caught in traps.

Lynx and eagles are protected by federal and state laws, and cannot be kept if caught in a trap. An eagle caught in a trap will likely require rehabilitation. An eagle caught in a trap by one of its legs may show little if any signs of injury at the time of capture. What may appear to be a very minor bruise at the time of capture can quickly develop into a fatal injury. This is because of the unique way that blood circulates in an eagle's leg; a bruise may result in a loss of blood flow in the leg, that results in an infection that causes the death of the bird. Please contact MDIFW as soon as possible if you catch an eagle in a trap. Ideally, an eagle should spend as little time in a trap as possible. Safely releasing an eagle from a trap will require covering the eyes or head of the animal, controlling the talons (e.g., tether the feet together), and putting the released eagle in a holding container that has adequate ventilation and that restricts wing movement (e.g., burlap bag). Once the eagle is secure it can be held for a biologist or warden or be transported to the nearest MDIFW regional office. For information regarding how to safely release a lynx from a trap, please refer to:

http://www.maine.gov/ifw/wildlife/management/lynx_avoid.htm .

If you incidentally capture a lynx that has an eartag or radiocollar, and you are unable to reach MDIFW personnel for assistance in releasing the lynx, please contact Jennifer Vashon at 207-941-4466 at your earliest convenience to provide information regarding the animal. If you incidentally capture a lynx that is not marked with an eartag or radiocollar, this animal could provide valuable information. **We would like to mark all incidentally captured lynx with eartags, and radiocollar them, if possible.** If you would like more information on lynx in Maine, please contact Wally Jakubas or Jennifer Vashon at 941-4466.

If you catch a collared cat and are uncertain whether it is a bobcat or a lynx, please contact a regional wildlife biologist, warden, or biologists at the Bangor office before killing the animal. Remember any lynx caught in a trap must be released.

Reducing Mortality and Injuries to Incidentally Captured Lynx

Please contact your local game warden or state fish and wildlife office listed on page 18 for help in releasing a lynx from a trap. If you cannot reach MDIFW personnel, please release the animal as soon as possible using recommendations outlined as follows. A catchpole should be used to allow safe release of any unintended animal captures. Care should be taken to approach any trapped animals slowly to avoid their excessive movement. A trapped lynx will allow the catchpole loop to be placed over its head, but it can be expected to react when the loop is tightened.

Use of a catchpole to release any lynx taken incidental to harvests of other furbearers.

Tighten the catchpole loop sufficiently to immobilize the lynx without cutting off its air supply. Then quickly remove the trap and release the catchpole loop.

Tighten the catchpole loop only sufficiently to hold the lynx securely without preventing its ability to breathe. It is important to keep the head of the lynx pinned to the ground so that the front end of the body is restrained. Once the head is down, quickly place a foot, with light pressure only, on the hindquarters to restrain the rear legs. Once the lynx is restrained, a canvas can be placed over the animal to calm it as the trap is removed quickly. Securely hold the catchpole until the loop is relaxed and the animal has been freed.

If a catchpole is not available, an alternative method to release lynx is to cut a strong forked stick to allow the pinning of the lynx's neck and shoulder to the ground while the trap is removed.

Never attempt to render a trapped lynx unconscious with a blow to the nose or head or by any other means. Life threatening injury to the lynx may result.

Care should be taken at all times when releasing a lynx because they are capable of injuring the trapper with their teeth or claws. Always be aware a trapped lynx may try to

kick at you with claws extended on any foot. Wearing thick gloves to release trapped animals is always wise.

Reporting Incidentally Captured Lynx

We are studying lynx by radiocollaring individuals and monitoring their movements, behavior, and habitat use. If you incidentally capture a lynx, this animal could provide valuable information.

We would like to mark all incidentally captured lynx with eartags and radiocollar them, if possible. Please contact your local MDIFW office or the Bangor office for assistance with releasing a lynx (see below). During the trapping season, a number will also be available after business hours: 207-592-4734.

If you cannot reach MDIFW personnel, release the animal as soon as possible. We would appreciate you providing us with the location of capture and whether the animal was marked with eartags and/or a radiocollar.

Bangor – 207-941-4466

Ashland – 207-435-3232

Greenville – 207-695-3750

Enfield – 207-732-4132

Houlton State Police – 1-800-924-2261

Orono State Police – 1-800-432-7381

REPORTING INCIDENTALLY CAPTURED LYNX:
Non-business hours, call: 207-592-4734.
 Bangor - 207-941-4466
 Ashland - 207-435-3231
 Greenville - 207-695-3756
 Enfield - 207-732-4132



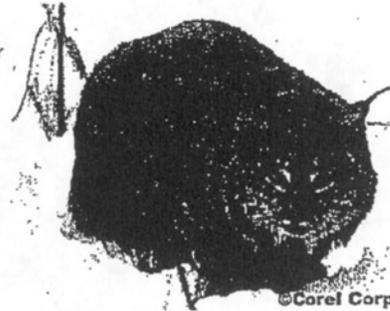
Maine Department of Inland Fisheries & Wildlife
LYNX: Note long ear tufts, large feet, and completely black-tipped tail.



Roger W. Barbour
BOBCAT: Note shorter ear tufts, smaller feet, and tail coloration.

Quick Reference

HOW TO AVOID INCIDENTALLY TAKING OF LYNX
While Trapping or Hunting Bobcats and Other Furbearers



Lynx
 ©Corel Corporation

Distinguishing Characteristics of Lynx and Bobcat

	Lynx	Bobcat
Ear tufts & facial ruffs	ear tufts are generally > 1" larger facial ruffs with black banding at outer edges	ear tufts are generally < 1" smaller facial ruffs with less distinct banding
Pelt color	belly fur grayish-white or buff-white with mottled, indistinct black spots	belly fur white with distinct black spots
Tail color	generally matches body color except the tip (about the last 1") entire tip is black	usually has dark bars and a black tip (about the last 1") but only black on upper side and is white on underside
Feet	feet large and snowshoe-like hind legs are longer than the front, giving a "stooped" appearance	feet small and hind legs are not as long as lynx
Track size	<u>in dirt</u> : up to 3 3/8" wide x 3 3/4" long <u>in snow</u> : up to 5 1/2" wide x 5 1/2" long stride: 11 - 18"	<u>in dirt</u> : up to 2 5/8" wide x 2 1/2" long <u>in snow</u> : up to 2 1/2" wide x 2 1/2" long stride: 6 - 14"

Recommendations to Avoid Lynx in Trap Sets

- Do not set traps for bobcats where lynx tracks are observed or lynx are known to be present.
- Use a #2 or smaller trap.
- Make marten and fisher sets on leaning poles no larger than 4" in diameter and set at a 45 (or greater) degree angle with trap and bait placed at least four feet above the ground or snow level.
- Do not suspend flags or sight-attractants near traps.
- Use tainted baits and avoid using parts of rabbits or hares as bait.
- Remove conibear traps if lynx tracks observed in vicinity of a set.

Preventing Injury and Releasing Lynx from Traps

- Always be prepared (with restraining tools) to handle a lynx when trapping in lynx habitat.
- Stake the trap so that a lynx cannot get entangled around a solid object (even a small sapling) after being captured and keep catch circle clear of solid objects.
- Check conibear traps frequently.
- Trap attachment chains should be less than 9 1/2" and be equipped with at least two swivels.
- Use of padded traps or traps with offset jaws can reduce injury.
- Use a catchpole to release a lynx taken incidentally to harvest of other furbearers or predators. Tighten the catchpole loop only sufficiently to restrain the lynx without cutting off its air supply. Then quickly remove the trap and release the catchpole loop.

Appendix 4

Excerpts from MDIFW's 2006 Trapper Mailing on Incidental Lynx Captures

AVOIDING INCIDENTAL CAPTURES

Lynx

- To date, the incidental captures that have led to lynx fatalities have all been associated with conibear traps. When trapping in northern Maine, please set conibears in enclosures and on leaning poles that are 4 inches or less in diameter. The traps will still be accessible to marten and fisher, but lynx will be reluctant to climb the narrow poll to investigate the trap set.
- Further information on how to avoid the incidental capture of lynx and how to safely release a lynx from a trap is in the enclosed booklet -- "How to Avoid Incidental Take of Lynx". This information is also available on our website www.mefishwildlife.com.

