

# MICHIGAN BLACK BEAR MANAGEMENT PLAN



**Michigan Department of Natural Resources  
Wildlife Division Report No. 3497**

**MICHIGAN**  
**BLACK BEAR MANAGEMENT PLAN**

Approved:

A handwritten signature in black ink, appearing to read 'Rebecca A. Humphries', is written over a horizontal line.

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## ACKNOWLEDGMENTS

The Michigan Department of Natural Resources (DNR) appreciates the valuable contributions offered by many individuals, agencies and organizations during the development of this plan.

We thank the thousands of Michigan residents who helped shape the content of this plan through their participation in public meetings held throughout the State and through the input and opinions they shared during public-comment periods and through communication with Wildlife Division field staff.

We express our appreciation to the members of the Michigan Bear Consultation Team for their dedication and hard work as they developed a set of recommendations to help guide bear management in Michigan. Those principles are directly reflected in the management strategies outlined within this document.

We extend a special thank you to Dr. Patrick Lederle, Kelly Siciliano Carter, Anna Hamilton, Danielle Sonier (DNR) and Jordan Burroughs (MSUE) for their assistance in the planning process.

We thank our Federal, State and Tribal agency partners for their cooperation in bear management and for the information and feedback they offered during the development of this plan.

Finally, we thank members of the DNR Bear Management Work Group (Dwayne Etter, Tim Reis, Terry Minzey, David Jentoft, Doug Wagner, Nik Kalejs, Larry Visser, John Niewoonder, Mark Boersen, John Cischke, Dick Shellenbarger, and Julie Oakes), whose sustained efforts to coordinate all phases of the planning process have resulted in the production of this document. The plan was compiled by Adam Bump.



A contribution of Federal Aid in Wildlife Restoration, Michigan Project W-147-R

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# 1. INTRODUCTION

## 1.1 Purpose of Plan

This plan provides strategic guidance for the management of black bears (*Ursus americanus*) in Michigan. This guidance will help: 1) maintain a sustainable Michigan bear population; 2) facilitate bear-related benefits such as hunting; 3) minimize bear-related conflicts; and 4) conduct science-based bear management with socially acceptable methods.

The Michigan Department of Natural Resources (DNR) has the primary responsibility and statutory authority for the management of resident wildlife in Michigan. Accordingly, this plan was developed primarily to guide the DNR's management of Michigan's only bear species: the American black bear. This plan may also provide guidance to other Federal, State and Tribal agencies and private organizations. Consequently, it may encourage cooperation and consistent approaches among partners in their efforts to manage bears in Michigan.

This plan does not outline operational details of bear management in Michigan. Operational details will be specified within an adaptive-management framework in which specific management methods are routinely adjusted and updated as local conditions, technology, regulations, and other aspects of management change. This adaptive management approach will be implemented through the established bear management regulatory framework outlined in this document. However, some operational recommendations for change will be presented to the Natural Resources Commission (NRC) for consideration in conjunction with this plan. These recommendations were developed during the bear management planning process and are included as Appendix A.

## 1.2 Current Management Authority and Process

The DNR has a public trust responsibility for the management of all wildlife species and populations. Primary legal authority for wildlife management and regulation comes from the Natural Resources and Environmental Protection Act, Public Act 451 of 1994. Part 401 of Public Act 451 gives authority to the NRC and the DNR Director to issue orders (the Wildlife Conservation Order) specific to wildlife management and hunting.

In 1996, Michigan voters supported a hunting ballot initiative requiring the NRC to use "principles of sound scientific management" in making decisions concerning the taking of bear and other wildlife. This legislation gave exclusive authority to the NRC over the method and manner of take for game species. Following passage of the initiative, it was codified as Section 40113a of Public Act No. 451 of the Public Acts of 1994, MCL 324.40113a.

Scientific information is obtained from research, in-state surveys, and published literature. Social issues associated with bear-human interactions (both positive and negative) are also important factors that must be considered when making decisions regarding the harvest of bears

in Michigan. Qualitative social information is obtained from discussions with Tribal governments, stakeholders, DNR field staff, and other agency staff. Quantitative social information is obtained from surveys such as the annual “Michigan Black Bear Hunter Survey,” which asks questions pertaining to specific management options or objectives. Additional quantitative social information, not necessarily associated with hunting, is also obtained through surveys (e.g., Peyton et al. 2001).

Scientific management incorporates the concept of adaptive resource management, which is an iterative process by which changes in management actions (e.g., hunting regulations, or educational efforts) are evaluated to determine if these changes achieve management goals. Management efforts over time are modified as new information is obtained, new analyses are conducted, or factors that influence bear ecology change.

The current bear management program includes research to help understand the ecology of bears and social acceptance capacity of Michigan’s residents. In addition, the DNR provides information to the public about bears and technical assistance to landowners with unwelcome bear encounters. Sport hunting influences abundance of black bears, provides recreational opportunities, and is the primary tool used to manage the size and distribution of Michigan’s bear population.

Decisions about the management of bears in Michigan have historically followed a set of guidelines including extensive review of proposed recommendations by the Division’s Bear Work Group, field staff and Management Team prior to submission to the NRC. Recommendations are also discussed with interested bear user groups and the NRC process also includes open public comment. Despite the legal framework and procedural requirements for management of Michigan’s natural resources, there was a need for statewide strategic guidance for the bear management program. The last formal plan developed for Michigan’s black bears was in the mid-1980s. The lack of guidance was the primary reason for this planning process and development of this document. Input from interested stakeholders also expressed a need that the direction of the state’s bear management program needed review by Michigan’s citizens.

## **2. PLANNING PROCESS**

The DNR developed this plan through a process that included review of the best available scientific information and substantial involvement of affected stakeholder groups and the general public. The process included the following six phases:

- Intra- and Inter-Agency Scoping
- Public issue scoping meetings
- Review of science relevant to bear management in Michigan
- Michigan Bear Consultation Team
- Plan writing
- Public review and comment



The information compiled and evaluated during all of these phases was used to produce a plan that is based on sound science and careful and respectful consideration of the diverse perspectives held by Michigan's residents. These phases are described under the following headings.

## **2.1 Intra- and Inter-Agency Scoping**

At a local level DNR Wildlife Division regularly discusses potential bear regulations changes with other DNR Divisions. DNR staff also discusses bear management issues with Federal agencies through the Bear User Group and in joint meetings with Tribal Governments.

## **2.2 Public Issue Scoping Meetings**

In August 2008, the DNR hosted five public meetings to discuss bear management in Michigan. Two meetings took place in the Upper Peninsula (Crystal Falls and Newberry) and three meetings took place in the Lower Peninsula (Hillman, Cadillac, and Lansing). The purpose of the meetings was to provide the public with an opportunity to identify important issues and express opinions regarding bears and bear management in Michigan. A professional facilitator moderated each meeting. Participants were asked to complete a profile card, which asked how far they drove to attend and the types of issues they wanted to discuss.

Based on information obtained from sign-in sheets, at least 169 people attended the public meetings. Fifty-two of those individuals attended the Upper Peninsula (UP) meetings, and the remaining one hundred and seventeen individuals attended the Lower Peninsula (LP) meetings. One hundred and twenty people who attended the meetings submitted a profile card.

The DNR press release that announced the public meetings also announced a public-comment period during which people were encouraged to mail or email their bear-related comments. From July 21 through December 15, 2008, the DNR received approximately 66 emails and 5 letters that specifically dealt with bear management.

## **2.3 Review of Science Relevant to Bear Management in Michigan**

In 2000, Michigan State University and the DNR conducted an assessment of the social carrying capacity of bear in the LP. As the process for development of this strategic bear management plan was developed, the DNR felt that this survey driven study was current enough to function as an assessment of the public attitudes of Michigan residents regarding bears. For this reason, in addition to time constraints, the DNR did not conduct a new public attitude survey as part of this bear planning process.

Concurrent with the phases described above, the DNR developed a document entitled: *A Review of Bear Management in Michigan* (Appendix A and available on the DNR website at [www.michigan.gov/dnr](http://www.michigan.gov/dnr)). The document summarizes the best available biological and social science relevant to bears, bear-related issues, and bear management in Michigan. The information presented was obtained from published scientific literature, agency and university reports, unpublished agency data, and personal communication with bear experts.

Science provides information so that managers can formulate management actions with some knowledge about projected outcomes of these actions. However, science alone does not establish wildlife management goals. Those goals are often determined within a social context where stakeholder values and priorities must be addressed as well. Accordingly, *A Review of Bear Management in Michigan* does not provide answers to questions of how bears should be managed in Michigan. Rather, it provides the best available science to managers for making informed recommendations while facilitating understanding of the potential consequences of particular management approaches.