IF YOU CATCH A LYNX OR EAGLE

Trappers catching either of these species are required to notify the Department as soon as possible. If you accidentally trap a lynx or eagle during the trapping season, please notify a biologist or game warden immediately, before releasing the animal. **For quickest response, phone 207-941-4466 during regular office hours (8 AM - 5 PM Monday-Friday), or 207-592-4734 outside of business hours (during the trapping season only).** You may also contact the nearest regional office at one of the numbers listed in the back of this booklet. If you cannot reach IFW personnel, please release the animal as soon as possible.

Lynx and eagles are protected by federal and state laws, and must be released if incidentally trapped. **Department personnel are available to help release lynx or eagles caught in traps.** Eagles caught in traps may require rehabilitation. If possible, a biologist should examine the eagle before they are released from a trap. If an eagle is caught in a remote location, and a biologist or warden is not available to help release the bird, trappers may remove the bird from the trap. If possible, the bird should be transported (in a box with ventilation or other suitable container) to the nearest MDIFW regional office. For information regarding how to safely release a lynx from a trap, please refer to the brochure: How to Avoid Incidental Take of Lynx.

If you incidentally capture a lynx that has an eartag or radiocollar, and you are unable to reach MDIFW personnel for assistance in releasing the lynx, please contact Jennifer Vashon at 207-941-4466 at your earliest convenience to provide information regarding the animal. If you incidentally capture a lynx that is not marked with an eartag or radiocollar, this animal could provide valuable information. **We would like to mark all incidentally captured lynx with eartags, and radiocollar them, if possible.** If you would like more information on lynx in Maine, please contact Wally Jakubas or Jennifer Vashon at 941-4466.

RARE MAMMALS TO WATCH FOR

Lynx vs. Bobcat Know the Difference

The most notable difference between a lynx and a bobcat is paw size. Lynx paws are about twice the size of bobcat paws. Lynx can also be distinguished from bobcats by the tip of their tail, which is completely black (bobcat tail tips are black on the upper side [dorsal side] and white underneath). Lynx have more prominent ear tufts, paler coloration, less spotting, and longer legs than a bobcat (Table 4, Figure 3).

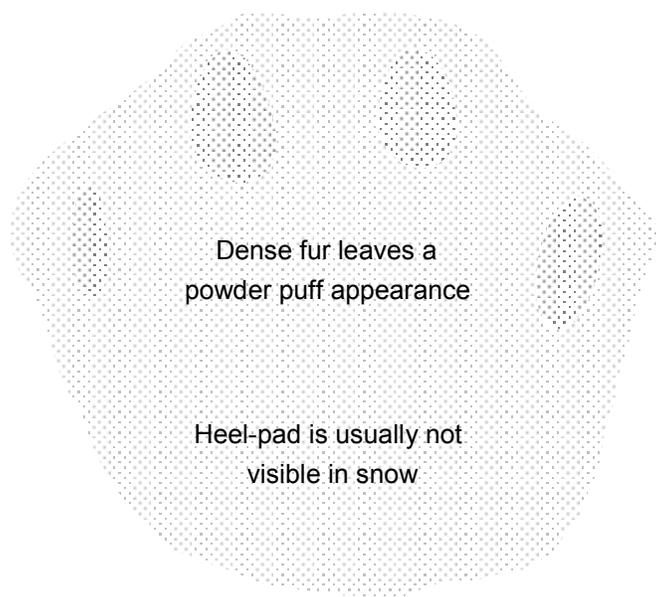
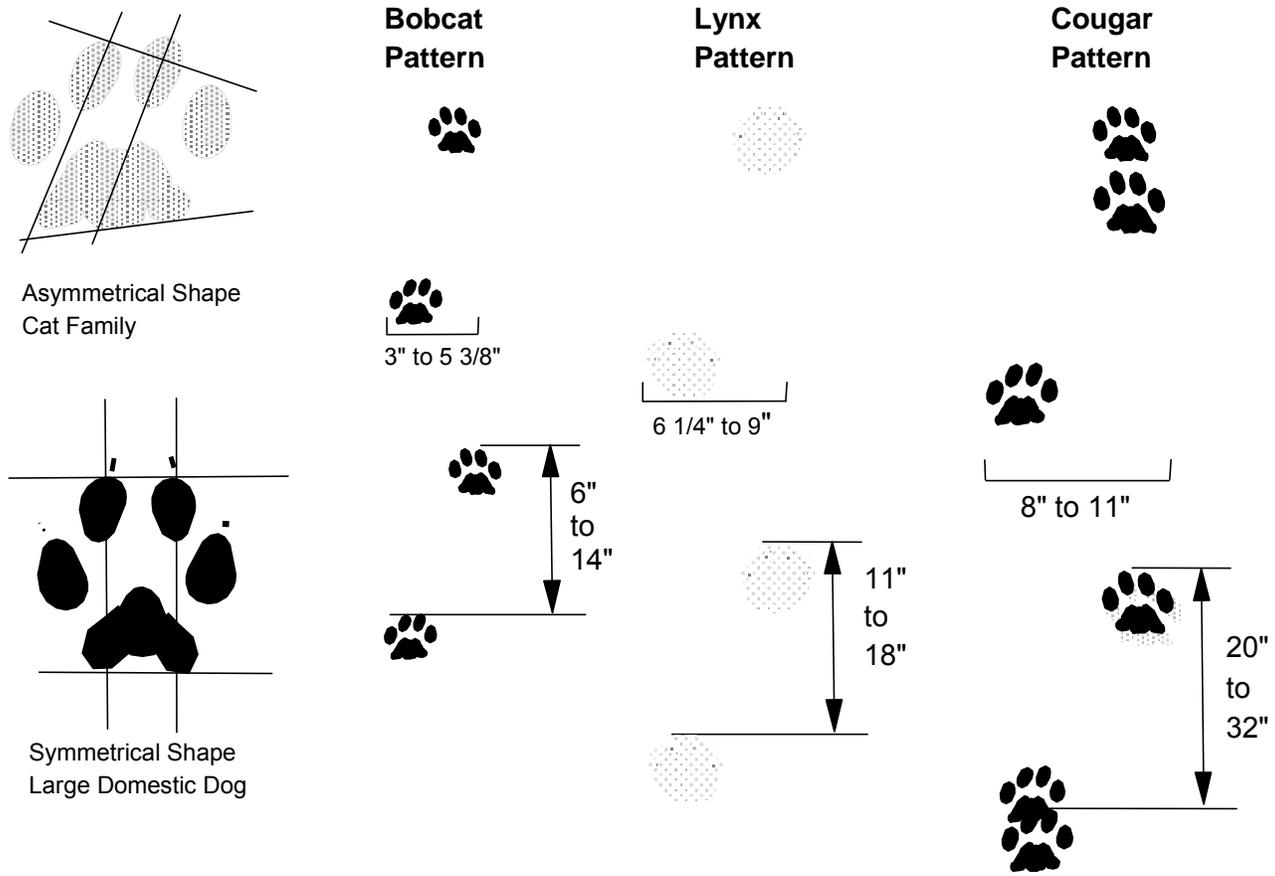
If you trap a bobcat that looks like a cross between a lynx and a bobcat, we would like to know about it. We have recovered several lynx-bobcat hybrids in north central Maine and are interesting in documenting other specimens. Remember if you are uncertain whether an animal is a lynx or bobcat please call a biologist or warden before dispatching the animal. If you have already dispatched the animal, and think it has unusual characteristics for a bobcat, we are still interested in seeing it.

TRACK AND TRACK PATTERNS FOR COUGAR, LYNX, AND WOLF; WITH COMPARISONS TO MORE COMMON SPECIES

Table 4. Distinguishing track characteristics

Species	General Shape	Walking Stride	Print Size (Front Foot)	Track Pattern
Bobcat	General round appearance. Heel points in slightly different direction than toes. No nail marks, but if present, attached to toe marks.	6" to 14"	Length - 1 $\frac{7}{8}$ " to 2 $\frac{1}{2}$ " Width - 1 $\frac{7}{8}$ " to 2 $\frac{5}{8}$ "	Direct or double register walking pattern. Trail pattern zigzags right-left-right-left.
Lynx	Same as bobcat but tracks show a lot more hair. Smaller pads than a mountain lion.	11" to 18"	Length - 3 $\frac{1}{4}$ " to 3 $\frac{3}{4}$ " Width - 3" to 3 $\frac{3}{8}$ " Outline of hair impression Length - 4 $\frac{1}{2}$ " to 5 $\frac{3}{8}$ " Width - 3 $\frac{3}{8}$ " to 5 $\frac{1}{2}$ "	Same as bobcat
Cougar	Same as bobcat	20" to 32"	Length - 3" to 4 $\frac{1}{4}$ " Width - 3 $\frac{1}{8}$ " to 3 $\frac{9}{16}$ "	Walking pattern similar to other cats. Deep snow may show belly and tail drag marks.
Coyote	4 toes, oval shaped track, Front nails often close together. Side nails often do not register.	Eastern: 17 $\frac{1}{2}$ " to 26"	Eastern: Length - 2 $\frac{7}{8}$ " to 3 $\frac{1}{2}$ " Width - 1 $\frac{7}{8}$ " - 2 $\frac{1}{2}$ "	Trail pattern usually is in a straight line. Walking pattern is usually direct registering
Dog	Similar to wolves and coyotes. Inner toes often splayed outwards.	Varies with breed	Varies with breed	Trail pattern sloppy, wandering, not usually in a straight line. Walking pattern is often double register.
Wolf	4 toes, symmetrical track, longer than wide, more rounded than a coyote, nail marks not attached to toe mark (same as coyote), 4 nails register.	Algonquin: 20 $\frac{1}{2}$ " to 28 $\frac{1}{2}$ "□	Algonquin: Length - 4" - 4 $\frac{3}{4}$ " Width - 2 $\frac{1}{2}$ " - 3 $\frac{1}{4}$ " Other: Length - 3 $\frac{7}{8}$ " - 5 $\frac{1}{2}$ " Width - 2 $\frac{3}{8}$ " - 5"	Trail pattern usually is in a straight line. Walking pattern is usually direct registering.

Figure 3. Typical shape of canine and cat tracks, and a comparison of bobcat, lynx, and cougar tracks. Illustrations follow those in Rezendes (1992) and Elbroch (2003).



LYNX PRINT, ACTUAL SIZE



COUGAR PRINT, ACTUAL SIZE

Appendix 5

Rule Changes Adopted by the Maine Department of Inland Fisheries and Wildlife in June 2007 to Reduce the Incidental Trapping of Canada Lynx and Bald Eagles.

Note: Killer-type traps refer to conibears.

4.01 Upland Game and Furbearing Animals

Chapter 4.01 (J) and (K)

Amend Paragraph J as follows:

Animals may be trapped with any common ordinary steel trap. Killer-type traps with a jaw spread not to exceed 5 inches may be used, except as limited by paragraph K; or killer-type traps with a jaw spread not to exceed 8 inches may be used if set completely under water or at least four feet above ground level or snow. During the open season on beaver it shall be lawful to use a killer-type trap with a jaw spread larger than 8 inches when set completely under water. Killer-type traps shall include so-called Conibear trap and all other traps of that type. In Wildlife Management Districts 12, 15, 16, 17, 20, 21, 22, 23, 24, 25, and 26 it shall be unlawful to use any trap with teeth on the jaws unless completely covered with water, from the opening day of the trapping season to the opening day of the firearm season for deer annually.

Amend Paragraph K by adding the following 2 paragraphs after the existing text.

Steel foothold or killer-type traps must not be set within 50 yards of bait that is visible from above. Bait may be used for trapping if it is completely covered to prevent it from

being seen from above, and it must be covered in such a way as to withstand wind action and other normal environmental conditions. Bait is defined as animal matter including meat, skin, bones, feathers, hair or any other solid substance that used to be part of an animal. This includes live or dead fish. For the purposes of this paragraph, bait does not include animal droppings (scat), urine or animals, dead or alive, held in a trap as the result of lawful trapping activity.

No person may set, place, or tend any killer-type trap in Wildlife Management Districts 1 – 11 unless set completely underwater or at least 4 feet above the ground or snow level, except that killer-type traps with an inside jaw spread not to exceed 5 inches may also be used under the following conditions:

- (1) when set so as to be partially covered by water at all times, or
- (2) when set under overhanging stream banks, or
- (3) when used at blind sets as defined below.

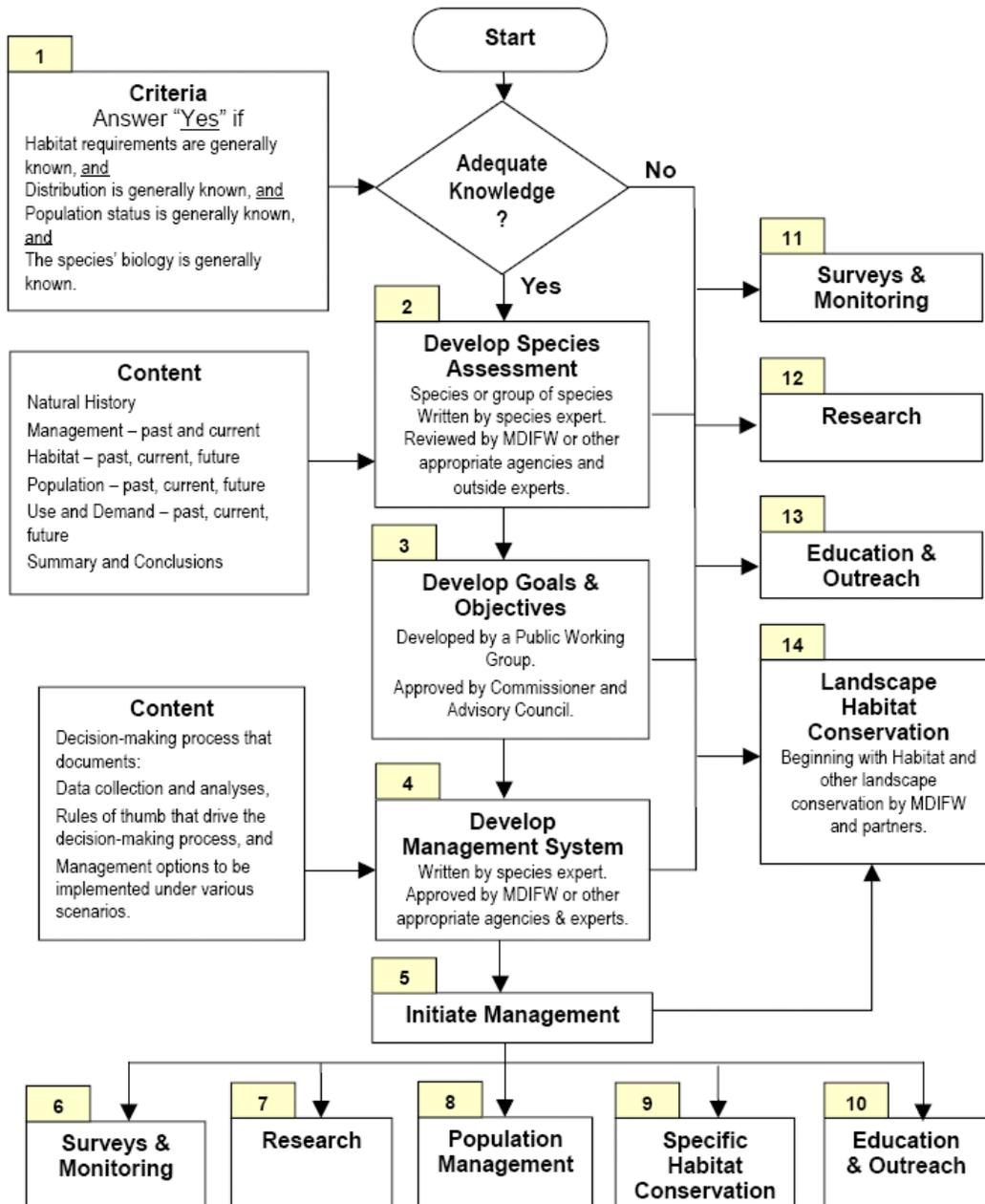
For purposes of this paragraph, a blind set is defined as any set designed to catch a wild animal, without the use of bait, lure or visible attractor, by intercepting the animal as it moves naturally through its habitat. Bait, lure and visible attractor do not include animal droppings (scat) or urine.