## **2.4 Michigan Bear Consultation Team**

To help develop a plan that is acceptable to a wide range of stakeholder interests, the DNR convened an advisory committee called the Michigan Bear Consultation Team (BCT). Participants included 18 agencies and organizations (see Appendix B). Each organization on the BCT was selected to encompass the wide variety of views of all Michigan residents in a fair and effective manner. These interests included environmental, ecological, recreational hunting, agricultural, public-safety, and Tribal. Membership included UP and LP residents.

In October and November 2008, the BCT met on three occasions (five full days) to review, prioritize, and discuss bear management issues. The BCT discussed important bear-related issues, reviewed relevant social and biological science, and engaged in intense negotiations to reach consensus on a set of recommendations for bear management in Michigan.

The BCT submitted its final report (*Recommendations for Bear Management in Michigan*) to the DNR Director in December 2008. This report outlines recommendations pertaining to bear abundance and distribution, management of bear user group related conflicts, management of bear and human conflicts, and information and education (Appendix B).

## **2.5 Plan Writing**

Between November and December 2008, the DNR evaluated the information and recommendations obtained during the previous phases to develop a draft of this plan. DNR Bear Work Group, Tribal biologists, and the BCT reviewed the draft prior to its public release.

## **2.6 Public Review and Comment**

In January 2008, the DNR released a draft of this plan for public review and comment. A series of five meetings were held in January and February to provide an overview of the Plan and receive public comment on the Plan. Meetings were held in Crystal Falls, Newberry, Hillman, Cadillac, and Lansing. Additionally, the DNR accepted comment through email and in writing. The Plan was available on the internet and press releases were distributed to notify the public of their opportunity to comment. During the comment period, agencies, organizations and individuals submitted approximately 38 emails and 15 hard-copy letters that offered comments on the draft plan. Based on those comments, the DNR modified the plan, as appropriate, prior to its final approval.

### **3. BEAR BIOLOGY AND ECOLOGY**

#### **3.1 Physical Description**

In the Upper Great Lakes Region, most black bears have black or extremely dark brown fur. Other color variations including brown, cinnamon, grayish-blue, and blonde are found mostly in western North America (Baker 1983). Color is generally uniform except for a brown muzzle and occasional white blaze on the chest (Ternent 2005).

Average adult black bears stand less than three feet tall at the shoulder and are approximately three to five feet in length. Males are typically larger than females. Adult female black bears weigh approximately 90 to 300 pounds, and adult males weigh about 130 to 500 pounds. All bears tend to gain weight in the fall and lose weight during the winter period of inactivity (Ternent 2005). However, despite losing up to thirty percent of their fall body weight in the winter, most bears emerge from dens in the spring in relatively good condition (Gerstell 1939, Alt 1980).

#### **3.2 Social Structure and Behavior**

Black bears are solitary animals with the exception of females accompanied by cubs or yearlings, and during the breeding season when mature males and females can be seen together. Bears establish and maintain a dominance hierarchy by using threatening gestures and sounds including stamping feet, charging, huffing and chopping jaws (Rogers 1977). Fights among bears are uncommon except by males during the breeding season when they are competing for females or when females are protecting young (Ternent 2005). A communal rubbing tree where bears rub, bite and claw is another form of communication and these trees are assumed to be used as part of the process of establishing a social structure within the population. Tree rubbing peaks during the summer and multiple bears may mark the same tree (Ternent 2005).

Black bears enter a period of winter dormancy for up to six months as an adaptation to food shortages and severe weather conditions. In Michigan, bears typically enter the den by December although time of denning varies annually depending on food availability. Pregnant females tend to den first and adult males are the last to den. Den emergence typically occurs in late March and April; adult males generally leave dens earlier than females, and females with newborn cubs generally emerge last (Rogers 1987a, O'Pezio et al. 1983).

Unlike true hibernators who have body temperatures that drop to near ambient conditions, black bear body temperatures decrease only slightly to 31-36°C from a normal range of 37-38°C (Folk et al. 1972 and 1976). Heart rates and metabolism decrease in the den and although they appear lethargic, bears are easily awakened and capable of fleeing immediately if they feel threatened. Bears do not eat, drink, or defecate during winter dormancy and basic protein and water needs are partially met by recycling urea, while other adaptations such as shivering and nutrient recycling reduce the loss of muscle tone and bone density (Ternent 2005).

Black bears use a variety of den locations and generally select sites that minimize heat loss and allow conservation of energy. Dens may be excavated or constructed as ground nests. Bears will also den in rock cavities, root masses, standing trees, openings under fallen trees, and brush piles. Dens are often lined with dead grass, leaves, and small twigs. Locations vary from year to year; however, the occasional reuse of dens has been documented in Michigan.

### **3.3 Reproduction and Growth**

Generally, female black bears are sexually mature at three to five years of age (Pelton 1992), yet are known to breed at two years of age in the Northern Lower Peninsula (NLP) (Etter et al. 2002). Sows from the NLP typically bred earlier (two to three years of age) and have above average litter sizes (2.6 cubs per sow) compared to sows from other Midwestern states (Bunnell and Tait 1981, Etter et al. 2002, Rogers 1987a). Males are sexually mature at two years of age but typically do not participate in breeding until four to five years of age (Ternent 2005).

Breeding season for black bears occurs during the summer, the peak being from mid-June to mid-July (Alt 1982 and 1989). Females exhibit delayed implantation (Wimsatt 1963); eggs are fertilized immediately but development is suspended at the blastocyst stage. In Pennsylvania, implantation typically occurs between mid-November and early December (Kordek and Lindzey 1980). Delayed implantation postpones any nutritional investment until after the critical fall foraging period (Ternent 2005). If a fall food shortage results in a reduction in fat reserves the blastocysts can be absorbed. A reduction in nutritional investment in a poor food year allows the female to breed again the following summer if nutritional resources are more favorable (Ternent 2005).

Cubs are born helpless and hairless, typically in January while females are in the den. Cubs weigh 10 to 16 ounces at birth but because of high fat contents in their mother's milk, they grow quickly (Ternent 2005). By the time the female and cubs exit the den (generally late April), the cubs weigh between five and nine pounds. By the end of their first summer, cubs typically weigh 50 to 60 pounds. Cubs stay with their mother for about a year and a half, denning together the winter after birth and separating in late May the following spring. Adult females typically breed every other year.

### **3.4 Causes and Rates of Mortality and Disease**

Black bears are relatively long lived, and disease and starvation contribute little to adult bear mortality. Black bears in Michigan have few natural predators and are rarely killed by wolves in the UP (DNR, unpublished data). Most recorded mortality in Michigan is from hunting or vehicle collisions.

Intestinal parasites such as roundworms and tapeworms are common in bears but they rarely interrupt digestion or affect nutrition (Quinn 1981). The tissue parasites *Toxoplasma gondii* and *Trichinella spiralis* are found in black bears but are not thought to cause mortality (Schad et al. 1986, Briscoe et al. 1993, Dubey et al. 1995).

Bovine tuberculosis has been detected in bears in northeastern Lower Michigan, an area known to have bovine tuberculosis (TB) in the white-tailed deer herd. From 1996-2003, 3.3 percent (7 of 214) of bears tested from this area were positive for bovine TB (O'Brien et al. 2006). Bears likely contract this disease while feeding on carrion or deer gut piles left behind by hunters. Bears that test positive for bovine TB do not show the physical signs (e.g., lesions in the lungs) of the disease. Bears likely serve only as a dead end host and not as a source of infection for other animals or humans (O'Brien et al. 2006).

In Michigan, black bears have been known to live up to 28 years of age (DNR, unpublished data). Annual survival for yearling and older bears in Michigan's NLP was 78 percent and hunting accounted for nearly 60 percent of annual mortalities (Etter et al. 2002). Overall cub survival for the NLP was 75 percent and within the range reported by other studies (Kasbohm et al. 1996, DeBruyn 1997, McLaughlin 1998). However, cub survival varies annually and has been linked to the availability of natural foods, particularly soft and hard mast (Jonkel and Cowan 1971, Rogers 1976, Young and Ruff 1982). Additionally, cub mortality occurs at a higher rate in a sow's first litter than in subsequent litters (McLaughlin 1998).

Human-related mortality (e.g., hunting, vehicle collisions), is the primary source of mortality for black bears in Michigan (Etter et al. 2002) and across North America (Bunnell and Tait 1981, Schwartz and Franzmann 1992). Mortality rates for males are typically greater than females (Hamilton 1978, Bunnell and Tait 1981, Hellgren and Vaughan 1989) and are associated with greater vulnerability of males (particularly yearlings) to human and natural mortality factors (Bunnell and Tait 1981, Rogers 1987a).

Motor vehicle-bear collisions account for 14 percent of bear mortalities in the NLP (Etter et al. 2002); the frequency of these events increases with increased bear density, human populations, and traffic volume. However, other factors (e.g., habitat and natural food availability) likely contribute to localized and seasonal variation in vehicle-bear collisions.