All killer-type traps in Wildlife Management Districts 1 – 11 that rely on the rule requiring such traps to be set at least 4 feet above the ground or snow level must be affixed to a

pole or tree that is at an angle of 45° or greater to the ground and that is no greater than 4 inches in diameter at 4 feet above the ground or snow level.

Appendix 6

Flow Diagram of Maine's Strategic Planning Process for Species of Greatest Conservation Need

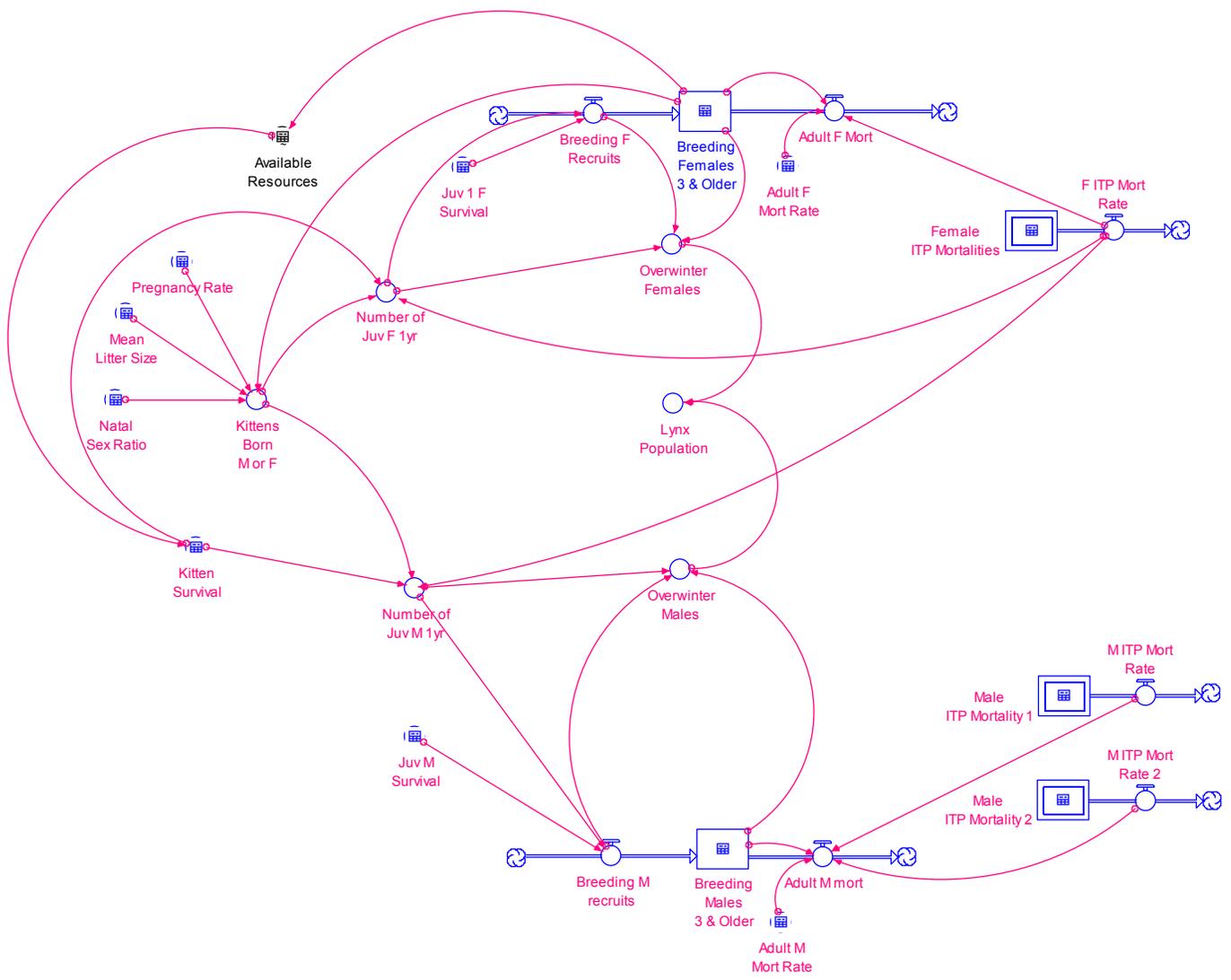


NOTE: The above outlines how Maine will conserve SGCN species. However, a time may come when emergency population management and habitat conservation measures may be needed for a species that has not been through the planning process. These emergencies will be addressed as they arise.

Appendix 7

Lynx Population Model

Figure A9.1 Conceptual diagram (Stella Software 9.0.3, Isee Systems) of a lynx population model that factors in incidental mortalities from trapping. Arrows represent mathematical linkages to various population values, mortality rates, survival rates, or resource availability. Model inputs, definitions, and equations follow.



Definitions

Kittens - refer to male or female lynx kittens from the time they are born until they leave their mother the following spring (i.e., 0 to 11 months of age).

Juvenile M or F 1 yr - refers to male or female lynx from the time they leave their mother until the following breeding season (i.e., 10 to 22 months of age). We assumed that animals of this age would be the most likely to disperse.

Breeding F Recruits - refer to female lynx that are between 22 months and 34 months of age (1st breeding season). Even though these females may breed, their kittens have very low survival rates and may contribute little to recruitment (Mowat et al. 1996).

Breeding M Recruits - refer to male lynx that are between 22 to 34 months of age. Male lynx are thought to sexually mature and breed after this time (Nowak and Paradiso 1983).

Breeding Females 3 & Older - i.e., females surviving past their 2nd breeding season.

Breeding Males 3 & Older - i.e., males surviving past their 1st breeding season.

Overwinter Females - includes kittens, breeding female recruits, and breeding females 3 & Older, that survived up until the spring breeding season.

Overwinter males - includes kittens, breeding male recruits, and breeding males 3 & Older, that survived up until the spring breeding season.

Natal Sex Ratio - the sex ratio of kittens at the time of birth.

Assumptions

Dispersal - The rate of immigration into Maine's lynx population was assumed to equal the rate of emigration.

Density Dependence - It was assumed that the amount of suitable habitat or prey availability would eventually limit Maine's lynx population. However, model runs were performed with and without resource limitations.

Model Inputs

Time Span of Model - 15 years or the length of the ITP application

Breeding Females 3 & Older - A starting population of 150 female lynx was used.

Breeding males 3 & Older - A starting population of 150 male lynx was used.

Pregnancy Rate - A fixed pregnancy rate of 75% for Breeding Females 3 & Older was used in the model. This rate was based on the mean pregnancy rate of lynx in Maine from 1999 to 2007 (MDIFW unpublished data), and is also in-line with lynx pregnancy rates observed in other jurisdictions (Steury and Murray 2004).

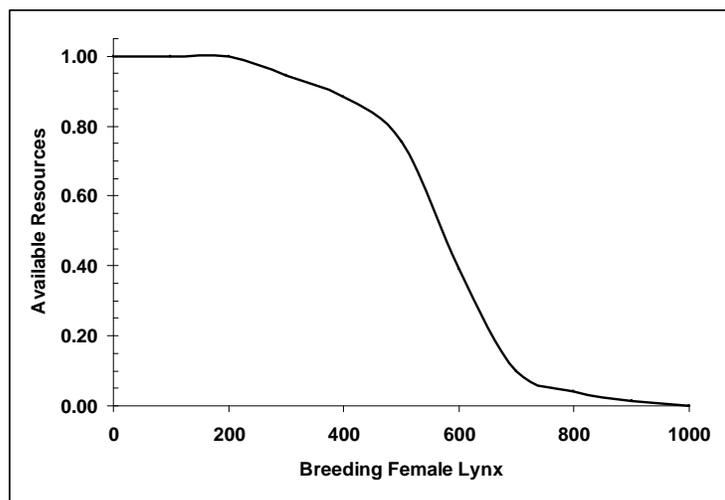
Mean Litter Size - The mean litter size was 2.4 kittens. This was the mean litter size observed for lynx in Maine from 1999 to 2007 (MDIFW unpublished data).