### **3.5 Home Range, Movements and Activity**

Black bears shift activity patterns seasonally in response to the availability of food. The area that a bear occupies seasonally or annually is referred to as its "home-range." The size of home-ranges typically varies by the sex and the age of the bear. The home-range size of a mature female is influenced by whether or not she has cubs. Females with newborn cubs have smaller home-ranges that gradually increase as cubs mature (Ternent 2005). Annual male home-ranges are generally larger than females. In Michigan, mean annual home-range size for males and females were among the largest reported for the species (Etter et al. 2002). Females in the NLP had an average home-range size of about 50 square miles, and males had an average home-range size of about 335 square miles. Home-ranges of female bears generally overlap, but overlap of mature male home-ranges is less common. The home-range for a single adult male may encompass several female home-ranges. Young males disperse away from their natal home range before establishing a new territory, whereas young females are less likely to disperse and sometimes occupy areas that include portions of their mother's home-range (Ternent 2005). In the NLP, 32 percent of radio-collared yearling females dispersed from their natal home range

and 95 percent of radio-collared yearling males dispersed from their natal home-range (Etter et al. 2002). Male bears dispersed an average of 14 miles in Pennsylvania (Alt 1977 and 1978).

Black bears are most active at dusk and dawn. Nocturnal activity is uncommon, but may occur if bears are avoiding daytime disturbance by people (Ternent 2005). Black bears can travel long distances to exploit concentrated food sources such as soft and hard mast, human refuse, and agricultural crops (Garshelis and Pelton 1981, Rogers 1987b). Activity intensifies during the breeding season and again in the late summer and fall when foraging increases.

### **3.6 Bear Food Habits**

Black bears are omnivorous and opportunistic feeders, using both plant and animal matter. Approximately 75 percent of their diet consists of vegetation (Ternent 2005). In early spring, bears frequent wetlands feeding on plants such as skunk cabbage, sedges, grasses, and squawroot (Ternent 2005). Fruits and berries are important during summer and fall, including blueberry, elderberry, blackberry, June berry, pokeberry, wild grapes, chokecherry, black cherry, dogwood, and hawthorn. Hard mast from oaks, beech, hickory, and hazelnut become important in the fall as bears accumulate significant fat reserves for the winter. Bears feed heavily in the fall and can gain as much as one to two pounds per day. Bears are capable of doubling their body weight between August and December when mast is abundant (VDGIF 2002). When fall foods are scarce, bears tend to den earlier.

The majority of animal matter consumed by bears includes colonial insects and larvae such as ants, bees, beetles, and other insects (Pelton 1992). However, bears are opportunistic feeders and they are capable of preying on most small to medium sized animals including mice, squirrels, woodchucks, beaver, amphibians, and reptiles. Under certain conditions bears may actively hunt for newborn white-tailed deer fawns. In north-central Minnesota, 86 percent of fawn deaths from birth to 12 weeks of age were caused by predators and bears accounted for 29 to 36 percent of the kills (Powell 2004). Bears in Pennsylvania accounted for 25 percent of fawn mortalities to 34 weeks of age (Vreeland 2002). When available, bears also feed on carrion.

Human-related foods include agricultural crops (e.g. corn, apples, peaches, and cherries), apiaries, bird feed, and garbage. Pet and some livestock foods are sometimes eaten by bears, especially when readily available or in years when natural food supplies are poor.

### **3.7 Bear Habitat**

Black bears are most frequently found in large, heavily forested areas. In Michigan, bears tend to use a mixture of vegetation cover types including deciduous lowland forests and coniferous swamps, mature and early-successional upland forests, and some degree of forest openings consisting of grasses and forbs. Diverse forests are prime habitat as they provide the variety of cover and food sources that bears require to meet their seasonal needs.

Forested swamps and regenerating clear cuts provide much of the escape and resting cover bears require. Mature upland forests provide hard mast (e.g., acorns, beechnuts, hickory nuts, hazelnuts), while early successional forests provide soft mast (berries) and diverse herbaceous

ground flora. Forest openings are important for food resources such as emerging grasses, herbaceous vegetation, insects, and soft mast.

As black bears continue to move into the Southern Lower Peninsula (SLP), it has become clear they can inhabit a highly fragmented landscape, provided some forested areas exist, especially along riparian zones (Carter 2007). Black bears are also becoming more common in suburban and exurban areas throughout their range (McConnell 1997, Lyons 2004, Wolgast et al. 2005, Beckman and Lackey 2008). Some aspects of human activity contribute to suitability of these areas including abundant food from row crops, orchards, apiaries, bird feeders, and human refuse.

## 4. BEARS IN MICHIGAN

### 4.1 History

Bears have been part of the Great Lakes fauna likely since the melting of the last glacier and as such are native to the land area known as Michigan. Bears existed in most of the forested habitat in the Great Lakes region prior to European Settlement (Baker 1983).

Throughout the history of aboriginal peoples of present-day Michigan, bears figured prominently in tribal culture and beliefs. To help illustrate those values and beliefs held by many Native Americans in Michigan, the following contribution was provided by Jimmie Mitchell Natural Resources Department Program Director for the Little River Band of Ottawa Indians:

*"The indigenous peoples of the Great Lakes Basin (the Aníshinaábek) continue to revere the Bear as a species closely mirroring their own in both a physical and spiritual nature.*

*The Bear is believed to possess the healing knowledge of the medicines associated to the Aníshinaábek who have utilized them to treat nearly every disease and ailment known to mankind throughout the ages.*

*The Aníshinaábek also have a society of people known as the Bear Clan, "Mkwa Dodem" which translates into the English language as "I possess the heart of the Bear."*

*Mkwa Dodem people rely on the characteristics of the Bear to guide them throughout their life with the social responsibilities associated to their clan. Among many qualities, Bear Clan people are typically known as the messengers, the protectors of the people and also carry out traditional healing practices through the use of indigenous ethnobotany.*

*Given this brief explanation of the Bear and its interconnectedness to the Cultural practices of the Aníshinaábek, the indices driving Tribal Bear management have differing priorities than those used in recreational harvest initiatives.*

*One of the most profound of these priorities is in the cultural interaction found between Bear and Aníshinaábek youth during their time of vision quest. It is our belief that the Bear brings guiding principles to Aníshinaábek who go out into the wilderness and fast during this coming of age ceremony.*

*In areas where Bear populations have become extirpated, this significant rite of passage is no longer possible. The effects of diminished and extirpated Bear Populations hinder our ability to exercise our cultural practices that are as old as human existence.*

*The Tribes recognize the diverse interests associated with Bears. It is the Aníshinaábek intention to strive towards a balance that ensures that all reasonable interests in Bear interactions are respected, while at the same time, equally and fully realized by all.”*

Bears were typically treated as pests by early European settlers arriving in Michigan. Bears were unprotected in the state until 1925. However prior to 1925, some records were kept in county files and these records indicated a range of one to 59 bears were reported killed each year between 1856 and 1915. A history of bear hunting after 1925 is presented later in this document.

#### **4.2 Current Population Status and Range in Michigan**

Bear populations in Michigan have been steadily increasing since at least the 1990s (Figure 1). An estimated 19,000 bears (including cubs) occupy approximately 35,000 square miles of suitable bear habitat in the UP and NLP. Greater than 85 percent of the bear population resides in the UP where large tracts of state, federal, and private commercial forest lands contain good to excellent bear habitat. Bear populations in both Peninsulas are believed to be stable to increasing, and an increasing number of bear observations in southern Michigan suggest that bears are expanding from the NLP into the SLP.