Natal Sex Ratio - A 50:50 sex ratio, based on the sex ratio of kittens in Maine at 2 to 5 weeks post parturition (MDIFW unpublished data), was used in the model.

Available Resources - Conceptually, resource availability was expressed as the number of Breeding Females 3 & Older that could be supported by the resources (e.g., suitable habitat or snowshoe hare populations) in Maine. Mathematically, this value was expressed as a fraction between 0 and 1, with the increments of this fraction following a sigmoidal pattern (Fig A9.2). When the number of breeding females reached the predetermined maximum value, the equation returned a value of 0. When the number of females fell below the specified minimum value (e.g., 250), the equation returned a value of 1. The product of this equation was multiplied by the kitten survival rate to adjust kitten survival according to available resources. For our initial calculations, we estimated that the maximum number of breeding females that could be supported in Maine was 1000 (product = 0; no kitten survival). When the population fell below 250 females the product of the Available Resource equation equaled 1 (78%

kitten survival) (Fig. A9.2). These inputs were varied in subsequent model runs to simulate different levels of resource availability or carrying capacity.

Figure A9.2. Graphic representation along with actual values used to estimate the effect of resource limitations on the lynx population. The available resource value was multiplied by the kitten survival rate (i.e., 78%) to adjust the growth rate of the lynx population. The maximum number of lynx was varied to determine how changes in carrying capacity or lynx population size would affect model outputs.



Breeding Female Lynx	Available Resources
0	1.000
100	1.000
200	1.000
300	0.945
400	0.885
500	0.755
600	0.390
700	0.100
800	0.040
900	0.015
1000	0.000

Kitten Survival - The base kitten survival rate was 78% (MDIFW unpublished data).

Under the assumption that resources would be limited for Maine's lynx population, kitten survival varied inversely with resource availability. This inverse relationship followed a sigmoidal pattern, and was based on previously observed patterns (e.g., the number of kittens accompanying adult females and snowshoe hare densities) between lynx and available resources (Steury and Murray 2004). Kitten Survival was chosen as the variable that would be limited by resource availability based on its sensitivity to declining snowshoe hare numbers (Mowat et al. 1996).

Juvenile survival rates - Little data is available on lynx survival rates for the period of time when they leave their mother until they establish a territory. It is generally accepted that juvenile survival rates during dispersal and territory establishment are lower than for adult animals that are established in an area. We assumed that juvenile animals had twice the mortality rate of adult animals (i.e., adult females - 24%; adult males - 19%; MDIFW unpublished data). These adult mortality rates yielded juvenile survival rates of 52% for females and 62% for males. Adult female lynx appear to be more susceptible to predation (e.g., by fisher) than male lynx in Maine (MDIFW unpublished data). We assumed that juvenile male and females would have differential mortality rates, similar to adults.

Adult mortality rates - Female and male adult mortality rates were 24% and 19%, respectively (MDIFW unpublished data). Adult female lynx that were radiocollared in Maine experience higher predation rates than male lynx (MDIFW unpublished data).

Female ITP Mortality Rate - 1 Breeding Female 3 & Older was removed from the population on year 5.

Juvenile ITP Mortality Rate - 1 Juvenile Female and 1 Juvenile Male was removed from the population on year 5. This represent the kittens that may have been traveling with the female lynx that was killed.

Male ITP Mortality Rate - 1 Breeding Male 3 & Older was removed from the population on year 10 and in year 13.

Equations

$$\square \text{ Breeding Females 3 \& Older}(t) = \text{Breeding Females 3 \& Older}(t - dt) + (\text{Breeding F Recruits} - \text{Adult F Mort}) * dt$$

INIT Breeding Females 3 & Older = 150

INFLOWS:

$$\Rightarrow \text{Breeding F Recruits} = \text{Number of Juv F 1yr} * \text{Juv 1 F Survival}$$

OUTFLOWS:

$$\Rightarrow \text{Adult F Mort} = (\text{Breeding Females 3 \& Older} * \text{Adult F Mort Rate}) + \text{F ITP Mort Rate}$$

$$\square \text{ Breeding Males 3 \& Older}(t) = \text{Breeding Males 3 \& Older}(t - dt) + (\text{Breeding M recruits} - \text{Adult M mort}) * dt$$

INIT Breeding Males 3 & Older = 150

INFLOWS:

$$\Rightarrow \text{Breeding M recruits} = \text{Number of Juv M 1yr} * \text{Juv M Survival}$$

OUTFLOWS:

$$\Rightarrow \text{Adult M mort} = (\text{Breeding Males 3 \& Older} * \text{Adult M Mort Rate}) + \text{M ITP Mort Rate} + \text{M ITP Mort Rate 2}$$

$$\square \text{ Female ITP Mortalities}(t) = \text{Female ITP Mortalities}(t - dt) + (- \text{F ITP Mort Rate}) * dt$$

INIT Female ITP Mortalities = 1

COOK TIME = 5

CAPACITY = 1

FILL TIME = 6

OUTFLOWS:

$$\Rightarrow \text{F ITP Mort Rate} = \text{CONTENTS OF OVEN AFTER COOK TIME, ZERO OTHERWISE}$$

$$\square \text{ Male ITP Mortality 1}(t) = \text{Male ITP Mortality 1}(t - dt) + (- \text{M ITP Mort Rate}) * dt$$

INIT Male ITP Mortality 1 = 1

COOK TIME = varies

CAPACITY = 1

FILL TIME = INF

OUTFLOWS:

$$\Rightarrow \text{M ITP Mort Rate} = \text{CONTENTS OF OVEN AFTER COOK TIME, ZERO OTHERWISE}$$

COOK TIME = (DT*10)+1



Male ITP Mortality $2(t) = \text{Male ITP Mortality } 2(t - dt) + (- M \text{ ITP Mort Rate}) * dt$

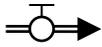
INIT Male ITP Mortality $2 = 1$

COOK TIME = varies

CAPACITY = 1

FILL TIME = 13

OUTFLOWS:



M ITP Mort Rate = CONTENTS OF OVEN AFTER COOK TIME, ZERO OTHERWISE

COOK TIME = $(DT * 13) + 1$



Adult F Mort Rate = 0.24



Adult M Mort Rate = 0.19



Juv 1 F Survival = 0.52



Juv M Survival = 0.62



Kittens Born M or F = Breeding Females 3 & Older * Pregnancy Rate * Mean Litter Size * Natal Sex Ratio



Kitten Survival = $0.78 * \text{Available Resources}$



Lynx Population = Overwinter Females + Overwinter Males



Mean Litter Size = 2.4



Natal Sex Ratio = 0.5



Number of Juv F 1yr = $(\text{Kittens Born M or F} * \text{Kitten Survival}) - F \text{ ITP Mort Rate}$



Number of Juv M 1yr = $(\text{Kittens Born M or F} * \text{Kitten Survival}) - F \text{ ITP Mort Rate}$



Overwinter Females = Breeding Females 3 & Older + Breeding F Recruits + Number of Juv F 1yr



Overwinter Males = Breeding Males 3 & Older + Breeding M recruits + Number of Juv M 1yr



Pregnancy Rate = .75



Available Resources = GRAPH (Breeding Females 3 & Older)



(0.00, 1.00), (100, 1.00), (200, 1.00), (300, 0.945), (400, 0.885), (500, 0.755), (600, 0.39), (700, 0.1), (800, 0.04), (900, 0.015), (1000, 0.00)

Appendix 8

MDIFW Guidelines for Assessing & Evaluating Injuries of Lynx Captured in Traps

Objective: The objective of this protocol is to provide guidance to Maine Department of Inland Fisheries and Wildlife (MDIFW) personnel on assessing the physical condition of lynx incidentally captured by trappers. This includes the identification and evaluation of injuries and their severity. This assessment will determine if a lynx requires veterinarian treatment or can be released on site.