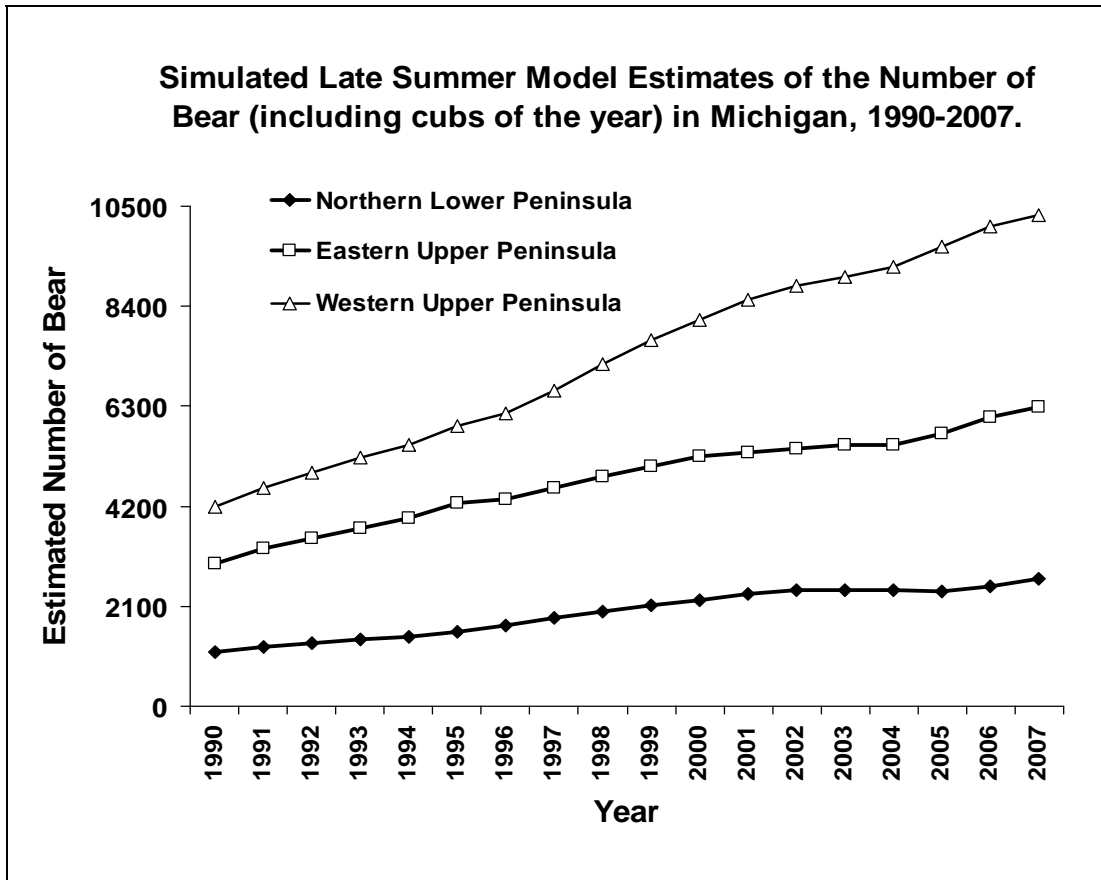


Figure 1. Simulated late summer model estimates of the number of bear in Michigan, 1990-2007.

Black bears are relatively common north of a line from Muskegon to Saginaw. Bears are less common and in some cases likely only seasonal transients in much of the area south of this line. A simulated model of preferred bear habitat indicates that less than three percent of the landscape in southern Michigan is suitable for black bears (Carter 2007). However, this model was based on data collected from radio-collared bears that resided in the NLP and may not fully describe the potential for bears to become established in southern Michigan. For example, bear populations are expanding and growing rapidly in New Jersey, the most densely populated state in the nation (McConnell 1997). Bears living on the fringes of suburbs in Southern California have altered their foraging times to later at night when human activity is minimal (Lyons 2004). Based on these references and an increasing number of bear observations, southern Michigan may provide better bear habitat than predicted by the simulated model.

### 4.3 Bear Hunting in Michigan

Sport hunting of black bears was first regulated in 1925 when the Michigan legislature declared the species a game animal. Prior to 1925, bears could be taken at any time and by any means. In 1939, the legislature rescinded statewide bear regulations, but authorized the Conservation Commission (now the NRC) to grant protection for bears in counties requesting it. Using bait for bear hunting has always been legal in Michigan and hunting bears with dogs became legal in 1939. Cubs were first protected in 1948, and in 1952 the legislature empowered the NRC to

open or close bear hunting seasons as necessary, and to prescribe methods of take. Also in 1952, bear trapping was outlawed except under special permit.

In general, bear hunting opportunities coincided with the firearm deer hunting season through 1952. The first and only spring bear season (April 1-May 31) was held in 1953. Early (August 15-September 15 in the UP, and October 1-November 5 in the LP) and late fall (November 15-30) hunting seasons were established and continued through 1964. In 1965, bear hunting was closed in the NLP due to concerns about a declining bear population. Limited hunting opportunities in the NLP resumed in 1969.

The first bear hunting stamp (license) was issued in 1959. However, only small game license holders who were interested in hunting bear were required to affix the stamp to their license. The stamps were issued through 1963. From 1959-1963, firearm deer license holders were not required to possess a stamp to harvest a bear during the firearm deer season. During the 1964 and 1965 seasons, a separate bear license was required of all bear hunters. Again, between 1966 and 1979, firearm deer license holders were not required to possess a stamp to harvest a bear during the firearm deer season. It was not until 1980 that a separate bear license was required. In 1990, bear hunting was placed under a zone and quota system which is still in use today and during the same year it became illegal to take bear during the November firearm deer season.

When regulated, the bag limit has been one bear per year per person in Michigan. Beginning in 1995, it became unlawful to take a female bear accompanied by cubs. Hunters in Michigan usually use bait, dogs or a combination of both to pursue bear (Frawley 2008).

Ecological regions (Eastern Upper Peninsula {EUP}, Western Upper Peninsula {WUP} and NLP) are presently divided into 11 zones called Bear Management Units (BMUs). BMUs help distribute hunters and the bear harvest throughout the entire ecological unit, rather than allowing hunters to target animals only in optimal habitats. By distributing hunters throughout the ecological region, BMUs also help to assure that biological information obtained from harvested bears is representative of the entire region's population. Boundaries of BMUs typically are established as clearly recognizable roads, rivers or county lines for the benefit of hunters and to assist with law enforcement.

The quota system was established to limit the number of bear hunters and to better influence the distribution and density of hunters in the different BMUs. Under the quota system, the number of hunters participating in each unit and hunt period is limited by the number of licenses issued to achieve a desired bear harvest but still maintain a high level of recreational opportunity. Under this system, individuals who apply for a bear license receive a preference point each year they apply for a bear license but are unsuccessful at drawing a license. In the drawing, applicants with the greatest number of preference points in each BMU and hunt period are issued licenses first. Applicants may opt to receive a preference point only and bank the point for future drawings. Applicants may also indicate a second hunt choice, which is considered if all licenses for the first hunt choice are awarded. The second hunt choice was established to provide additional hunting opportunities and meet the desired harvest levels.

Black bear populations have increased over the years (Figure 1), leading to more hunting opportunity and increased license availability. During the same period, there has also been an increase in the number of bear hunters (Frawley 2008). This has led to increased competition for licenses in some BMUs. Odds of drawing a license are specific to each BMU and hunt period. The number of hunters applying for licenses increased most years from 1990 to 2004, but has been relatively stable for the last four years.

The timing and length of bear hunting seasons varies throughout the state in order to achieve desired harvest levels, while at the same time providing ample recreational hunting opportunities. Additionally, the number of hunters who desire to hunt in a particular region also varies. In general, bear hunter demand is highest in BMUs with a combination of high bear densities and close proximity to higher human populations. Currently, bear hunting seasons occur in mid-September in the NLP and from September 10 through October 26 in the UP. There is also an archery-only season in early October in the Red Oak BMU in the NLP. The season in the UP is arranged in three overlapping hunt periods. The first hunt period has a five-day quiet period from September 10-14 during which dogs may not be used. These seasons were determined over time using a combination of biological and social factors.

## **5. BEAR MANAGEMENT GOALS**

The plan has four principal goals: 1) maintain a sustainable bear population; 2) facilitate bear-related benefits such as recreational hunting; 3) minimize bear-related conflicts; and 4) conduct science-based bear management with socially acceptable methods.

To achieve these goals, the DNR must consider the complex interactions of many biological factors and implement measures that assure adequate protection and conservation of the species. At the same time, it must also address the many complex and often controversial social issues that accompany bear management. In consideration of the biological and social aspects of bear management, the DNR uses a “nested” approach to bear population management. First, the DNR manages to ensure the bear population remains within biological parameters. That is, the population remains high enough to be sustainable, yet does not exceed a level that will cause biological problems among bears or significant population level impacts on other species’ either directly or through habitat modification. Second, social considerations, needs, and values are used to determine where, within upper and lower biological boundaries, bear populations should be managed.

Stakeholder groups often have disparate or opposing views and needs regarding bear management. This plan reflects efforts to identify an appropriate balance among the biological needs of the species, the benefits bears provide to some segments of society, the costs they impose on others, and the acceptability and feasibility of particular management methods.

### **5.1 Maintain a Sustainable Population Within Biological Carrying Capacity**

#### **5.1.1 Sustainable Population**

As a baseline goal for bear populations in the state of Michigan, the DNR will ensure that bear populations persist within Michigan. The DNR will also strive to keep bears under the biological carrying capacity for the state. The concept of biological carrying capacity proposes the abundance of any wildlife species is limited by the ability of the available habitat to support the population.

Biological carrying capacity is determined by habitat components such as food, water, shelter and space, and addresses the maximum population size that can be sustained under varying availability of these factors. It can be influenced by bear social behavior which is influenced by bear density. If a population is at biological carrying capacity, bear productivity may be reduced because of later ages of first reproduction, longer intervals between litters, smaller litter sizes, and decreased cub and yearling survival rates. The high productivity and low natural mortality rates observed for bears in Michigan suggest that the bear populations are below biological carrying capacity.

Infanticide (killing of offspring by adult males) is common in bear populations that exceed biological carrying capacity (Czetwertynski et al. 2007, Garrison et al. 2007). This behavior has not been identified for bears in Michigan suggesting that bear populations have not exceeded biological carrying capacity. In addition, no “threshold” population level has been identified for bears below which the population will not be able to recover. While it is likely some such a level exists, the lower end of bear social carrying capacity in Michigan (Peyton et al. 2001) is well above such a limit and populations will be maintained above the lower social carrying capacity limit. Populations will be monitored regularly (See 6.4) to track population trends on a regional basis to ensure bear populations are not approaching either the biological carrying capacity or an unsustainably low population. However, it is unlikely that bear populations will ever approach either biological extreme due to social desires for bear population levels. Exceeding a biological carrying capacity for bears would be detrimental to the health of bears as well as other wildlife and the natural communities of which bears are a component. Maintenance of a bear population within these two limits is in the best interest of bears and other natural resources in the state.

Therefore, the bear population will be maintained within those biological levels at a point that best balances bear-related benefits and conflicts (see 5.3). This plan does not identify a target population size, nor does it establish an upper limit for the number of bears in the State. As a result, public preferences regarding levels of positive and negative bear–human interactions will strongly influence bear abundance and distribution in the state.

## **5.2 Facilitate Bear-Related Benefits**

### **5.2.1 Benefits Valued by Michigan Residents**

Many Michigan residents value the diverse benefits derived from the presence of bears (Peyton et al. 2001). Most of those benefits fall within four general categories.

#### *Existence Value*

For survey respondents in the LP, just knowing bears exist in nature and in their area was the most important benefit of bears in Michigan. Over 60 percent of respondents in all areas of the

LP felt this was “very important” or “somewhat important” (Peyton 2001). In addition, many Native American communities in Michigan value bears as an intrinsic spiritual component in the reaffirmation and continued viability of their own cultural well-being. Many other people value bears for reasons that are based on personal or religious convictions.

#### *Ecology: the role bears play in nature*

As potential top predators bears fill an important ecological niche. Bears are primarily large omnivores that require large areas of diverse habitat to supply the food they need. Reliance on such a broad spectrum of habitat makes bear populations an indicator of environmental health. In addition, 54 to 67 percent of Michigan residents, depending on area of the state, who responded to the most recent public-attitude survey believed the “role bears play in nature” was an important benefit of bears in Michigan (Peyton 2001). During it’s discussions, the BCT stressed the importance of bears as a critical ecological component.

#### *Recreational viewing opportunities*

The presence of bears in Michigan provides a unique opportunity for people to interact with and experience a particular component of the natural world. The opportunity to personally observe, photograph or study bears in the wild may be restricted to a relatively small proportion of residents, but the option for those residents to have those experiences is highly valued by society. Recreational viewing opportunities were ranked by over 50 percent of interested survey respondents throughout the LP as a “very” or “somewhat” important reason to have bears in the State (Peyton 2001).

#### *Recreational Hunting*

Bears are an important big-game species in Michigan. Over 12,000 individuals pursue bears each year. Over 55,000 individuals apply each year for a bear hunting license. Bear hunting is a valuable tradition in the state. Hunter harvest is the primary tool used by the DNR to maintain bear populations at desired levels. Over 77 percent of NLP respondents felt bear hunting was an important tool that should be considered when managing bears in Michigan whether they were hunters themselves or not (Peyton 2001). However when asked about specific benefits to themselves only approximately 25 percent of LP respondents indicated hunting as a benefit of having bears in their area.

### **5.3 Minimize Bear-Related Conflicts**

#### 5.3.1 Need to Minimize Conflicts

Although the bear population offers benefits as described above, it also poses significant costs and concerns for some Michigan residents. These costs include damage to apiaries, orchard and other crops, losses of domestic animals, anxieties over the presence of bears near residential or recreational areas, and concerns over the impact bears may be having on populations of game species. Given the unequal distribution of bears in the State and the nature of certain types of conflicts, all segments of society do not tolerate these costs equally; the presence of bears represents a greater challenge for some groups of Michigan residents than others. Left unaddressed, sources of conflict can foster the development of negative public attitudes toward

bears, and those negative attitudes can lead to adverse impacts on bear distribution and abundance.

Bear-human conflicts can take many forms. Significant damage can occur to apiaries, sometimes exceeding \$20,000 in damages in a single year to a single beekeeper (Hilbert personal communication). Conflicts also occur with individuals sustaining damage to bird feeders and other personal property, generally from bears attempting to enter a building to access foods. The risk and frequency of conflicts still influences human views and tolerance of bears and public support for a population of any large, potentially destructive animal depends, in part, on confidence that conflicts will be resolved in a timely and effective manner. Such resolution would allow people to tolerate greater abundance and distribution of bears on the landscape (Cotton 2008, Lemelin 2008, Peyton et al 2001). By contrast, a failure to address conflicts can foster negative attitudes that lead to adverse impacts on bear distribution and abundance. Thus, effective management of bear-related conflicts assists affected stakeholders and the bear population as a whole.

Most Michigan residents recognize the importance of addressing bear-related conflicts (Peyton 2001). The most-recent public-attitude survey showed between 71 percent (Muskegon/Grand Rapids area residents) and 91 percent (LP residents that hunt) of interested respondents would support regulated hunting to manage the bear population in their area.

### 5.3.2 Effective Conflict Management

Setting numeric goals for bear abundance at large geographic scales (e.g., the entire State, the entire UP, ecoregions) is not necessary or effective for addressing most bear-related conflicts. Broadly based abundance goals may not reflect the unequal distribution of bear habitat, human activity and the potential for positive and negative interactions in local areas. Moreover, bear numbers alone do not necessarily predict the frequency of certain types of interactions. In an area of abundant natural foods and few human residences a large number of bears could cause a relatively low level of negative interactions. Conversely, a small number of bears could create an unacceptably high level of negative interactions in local areas where natural foods are scarce or where human population density is high. Management driven by broad numeric abundance goals would not necessarily reduce negative interactions, could unacceptably restrict positive interactions desired by the public, and could promote an inaccurate public perception regarding the relationship between bear numbers and the risk of conflict.

Previous management experience indicates most bear-related conflicts can be best handled on an individual basis. Conflicts in local areas are often caused by the behavior of a few individual bears, and management at small scales can often address problems effectively. To the extent it is expected to be effective and logistically feasible, management under this plan will be conducted to prevent and minimize conflicts on a case-by-case basis. Currently the DNR uses a protocol for handling negative bear-human interactions, which is detailed in the *Michigan Problem Bear Management Guidelines* (Available online at [www.michigan.gov/dnr](http://www.michigan.gov/dnr)). This protocol was reviewed by the BCT and was viewed as an acceptable method for dealing with localized bear-related conflicts with a few recommended modifications (See 6.7). The BCT also produced

recommendations for mid-scale management to deal with localized regions that have bear-related conflicts (See 6.1.3, 6.4.1 and 6.4.3).

#### **5.4 Conduct Science-Based and Socially Acceptable Management**

Science provides information so that managers can formulate management actions with some knowledge about projected outcomes of these actions. It is thus a tool of primary importance for identifying those actions that could effectively achieve particular wildlife management goals.

Science can identify probable outcomes of particular management approaches, but as an objective process, it does not prescribe subjective values to those outcomes. Rather, the desirability or acceptability of any outcome depends on the values of affected stakeholders. Moreover, when disagreements originate from differences in values rather than questions of fact, consideration of the available science alone will not be sufficient to resolve conflict. Consequently, a process of social deliberation is often necessary to determine which science-based management approaches are acceptable to individual stakeholder groups and society at large.

This plan outlines approaches for managing many bear-related issues. These approaches were chosen, in part, based on scientific evaluation of their potential impacts to the bear population, their feasibility, and their probability of success. In addition, they were chosen because we believe them to be acceptable to most Michigan residents based on previous public opinion surveys and other interactions with the public. They are not expected to satisfy everybody; indeed, satisfying everybody with any single bear management approach is not possible. However, these approaches directly reflect the guidance collectively offered by the diverse interests represented on the BCT.

### **6. BEAR MANAGEMENT STRATEGIES**

The following bear management strategies are recommended for implementation to achieve the principal goals of the bear management plan. They provide guidance for the management of several bear-related issues at the strategic level. The ensuing headings indicate strategic goals (in bold; e.g., **6.1**), objectives (underlined; e.g., 6.1.1) and actions. They partition broad needs into manageable segments, and thus provide a structure for addressing individual management issues.