A MDIFW employee will respond on-site to all reports of a lynx captured in a trap, unless: 1.) conditions are such (e.g., high disturbance, bad weather) that it would be unsafe for the animal to remain in the trap for the period of time it would take Department staff to travel to the site, 2.) it is dangerous for Department staff to travel to the site (e.g., extreme weather), 3.) a trapper has released the lynx because circumstances made it impossible for the trapper to contact the Department and not jeopardize the welfare of the lynx, or 4.) if it will take Department staff more than 4 hours to get to the site.

The public and MDIFW staff are asked to immediately contact the 24 hr/7 day a week **lynx hotline (207) 592-4734** to deploy MDIFW staff trained and skilled in chemical immobilization of lynx. The trapper/observer will be advised on what they can do to minimize additional injury (e.g., minimize disturbance) in the interim until Department staff arrive. The closest MDIFW staff member (biologist or warden) will go to the site for additional assessment and to secure the site while awaiting the arrival of staff trained in chemical immobilization. If MDIFW staff assess that the lynx

has no sign of injury or potential for injury as described on page 2 and 3, response by staff trained in chemical immobilization can be cancelled.

In the unlikely event that a person can not be reached at the hot-line, please contact *Jennifer Vashon (MDIFW lynx biologist-Bangor Office) at. 207-941-4238 (work),* [REDACTED] (cell), or [REDACTED] (home).

If MDIFW staff cannot respond in person to a lynx capture, staff will interview the trapper/observer to determine the potential for injury and/or extent of injury (see pages 2 and 3). Staff will advise the trapper to release the lynx if a verbal assessment of the conditions of the capture indicates that the lynx is likely uninjured or has minor injuries not requiring veterinary attention. Staff will discuss with the trapper methods for releasing the lynx using the methods described in the section "*Acceptable methods for physically restraining a lynx to release the trap from the animal's foot*" (see below). If the animal has an injury that requires veterinary care and extreme weather conditions or other circumstances make it impossible for Department staff to travel to the capture site, the trapper will be asked to either release or dispatch the lynx following the guidelines in Appendix 8.1. In cases where a trapper will be asked to euthanize a lynx, permission to euthanize the animal will first be requested from a USFWS special agent or a Maine Warden²⁷. If a USFWS special agent cannot be reached for this request, they will be notified as soon as possible after the Maine Warden Service gives permission for the euthanization.

²⁷ All Maine Wardens are deputized Federal Agents.

Notification and Response

Before going to the scene, ask the individual reporting the capture to provide the following information:

- condition of animal (appears injured or uninjured);
- weather conditions (current and overnight temperatures, and precipitation);
- disturbance at site (e.g., vehicle traffic levels, equipment operation, and human or animal disturbance);
- type of trap (conibear or foothold);
- how is trap secured (i.e., foothold-trap staked or set with a drag, or conibear on ground or on a tree / pole);
- is the animal entangled or hanging from the trap;
- amount of time since trap was last tended to; estimate the maximum amount of time animal has been in the trap; and
- directions to the capture site and a meeting time.

Advise the reporting individual to keep disturbance to a minimum (do not approach the animal, do not photograph the animal, limit vehicle traffic) until MDIFW staff arrives on scene and secures the site.

Injury Assessment by MDIFW personnel

Major Injuries requiring veterinarian care

- **Broken bones** -- This is any bone that sustains a compound fracture (bone protrudes through skin) or any fracture of long bones (femur, ulna, radius, tibia)²⁸.
- **Tooth injuries** -- A lynx that is visibly drooling or salivating indicates a tooth injury that deeply disturbs the roots and nerves.
- **Mouth injuries** -- excessive bleeding, swelling, redness, odor
- **Unresponsive** -- The lynx does not move when approached, but is breathing.
- **Severe bleeding** -- i.e., pulsing, spraying bright red blood (arterial blood)
- **Laceration** -- The direction and depth of the laceration should be assessed; length of laceration is of less importance. A laceration that is at least the full thickness of the skin (i.e., exposes layers of skin) requires cleaning and sutures. A horizontal laceration (i.e., across the limb) is more dangerous than a vertical laceration and should be assessed by a veterinarian.
- **Puncture wound** -- Wounds that extend into the body cavity or puncture wounds with swelling and edema. A puncture wound can be differentiated from a laceration by the lack of clean edges and the triangular or v-shaped appearance of the wound.
- **Frozen digits** -- When temperatures are below freezing, the foot/toes/appendage below the trap are susceptible to frostbite. Digits or tissues that are cold and stiff may be indicative of frostbite.

²⁸ Non-compound fractures of smaller bones were not included as requiring veterinary attention because of the difficulty of assessing (or inability to assess) these breaks in the field.

- **Hypothermia** – (e.g., body temperature < 95° F, shivering) **Note:** a lynx that's coat is wet and/or the animal is shivering, but has no other signs of injury should be released without chemical immobilization, as these drugs will further depress the animal's body temperature.
- **Dislocation of shoulder or hip**

Minor injuries not requiring veterinarian care

- **Edema** -- Swelling of capture foot
- **Tooth injuries** -- tooth chipping, broken teeth without drooling or salivation
- **Mouth injuries** -- minor bleeding
- **Laceration** -- longitudinal on the limb and a laceration that only penetrates the dermis of the skin (i.e. not the full thickness of the skin)
- **Broken toes** -- Broken toes most likely will not be detectable in the field.
- **Minor bleeding** -- slow bleeding or drying blood
- **Puncture wounds** -- in limb with no swelling or edema

Assessment of lynx in trap by IFW staff

Lynx with obvious signs of injury or with the potential for injury (at least 1 item in below lists checked) will be chemically immobilized by MDIFW staff trained, certified, and skilled in the use of chemical immobilizing drugs and their delivery systems, following MDIFW lynx chemical immobilization protocols. All injuries will be documented on capture forms and photographed. Lynx with major injuries will be taken to a veterinarian for treatment (see contact list below). If it is

unsafe to travel to the site, obtain an assessment based on below criteria from an observer at the site.

Obvious visible signs of injury

- Compound fracture (i.e., observe bone protruding through skin)
- Blood
- Limping, dragging limb
- Unresponsive

Potential for injury

- Capture leg is contorted (may indicate a break or dislocation)
- Animal is caught at or above the ankle
- Animal is entangled in vegetation
- Weather: Cold ambient temperatures (below freezing) or precipitation in combination with cold temperatures (< 32° F)
- An injured lynx with a wet, soaked pelt
- All lynx caught in conibears

Physical restraint of lynx

All information listed below must be applicable to **release lynx on site without chemical immobilization** and additional health assessment by MDIFW staff.

- Animal is caught at the foot below the ankle.
- Animal is sitting calmly in trap when not disturbed by people or vehicles.
- Animal moves without sign of injury when approached by people/vehicles.
- Lynx is not entangled in vegetation or other obstruction on the site.
- There is no visible sign of injury.
- The lynx was in the trap \leq 28 hrs.
- Current and overnight temperatures were above freezing.
- There has been limited disturbance at the site (e.g., low or no vehicle or human traffic).

Acceptable methods for physically restraining a lynx to release the trap from the animal's foot

- **Noose pole** -- The catch loop should only be tightened sufficiently to hold the lynx without restricting the animal's ability to breathe (i.e., do not choke the lynx). The end of the pole (closest to the loop) should then be pinned to the ground to restrain the head. Once the head is restrained, lightly place your foot on the lynx's hind legs to secure the hindquarters. Once the animal is secured to the ground, remove the trap from the animal's foot.
- **Forked stick** -- A forked stick can be placed over the neck to pin the animal head and shoulders to the ground. After the animal's head is immobilized lightly place your foot on the hindquarters to further restrain the lynx. Once the animal is secured to the ground, remove the trap from the animal's foot.
- **Plywood** -- To pin a lynx to the ground, a piece plywood can be placed lightly over the animal. Light pressure should be applied to the plywood to immobilize the animal. Once the animal is immobilized, remove the trap from the animal's foot.

Assessment of chemically restrained lynx

IFW personnel will further evaluate the animal to identify injuries and severity of injuries.

- Body temperature obtained with a rectal thermometer. \
- Examine the mouth (swelling, redness, broken teeth, chipped teeth, bleeding gums).
- Signs of shivering
- Signs of bleeding
- Feel all bones for compound or non-compound fractures
- Extremities cold to touch
- Body condition score (see datasheet)

Lynx with minor injuries will be treated with antibiotics, minor wounds will be cleaned, and the animal will be released on site.

Lynx with major injuries will be taken to veterinarian for treatment and held at approved and licensed wildlife rehabilitator at the advisement of the veterinarian.

Situations when lynx should be euthanized on site.

The decision to euthanize a lynx having the injuries described below was based on the low probability that the animal would survive the injury and corresponding treatments. These injuries would likely occur secondarily to the animal being trapped (e.g., predation attempt on the trapped animal).

- **Evisceration**- i.e., intestines are protruding from abdominal cavity
- **Massive tissue/limb trauma**
- **Broken back or neck**
- **Cranial vault**

Acceptable methods for euthanasia (Kreeger 1999, AVMA 2001)

- **Gunshot** (.22 caliber bullet is sufficient)
 - For physically or chemically restrained lynx: place muzzle of gun between the intersection of two imaginary lines drawn between the eyes and the ears of the lynx.
 - For unrestrained lynx: Head and neck shots are preferred to lung or heart shots.
- **Beuthanasia D or Fatal Plus**
 - Only IFW staff trained and certified in the use of these euthanasia drugs will deliver these chemicals.
 - Administered intravenously or through the peritoneal cavity (IP). An IP injection can be delivered by a dart to an unanesthetized animal as the therapeutic value is sufficient.
- **Supersaturated solution of KCl_z**: Note this is only administered to an animal that has been anesthetized.

Literature cited

American Veterinary Medical Association. 2001. 2000 report of the AVMA Panel on Euthanasia. Journal of the American Veterinary Medical Association 218:669-696.

T.J. Kreeger, DVM. 1999. Handbook of Wildlife Chemical Immobilization. Wildlife Pharmaceuticals, Inc. Fort Collins, Co.

Appendix 8.1

Guidelines on whether an injured lynx should be released or euthanized when MDIFW staff cannot travel to the capture site

The most likely circumstance that would prevent MDIFW staff from responding on-site to an injured lynx caught in a trap would be extreme weather conditions (e.g., freezing rain, heavy snow). These extreme weather conditions may also jeopardize the survival of the trapped animal to a greater extent if the animal is left in the trap, than if it were released. In circumstances where the nature of the injury is such that the lynx has a low probability of survival, even if it were released from the trap, the animal should be euthanized to minimize any pain and suffering.

Major Injuries requiring veterinarian care

- **Broken bones** -- Any bone that sustains a compound fracture (bone protrudes through skin) or any fracture of long bones (femur, ulna, radius, tibia)
 - ✓ **If the lynx has a compound fracture or badly broken bone the animal should be euthanized rather than released.**
- **Tooth Injuries** -- A lynx that is visibly drooling or salivating indicates a tooth injury that deeply disturbs the roots and nerves.
 - ✓ **The animal can be released with this injury.**
- **Mouth Injuries** -- excessive bleeding, swelling, redness, odor
 - ✓ **The animal can be released with this injury.**

- **Unresponsive** -- The lynx does not move when approached, but is breathing.
 - ✓ **The animal should be euthanized rather than released.**
- **Severe bleeding** -- i.e., pulsing, spraying bright red blood (arterial blood)
 - ✓ **The animal should be euthanized rather than released.**
- **Laceration** -- The direction and depth of the laceration should be assessed; length of laceration is of less importance. A laceration that is at least the full thickness of the skin (i.e., exposes layers of skin) requires cleaning and sutures. A horizontal laceration (i.e., across the limb) is more dangerous than a vertical laceration and should be assessed by a veterinarian.
 - ✓ **The animal can be released with this injury.**
- **Puncture wound** -- Wounds that extend into the body cavity or puncture wounds with swelling and edema. A puncture wound can be differentiated from a laceration by the lack of clean edges and the triangular or v-shaped appearance of the wound.
 - ✓ **The animal can be released with this injury, unless the wound exposes a major body cavity (e.g., abdominal).**
- **Frozen digits** -- When temperatures are below freezing, the foot/toes/appendage below the trap are susceptible to frostbite. Digits or tissue that are cold and stiff may be indicative of frostbite.
 - ✓ **The animal can be released with this injury.**

- **Hypothermia** -- (e.g., body temperature < 95° F, shivering) **Note:** a lynx that's coat is wet and/or the animal is shivering, but has no other signs of injury should be released without chemical immobilization, as these drugs will further depress the animal's body temperature.
 - ✓ **The animal can be released with this injury.**

- **Dislocation of shoulder or hip**
 - ✓ **The animal should be euthanized rather than released.**

Veterinarian Contact List

Dr. Stuart Sherburne, DVM
Ridge Runner Veterinarian Services
Winterport, Me
(207) 223-2596

Dr. Ronald Miles, DVM
Foxcroft Veterinary Services
Dover-Foxcroft, ME
(207) 564-2144

Dr. Terry McQuade, DVM
North Country Animal Hospital
156 Main St.
Caribou, Maine
(207) 492-4651

Dr. Mark Pokras, DVM
Tufts Medical Center
Grafton, Ma
(508) 839-7918

Rehabilitator Contact List

Dawn and Michael Brown
Second Chance Wildlife Inc.
90 Mountain Road
New Sharon, Maine 04955
(207) 778-2902
(she is willing to travel to pick-up animal)

Dr. Henrietta Beaufait, DVM
State Veterinarian and licensed rehabilitator
Augusta, Maine
(207) 287-7512

Art Howell
North Amity, Me
(207) 532-6880

Appendix 9

MDIFW Protocols for Staff Responding to Incidentally Caught Lynx

RESPONDING TO LYNX TRAPPED INCIDENTALLY BY RECREATIONAL TRAPPERS

--- A PROTOCOL FOR REGIONAL BIOLOGISTS ---

Regional Biologists may be called upon to handle lynx trapped by recreational trappers during the fall of 2007. The following protocol describes the actions needed to release the lynx safely, AND ensure that appropriate information is collected to assist MDIFW's efforts to improve its monitoring of the lynx population in Maine.

Remove lynx from traps the same day they are reported. Safety of the lynx is paramount: arrange to have the trapper or other qualified individual (game warden) release the lynx if a biologist can not travel to the site before 4 PM, or if the lynx is held in an area with high disturbance and stress (such as near a well-traveled road), or if weather conditions make travel unsafe.

Call Jennifer Vashon to assist you with the response:

MAMMAL GROUP CELL PHONE 592-4734

Additional Phone Numbers are listed on Page 2

Lynx study personnel will be available to respond on site to incidental lynx captures to determine if a lynx will be equipped with a radio collar (based on capture location and age of cat) and to scan each lynx for a PIT tag. Since we now have several types of radio collars that have a variety of applications, only Lynx Study personnel will equip lynx with radio collars. In situations where there are concerns for the safety of the lynx (e.g. cold temperatures, in area with high amount of disturbance), regional staff should respond without Lynx study personnel on site. In these situations, mark each captured lynx with eartags prior to release (whenever feasible; Handling kits will be provided to regions D, E, F, & G).

REMINDERS:

INITIAL CONTACT WITH TRAPPER:

Ask trapper to describe the animal, and check for key features to identify lynx vs. bobcat (long ear tufts, prominent facial ruff, completely black tipped tail, large feet, etc).

Ask the trapper if the lynx is marked with ear tags or a radio collar

Obtain clear directions to the capture site, and arrange to meet the trapper at a well-defined location and time.