#### **6.1 Use Hunting as the Primary Tool for Maintaining a Sustainable Bear Population Within Social and Biological Limits**

Management efforts should focus on maintaining statewide bear populations at levels which are within biological and social carrying capacities. The DNR will use hunting as the primary means by which bear populations are maintained at acceptable levels. There are numerous hunting season structures that may be utilized. Many of the issues that were brought up at the issue scoping meetings and through other formats were related to season structure. The DNR used input from the BCT when evaluating season dates and structures as well as other bear population

management components (eg., bear management unit boundaries, etc). The BCT supported the current hunting season regulations with a few exceptions described below (See 6.2.1).

#### 6.1.1 Encourage agency and public participation in development of harvest strategies and regulations.

Each year, population estimators, indices, and models are updated by the state bear specialist and research biologist. This information is forwarded to members of the Bear Management Workgroup, Management Unit Supervisors (MUS), Tribal governments in the 1836 ceded territories, and other interested agencies. Workgroup members and supervisors meet with the wildlife habitat biologists in their respective areas to assess the status of local bear populations and determine harvest levels necessary to manage populations at desired levels. They discuss any issues relevant to bear management that would require changes to regulations. Government-to-government consultations with the 1836 Treaty Tribes are conducted to discuss harvest quotas and any proposed regulations changes. Additional meetings with US Forest Service or other agency biologists may occur to exchange information and discuss management issues of particular interest to these groups. Further, the DNR receives feedback and information on bears and bear management on a continual basis from user groups, agricultural groups, and the general public. Perceived or measured social tolerance (which varies geographically) is given strong consideration when making harvest recommendations.

#### *Actions:*

1. Continue to use an internal DNR Bear Work Group to develop and evaluate bear regulations and to discuss current bear management issues.
2. Discuss bear harvest strategies with other divisions, agencies and the Tribes on a regular basis.
3. Maintain the Bear User Group or a similar form of public involvement to provide for public input on bear management issues, especially those that relate to bear hunting.

#### 6.1.2 Maintain bear populations at desired levels through a tiered management approach that uses eco-regional goals as well as bear management unit objectives.

After taking all of the available biological and social information into consideration, and weighting the factors appropriately for their management unit, MUSs forward to the field coordinator and statewide bear specialist their regional population trajectory recommendations (e.g., increase, decrease, or stabilize the regional population) and any other proposed changes to bear hunting regulations. The bear specialist reviews these recommendations in the context of statewide issues and needs related to the desired bear program direction. Any conflicts are moved to the species section supervisor and field coordinator for resolution. The regional (EUP, WUP or NLP) bear population model is used to determine the level of harvest required to achieve these goals. This harvest level is termed the “desired harvest” and is represented by the



number of bears in a region that would have to be harvested during the hunting season in order to allow the population to reach the population trajectory goal.

*Actions:*

1. Establish eco-regional population trend goals for 3 regions (West UP, East UP, NLP) on an annual basis. Trend goals should be based on model trends and should balance the bear population with social factors in the region.
2. Distribute harvest among bear management units based on localized population-level indicators including, but not limited to, harvest-effort information, bear-human conflicts, and hunter satisfaction.
3. Incorporate Tribal input and Tribal harvest into desired harvest. Implement as described in the 2007 Consent Decree.

6.1.3 Use bear management units to distribute hunters and bear harvest within eco-regions.

Once the desired harvest levels for each region have been established, the MUS distribute the proposed regional harvest among BMUs within that region. In the UP where there are three hunt periods, the desired harvest is first distributed equally among hunt periods and then the number of licenses is calculated to achieve this harvest in each period. Distribution of harvest among BMUS is based on factors such as hunter effort, nuisance complaints, and other social factors.

*Actions:*

1. Retain current bear management units and bear management unit boundaries but monitor effectiveness.
2. Regularly evaluate BMUs to ensure they are able to effectively distribute hunters and harvest.
3. Consider ecological factors, data needs, social factors and easily recognized boundaries if BMUS need to be redefined or modified in the future.
4. Utilize adaptive management and stakeholder input to develop more local scale tools to manage bear distribution within BMUs if needed (See 6.4.1 and 6.4.3).

6.1.4 Set license quota to achieve regional harvest.

The number of licenses (quota) that will be recommended for each BMU and hunt period will be determined in such a manner that the desired harvest is achieved. At this point in time, the current system of annually setting license quotas based on three year average success rate by hunt period and even distribution of the desired harvest among hunt periods appears to function as desired and was supported by the BCT although in the future it may be necessary to modify these procedures.

*Actions:*

1. Allocate bear harvest in such a way to ensure, to the extent possible, the desired harvest is met each year in each BMU.

6.1.5 Allow bear population to expand naturally into southern Michigan to the extent social acceptance allows.

Black bears are common in the UP and areas of the NLP and are occasionally observed in the SLP. These SLP observations have become more frequent in recent years. There are many different viewpoints concerning bears and their potential expansion into southern Michigan. Some citizens are favorable and others are more concerned about potential hazards to the bears and to the public. Bears moving into urban areas can be challenging and in some cases alarming to the public and dangerous to the bear. Education is an important component in an information strategy that should target increasing the public's acceptance of bears moving into southern Michigan. The DNR response guidelines to problem bears are critical in increasing the public's acceptability of bears expanding into southern Michigan. The DNR's ability to respond in times of reduced staff and financial uncertainty should be a consideration in southern Michigan as well. Southern Michigan is most likely capable of sustaining a population of bears above that which will be accepted by the public. As the population nears social carrying capacity, the DNR should establish a bear hunting season framework to maintain the population at a socially acceptable level.

*Actions:*

1. Monitor bear movements and social response to bear populations as the population expands into southern Michigan (See 6.4).
2. As the bear population approaches the social carrying capacity in southern Michigan, implement a hunting season to maintain the population below this level. Season structures should be investigated prior to the need for population maintenance and may vary from northern season structures.
3. Implement information and education programs (See 6.3) to help southern Michigan residents and agencies understand bears and how to live with bears. These education programs should also strive to increase the social carrying capacity in southern Michigan.
4. Consider the DNR's ability to effectively respond to, and resolve negative human-bear interactions in southern Michigan when determining appropriate population levels and the need for populations level controls.

**6.2 Manage Social Aspects of Bear Recreation to Reduce User-Conflicts and Maintain Recreational Opportunities.**

Conflicts sometimes arise between bear hunters and other outdoor users in part due to limited opportunities to hunt bears and because bear season(s) coincide with a time of increased outdoor recreation (e.g., other hunting seasons, wildlife viewing). Conflicts include real or perceived interference between bait hunting activity and hound hunting activity, concerns regarding potential trespass of bear houndsmen and hound activity on private lands, loss of hounds to wolf depredation, disturbance from other hunters or recreationists and competition for hunting locations or baiting sites. Based on input from stakeholders, recreational conflicts related to bear hunting are one of the main issues in Michigan's bear management program. The BCT made several recommendations in an effort to reduce conflict between bear hunters and ways to explore overall conflict reduction.

Bear recreational opportunities are also affected by the loss of land open to public hunting and the loss of access to lands, public or private, open to bear hunting. This can occur through direct land sales, land swaps, loss of Commercial Forest Act properties, and road closures.

#### 6.2.1 Season structure and timing changes and evaluation related to recreational conflict.

Historically, bear hunters in Michigan have been permitted to use bait and/or dogs to hunt bears. Both methods are effective, particularly in rugged areas of Michigan with limited access. Greater than 90 percent of Michigan bear hunters use bait to attract bears (Frawley 2008). Approximately 12 percent of hunters use dogs or a combination of dogs and bait. Complaints about disturbance of bear bait hunters by other outdoor recreationists is common, particularly in the NLP where bear season does not open until after many of the small game (e.g., grouse, rabbit, hare) hunting seasons open. There are also special deer hunting seasons open during the bear hunting season in portions of the NLP. These overlapping seasons have potential to cause conflicts among hunters. Conflicts arise with real or perceived disturbance of actual hunting experiences or through the perception that bears are being made inaccessible to hunters by the activities of other groups.

Bear hunters may pursue bears with dogs except during certain times of year and during certain periods of the open bear hunting season. These periods of no bear dog activity are commonly referred to as "quiet periods." Most bear hunters who use dogs train their dogs during the summer before bear hunting season begins. In order to protect nesting birds and young wildlife during the time of year in which they are most vulnerable, a quiet period was established between April 15 and July 15. No hunting dogs may be trained on game between those dates except on specially designated state lands or unless the dog handler receives a permit from the DNR to conduct a special dog hunting field trial.

During bear season in the UP, hunters may not pursue bears using dogs the first five days of the first hunt period. This quiet period was put in place to reduce potential conflicts between hunters using bait and hunters using dogs. However, in the NLP both methods are permitted simultaneously throughout the general one-week bear hunting season. Dogs are not permitted for hunting bear in the Red Oak BMU during the archery-only season (October 5 to 11 in 2008).

Conflicts between bear bait and dog hunters occasionally occur on public lands. Hunters using bait have complained that dogs chase bears off of their baits, while dog hunters claim that other factors, not their dogs, are the reason for decreased bear activity at an individual bait site.

*Actions*

1. Implement, through the established regulatory process, BCT recommendations on quiet periods and dog training periods in the UP and NLP (See Appendix C).
2. Evaluate real and perceived conflicts with bear hunting activities and evaluate potential methods for reducing conflicts among bear hunters and between bear hunters and other recreationists through the established bear regulations setting process.

6.2.2 Reduce trespass conflicts between bear houndsmen and private landowners.

Problems sometimes occur between private landowners and dog hunters. Bears have large home ranges and can potentially cross multiple parcels of land (in both private and public ownership) while being chased by dogs. This can lead to conflicts between bear dog hunters and private landowners who do not want dogs or hunters on their property. There are situations where dogs run onto private property and dog owners must retrieve their dogs. Under certain situations this is allowed under Michigan's Recreational Trespass Act (Public Act 323 of 1976). Dog owners should be respectful of property owners and adhere to recreational trespass laws. In most situations education of both hunters and landowners may be able to alleviate conflicts between these two groups.

*Actions*

1. Work cooperatively with partners to educate hunters and private landowners on trespass rules, rights, and responsibilities (See 6.3.1) and evaluate the effectiveness of education efforts at reducing trespass related conflicts.
2. Remain involved in discussions about other potential solutions to trespass issues and work to maintain recreational opportunities while addressing private landowner's concerns.

6.2.3 Reduce conflicts relating to bear baiting regulations.

Bear hunters are permitted to establish no more than three bait stations per hunter. Baits cannot be placed for bears prior to August 10 in the UP or prior to 30-days before the opening of bear season in the LP. It is unlawful to use man-made materials or a container at a bait site on public or commercial forest lands (CFL) however, these materials are legal on private land. One issue related to baiting for bears is that some individuals assume "territorial ownership" of public lands and they attempt to exclude all other hunters (including hunters of game species other than bear) from the area they are baiting. Additionally, although bait containers are illegal on public land some hunters use and leave them when their hunt is completed. Removing this refuse is then at the expense of the landowner (e.g., DNR, USFS, CFL owner).

Guides must follow all applicable bear hunting regulations. However, although individual bear hunters are permitted to establish no more than three bait stations per hunter, an authorized representative (i.e., bear guide) can maintain multiple baits for multiple hunters without limit. For example, an authorized representative for ten hunters could establish and maintain thirty total baits. The issue of “territoriality over bait sites” has the potential to be further magnified by commercial bear guides who may represent multiple clients and whose source of income is in part dependent on providing an undisturbed, quality hunting experience, often on public land. Similar issues may also arise for bear guides using dogs.

*Actions:*

1. Retain current regulations regarding baiting but monitor compliance with these regulations and use education and enforcement to encourage bear hunters to respect these regulations and the ability of others to pursue their recreational interests.
2. Encourage the development and implementation of the licensure of hunting guides.
3. Modify baiting regulations as necessary (recognizing the need for hunting over bait as a management tool) in response to wildlife disease threats on bear or other wildlife populations.

6.2.4 Encourage the retention of hunting opportunities.

Throughout the bear planning issue scoping meetings and the BCT meetings, concerns were raised regarding the future loss of bear hunting opportunity. Many sources of the loss of potential recreational opportunities were identified including the loss of areas open to public hunting, accessibility of huntable lands, and regulatory factors that may impact the ability of hunters to participate in bear hunting or even hunting in general. The DNR has placed a priority on the retention and recruitment of hunters in Michigan by creating a new Recruitment and Retention Section within the Office of Communications. Objectives in this category will seek to retain hunting recreational opportunities for current and future bear hunters and remove obstacles to participation in bear-related recreational opportunities.

Loss of access to huntable land, both public and private, can occur in a variety of ways. Loss of Commercial Forest lands, sale of public lands, road closures and fragmentation all can impact the actual amount of land open to public hunting, the access to huntable land, or the distribution of available land in the state. The loss of public land may also impact the land base on which treaty rights may be exercised, reducing the area open for hunting by Tribal members under Tribal regulations.

As black bear populations have increased in Michigan, there has also been an increase in hunting opportunity, license availability, and the number of hunters. All these factors led to increased competition for some licenses in certain BMUs. In 2000, the DNR created the preference point

system in an effort to provide a fair and equitable means for distribution of licenses. Individuals that apply for a bear license receive a preference point each year they apply for a bear license but are unsuccessful at drawing a license. In the drawing, applicants with the greatest number of points in each BMU and hunt period are issued licenses first. As part of the preference point system, hunters must submit an application between May 1 and June 1 each year. A rigid application period and notification of success later in the year can, for certain individuals, create issues when trying to determine if and when, time should be taken off for bear hunting that fall. However, this time frame is based on current regulation setting and hunting guide printing requirements and deadlines.

In 1989, an Opinion of the Attorney General clarified that “A person shall not hunt bear without a bear license,” and furthermore “hunt and hunters means the pursuing, capturing, shooting, killing, or taking of wild animals, and including attempting to take a wild animal.” The Attorney General concluded that all persons engaged in hunting—or pursuing—bear must possess a bear hunting license. This opinion also concluded “that any person who pursues a bear with dogs must have a valid bear hunting license . . . , regardless of whether the individual is carrying a firearm, and regardless of whether the person intends to kill the bear or is merely engaged in the training of dogs.” Based on this Opinion of the Attorney General, a valid license is required to actively participate in “pursuing” bears with dogs during the open season. For hunters not in possession of a valid kill tag, this license became known as a “participation license.” In 2008 the reference to “participation license” was dropped and the license is now known as a “No Kill Tag Bear License.” Public Act 347 of 2008 modified the requirements for a “no kill tag” license to only be required by the owner or possessor of dogs being used in a bear hunt or those accompanying a licensed bear hunter while carrying a firearm or bow. This is a statutory requirement in Public Act 451 of 1994 and is not within the authority of the NRC. The BCT felt the participation license requirement was confusing to bear hunters and not enforced consistently in the field and recommended changes consistent with PA 347 to ensure recreational opportunities were not unintentionally adversely affected by the “no kill tag” requirement.

*Actions:*

1. Promote and support incentives or programs that provide access to public and private lands for recreational use, including bear hunting.
2. Encourage public involvement in decision-making processes related to road closures and other actions that could hinder accessibility of lands. Educational efforts should be conducted to help the public become more aware of existing public involvement opportunities.
3. Support DNR acquisition and consolidation efforts and encourage conservation programs that provide large blocks of accessible lands.
4. Annually evaluate application and preference point procedures and seek opportunities to maximize recreational opportunities and participation in recreational opportunities.

5. Support PA 347- The “no kill tag” requirement only applies to individuals that own or possess dogs actively engaged in a bear hunt or that are carrying a firearm or bow while accompanying a licensed bear hunter.
6. Support the DNR Recruitment and Retention Section’s efforts and provide input on bear hunting opportunities or potential recruitment and retention strategies that might apply to bear hunting.

### **6.3 Increase Public Awareness and Understanding of Bears and Bear-Related Issues.**

Researchers, managers and stakeholder groups generally agree an informed public is important for successful bear management. At the series of bear issue scoping public meetings hosted by the DNR in August 2008, a large proportion of public comments underscored the need for an effective information and education program focused on bears.

Although the need for an effective bear-based education program is widely recognized, development of such a program is not a simple task. Strong public opinions, the controversial nature of many issues, and other barriers present agencies and other education partners with several challenges.

Bears can elicit strong emotions among stakeholder groups and the general public, which can be resistant to change. Developing educational materials to increase acceptance of bears can be difficult as individuals tend to selectively accept and recall information that is consistent with their existing attitudes (Olson and Zanna 1993, Petty et al. 1997). Similarly, people may interpret new information in ways that support their existing attitudes (Petty et al. 1997).

Another challenge of a bear-based education program is to present information that is not biased toward a particular point of view. Different groups may find difficulty agreeing on the focus of an education program, or even on the facts to be presented, because ethical and subjective values are often involved. However, the presentation of accurate, unbiased information is especially important when education is used as a tool to help resolve bear-related conflicts among stakeholders.

An additional challenge to development of an effective education program has been a lack of agency resources. Although the DNR has engaged in several bear education and outreach activities during the past several years, it has lacked sufficient staff to develop and implement a comprehensive bear-based education program while maintaining all other priority activities.

The following objectives have been identified to help overcome many of the challenges identified above. To the extent the objectives are achieved, public awareness and understanding of bears and bear-related issues are expected to increase.

#### **6.3.1 Coordinate with partners to develop and implement a bear-based information and education program.**

Coordinating a bear education program in cooperation with partners (e.g., other agencies, tribes, MSU extension, and private organizations) is an effective way to overcome many challenges and barriers that exist with bear management. There is a need to identify target audiences, information needs, and the educational approaches that may be most effective. Partnership with multiple organizations and stakeholder groups can lend credibility to educational materials and help ensure those materials present unbiased, accurate information. A coordinated program that involves the media can foster the presentation of accurate information to broad audiences.

A targeted education program facilitates the involvement of partners who possess the expertise and resources necessary to develop and implement an effective program. They can accelerate the development and distribution of educational materials that address the specific needs and interests of particular target audiences. It can also facilitate the organization of bear-based events and programs, and thus expand opportunities for people to experience and appreciate bears. In these ways, a coordinated education program can maximize the available tools and opportunities for increasing public awareness and understanding. A bear education program can increase the public's acceptance and appreciation of bears and reduce negative human-bear interactions.

*Actions:*

1. Work with partners to identify target audiences and information and educational needs.
2. Work with partners to develop and distribute materials that address the needs and interests of target audiences.
3. Work with partners to develop and deliver presentations that address the needs and interests of target audiences.
4. Work with management partners to coordinate bear-based programs and events.
5. Work with media to present accurate information to broad audiences.
6. When prudent, invite public and media participation in bear-related projects.
7. Support efforts of partners to provide positive bear-related experiences.

6.3.2 Support training opportunities for staff and partners involved in the bear-based information and education program.

Agencies and other partners can provide the public with accurate information only to the extent they understand bear-related issues themselves. Therefore, opportunities for DNR personnel to attend regional bear management meetings, to participate in training, and to review relevant scientific publications are important for an effective education program.



*Actions:*

1. Provide staff with the training and information resources necessary for effective participation in the information and education program.
2. Share information with partners to facilitate understanding of current bear-related issues.
3. Provide training to local law enforcement agencies and DNR Conservation Officers on bear behavior and effective resolution of problem and urban bear situations (6.7).

6.3.3 Evaluate the effectiveness of the bear-based information and education program.

While relatively common throughout the northern two thirds of Michigan, many residents remain unfamiliar with bears and bear behavior. This unfamiliarity fosters fears or anxiety about the presence of bears. In an effort to promote understanding of bears and to increase the social carrying capacity for bears in Michigan, the DNR has engaged in several bear education and outreach activities. Despite the great availability of information, the general public still holds many misconceptions about bears.

*Action:*

1. Work with partners to develop and implement methods to evaluate the information and education program.

**6.4 Maintain Active Bear Research and Monitoring Programs.**

Bears present many complex challenges for natural resource managers. They typically exist at relatively low densities, and are for the most part solitary and secretive creatures. Bears are often associated with densely vegetated, lowland areas and are wide-ranging. They are also a charismatic species but have the potential to cause conflicts with humans leading to many social implications. As a result, the role of research is especially important in the management of bears. Research provides information for making management decisions that are scientifically defensible and thus earns credibility among the different stakeholders.

Bear management in Michigan has regularly benefited from research and management experience from other states. However, wildlife managers in Michigan cannot always rely on work conducted elsewhere due to differences among local biological and social environments. The experiences of managing bears in other states are not always readily applicable to Michigan on account of differences in human density, infrastructure, habitat, wildlife communities, regulations, and public attitudes. In addition, the management environment changes constantly, and scientific information must be regularly updated to reflect current conditions.

In some instances, the BCT felt the available science was inadequate to guide its recommendations for bear management. For example, the BCT identified needs for more

research regarding management options to address bear-related conflicts, the relationship between bear population size and bear-related conflicts, and the need for more information on local level population distribution and dynamics. As a result, the BCT recommended that the DNR place a high priority on bear-related research or it made management recommendations that require additional research to implement effectively.

The following objectives and actions address the need to maintain active bear research and monitoring programs in Michigan. These programs will investigate and integrate the biological and social questions associated with bear management and thus improve the ability of managers to make decisions based on sound science.

#### 6.4.1 Monitor the abundance of bears in Michigan.

The DNR estimates the long-term trend in relative abundance of bear populations to help understand bear population dynamics, evaluate whether annual harvests achieve desired management objectives, and to help make recommendations for annual harvest quotas to the NRC. For the purpose of assessing bear populations, the State is divided into three ecological regions or land types (Albert 1995). The regions include, EUP, WUP, and NLP. The DNR uses a combination of multiple population indices, population estimators, and population models to assess the bear population on a regional and statewide basis. Primary sources of data used in population indices, estimators and models are derived from a combination of information from the published literature, field surveys, mandatory registration of harvested bears, and an annual mail survey of bear hunters. Field surveys include historical radio-telemetry projects, bait station surveys, and additional research projects found in DeBruyn (1997), Etter et al. (2002), Etter and Mayhew (2008); Mayhew and Etter (2008); Visser (1993; 1995; 1996; 1997; and 1998) and Winterstein and Scribner (2004).

Since 1982, all successful Michigan bear hunters have been required to register their bear at a DNR registration station within 72 hours of the time of harvest. Registration information collected by the DNR includes the harvest location of the bear, date harvested, and sex of the bear. A pre-molar tooth is extracted and used to age the bear by counting cementum layers after the tooth is cross sectioned (Hildebrandt 1976, Willey 1974) and the reproductive tracts of female bears have been collected periodically to assess reproductive history. Knowing the age of bears harvested is essential for calculating several population indices and helps in the development of population models. The pre-molar tooth provided by successful hunters is also essential for estimating bear populations in the UP and NLP using capture-recapture methods (described below).

Annual mail surveys of a randomly selected subset of bear license holders have been conducted in most years since 1982 (Frawley 2008). The purpose of these surveys is to provide an estimate of bear harvest and to collect additional data used in the calculation of several bear population indices.

*Actions:*

1. Continue to estimate bear abundance annually on an eco-regional scale. Monitor long-term population trends at the same scale.
2. Evaluate bear distribution, population dynamics and habitat use at the BMU level to assist in reducing bear-human interactions and to evaluate the distribution of bear harvest. (See 6.1.3).

#### 6.4.2 Monitor the health of bears in Michigan.

Michigan bears can be affected by a variety of diseases, including those caused by viruses (e.g., rabies), bacteria (e.g., bovine tuberculosis) and fungi, as well as both internal (e.g., various nematodes- Filarial, Baylisascaris, Trichinella) and external (e.g., sarcopic mange) parasites. In most cases, these diseases are seldom fatal to bears.

Although these diseases have the potential be sources of mortality for bears, they have not been shown to be limiting at the population level. Bear health will be monitored through routine surveillance of harvested bears at check stations. Harvested bears that are obviously diseased and bears that develop signs of disease and are reported to the DNR will also be necropsied. Necropsies provide information on condition, age, reproductive status, food habits, and cause of death, as well as the geographic distribution and prevalence of diseases and parasites. Analysis of biological samples such as blood, feces, and skin scrapings provide similar information on diseases and parasites. The DNR will continue to conduct these analyses at its Wildlife Disease Laboratory. In addition, the DNR will collaborate with researchers interested in studying bear diseases and parasites.

#### *Actions:*

1. As necessary, update and refine procedures for collecting, submitting, and storing information on carcasses and biological samples.
2. Train field staff on collection and submission procedures as well as indicators of potential disease in harvested bears.
3. Conduct necropsies of dead bears and analyze biological samples as needed.
4. Investigate existing literature regarding bear diseases and parasites and their potential impact on bear populations.

#### 6.4.3 Investigate biological and social factors relevant to bear management.

While black bears are a relatively widespread and common species about which extensive research has been conducted, many important biological and social questions regarding bear management remain unanswered. This is especially true for questions related to repopulation of historic range where bears have been absent for long periods of time and to social factors which

can influence desired bear management. An active bear research program in Michigan can help answer these questions by focusing on two broad areas: 1) bear ecology and the biological impacts of particular management approaches; and 2) attitudes of Michigan residents toward bears and their management.

*Actions:*

1. Monitor bear population responses to selected management options.
2. Investigate bear movements and habitat use in southern Michigan to better understand bear population potential and social ramifications of a southern Michigan bear population.
3. Periodically monitor public attitudes on bears and investigate factors that influence public tolerance for bears.
4. Develop and conduct research that addresses local level bear densities and the associated social implications within the context of present landscape level bear management practices.

6.4.4 Coordinate with partners to support a bear research program.

In Michigan, an established network of research partners works in a coordinated manner to investigate questions regarding bears and their management. Although these partners effectively conduct many types of research, the expertise required to investigate particular questions may sometimes be found in agencies, organizations and institutions outside the established network. Accordingly, the network should continue to expand (including researchers outside of Michigan) to ensure the best possible expertise is applied to particular research questions.

In addition to allowing application of the best available expertise, coordination with research partners increases the funding and staff that are potentially available to support bear research. Funding and staff available to the DNR alone may not be sufficient to study all the questions related to bears. Thus, collaboration with a greater number of partners could accelerate the rate at which those questions are answered.

*Actions