Obtain information on the exact location of capture, condition of animal, weather conditions, and likelihood of disturbance by passersby.

Obtain the name, address and telephone number of trapper.

Request that the animal be left undisturbed until a Department representative arrives on scene.

RESPONSE:

Before You Go:

Contact Jennifer Vashon via mammal group cell phone **592-4734** immediately.

Alternate numbers :

Contact	Weekdays	Weekends/Evenings	Radio Call Number
Jennifer Vashon	941-4238	████████	2312
Scott McLellan	941-4472	████████	2317

Obtain a camera and film to document the animal and handling.

Lynx are normally very calm when trapped. The captured animal should provide you with ample time to:

- 1) review the handling and immobilization protocol, and
- 2) plan your work.

On Site:

Take control of the scene immediately upon arrival. Clear the area of any nonessential personnel and onlookers, and establish a quiet, level area to work on the immobilized lynx.

Describe your planned handling activities to all personnel and onlookers.

If possible, establish telephone contact with Jen or Scott to assist you during the handling.

Read through handling and immobilization protocols before beginning to handle the animal.

Wear rubber gloves whenever handling samples of tissue/hair for genetic analyses, to avoid contaminating them.

Immobilization Protocol for Recreationally Trapped Lynx

Identify cat species

- Foot size: lynx feet are very large in proportion to their bodies, well-furred, and have small pads.
- Pelage color (particularly behind legs and tail): lynx: tip of tail completely black; bobcat: dorsal side of tip of tail black, but ventral side is white. The back of a bobcat's hind leg will be dark brown whereas lynx hind legs will match body color.
- Length of ear tufts: typically > 1" for lynx and absent to 1" for bobcat (adults)

Chemical Immobilizations

- Approach all traps quietly and remain quiet while handling the animal to minimize stress.
- Estimate the trapped animal's weight to determine proper dosage rate. A large cat, typically a male will weigh between 25 and 30 lbs, and an adult female will weigh around 20lbs. A kitten born the previous spring will weigh between 6 and 10 lbs.
- Prepare immobilization equipment from a distance (preferably out of sight of captured animal).
- Lynx will be immobilized with a 5:1 ketamine hydrochloride and xylazine hydrochloride with a syringe pole, or a hand syringe and noose pole. Use 18-gauge needle for injections. Do not use the heavy needle/jabstick provided for use on large mammals (e.g. palmer darts)
- The large muscle mass of the hind quarter of the animal is the preferred injection site.
- Lynx Dosage Chart (**5 ketaset :1 xylanzine**) (Kreeger 1990).

Weight	Ketaset (200mg/ml)	Xylazine (400mg/ml)
4.5 kg or 10 lbs (kitten)	0.20 cc	0.02 cc
9.1 kg or 20 lbs (adult female)	0.45 cc	0.05 cc
13.6 kg or 30 lbs (adult male)	0.70 cc	0.07 cc

- Record time of delivery and delivery method on data sheet.
- Note: You should have an antagonist on hand to be used if a negative reaction to drug occurs.
Yohimbine/Antagonil are reversing agents for xylazine hydrochloride.
- Can be administered IM

Handling

Care of animal

- Minimize noise during handling and recovery to reduce stress.
- Find appropriate work site (flat ground preferable); straighten neck and check nose and mouth to make sure airway is clear and position animal so their head is slightly lower than the thorax to avoid aspiration of fluids
- Wrap animal in space blanket and wool blanket (in temperatures near or below freezing)
- Administer eye lubricant and cover eyes - keep covered through recovery.
- Check animals body temperature and observe breathing and heart rhythm. Apply Vaseline to thermometer before obtaining body temperature. Normal body temperature for cats **101.5 F**
Continue checking body temp. throughout the work-up.
- If breathing stops, administer antagonist (e.g. Yohimbine) and begin CPR. Follow directions on bottle for correct dosage.

- Examine animal for any handling or capture related injuries
- If an animal is badly injured (e.g. broken long bone) and needs veterinarian care contact Jennifer Vashon to make arrangements.

Biological data collection

- Determine the sex of each animal and record (see graphic for aid in sex identification)
- Hair and tissue samples will be taken for genetic analysis.
- Rubber gloves will be worn when handling samples to avoid contaminating the sample
- Clean tweezers, leather punch, and thermometer with antiseptic wipes before and after use
- Before administering ear tags remove a tissue sample from the ear using leather punch
- Ear tag will be administered through this hole (only necessary to obtain a tissue sample from one ear, but collect both if possible).
- Sterilized forceps (rubbing alcohol) will be used to remove ear plug from leather punch or ear
- Ear plug will be placed in small tubes containing desiccant for storage
- Label each tube with eartag number, sex, date of capture, capture town.
- Each lynx will be equipped with numbered ear tags in each ear. Record tag numbers and tag color on data sheet.
- Hair will be collected by pulling hair taking care to remove hair with follicles.
- Hair will be placed in the supplied envelopes for storage. If hair is wet, let air dry in envelope before sealing.
- Each envelope will be marked with animals eartag number, sex, date of capture, and capture location (town).
- Standard morphological measurements will be taken. (See power point slides for specifics)

- Neck, chest, total length and weight are important for assessing condition of animal
- Ear tuft length, shoulder height, tail length, hind foot length (hock to tip of middle toe pad), are important for species identification (see graphic)
- Shoulder height is measured by extending the front leg and placing tape on tip of shoulder blade to rear edge of foot pad
- Examine female animals for sign of lactation, estrus, etc.
- Age will be estimated by examining dentition. Comments about tooth coloration, wear, and broken teeth will be recorded. Photographs can further aid in age determination.
- Describe pelage color and unique markings

Recovery

- Allow the animal to recover in a location with concealing cover, away from hazards such as roads, waterways or puddles, or set traps.
- Place animal in position that assures an open airway, with head at slightly lower elevation than body to prevent aspiration of fluids.
- Retain eye covering loosely, so animal can remove as it begins to recover.
- Administer reversing agent (Antagonil, Yohimbine, etc.) following suggested drug dose on bottle. Can be given IV or IM using a 12-gauge needle 45 minutes after lynx is given xlyazine. Use a fresh needle and syringe.
- Observe animal from a distance until it recovers fully, and record time when it stands. Do not attempt to hasten recovery by using loud noises or bright lights.

Equipment and Supplies:

Ketamine (200mg/ml)

Xylazine (400mg/ml)

Yohimbine (Antagonil)

Antibiotic (Dualcillin) (optional)

Syringes (1 and 3 cc) and needles (12 and 18 gauge)

Thermometer

Eye lubricant

Data sheets

2 eartags

eartag applicator

rubber gloves

tweezers

envelope for hair collection

dessicant tubes

leather punch

tape measure

camera

**REPORTING PROTOCOL FOR INCIDENTALLY TRAPPED LYNX FOR MAMMAL GROUP
STAFF**

1. After receiving the phone call of an incidentally trapped lynx Bangor staff notifies USFWS Special Agents, Maine Warden Service, and regional staff (if necessary) that we will be responding to a call.
2. Bangor staff immobilizes the lynx following chemical immobilization protocols, collects biological information, checks the animal for injuries, and completes the Incidental Catch Form as much as possible in the field (form is on following page).
3. A decision is made on whether to radiocollar the animal depending on its proximity to the lynx study area.
5. Mammal Group Leader, WRAS Supervisor, and Wildlife Division Chief are notified of the incidental take, if not done previously.
6. The Incidental Catch Form is completed and information entered into a database.

Lynx Incidental Capture Report**Report No. Yr-incident #****Name of Individual Reporting Capture:****Address/Phone # of Individual Reporting Capture:****Name of Biologist/Warden Responding to Report:****Type of Capture:***Set type:**Trap type and size:**Staking:**Bait:**Lure:**Visibility of Bait:***Location of Capture:****Wildlife Management District:****GPS Coordinates (UTM preferred):****GPS Map Datum (NAD 83 preferred):****Date/Time of Capture:****Disposition of Lynx:****Age/Sex:****Description of events:**

Report prepared by:

Report modified by: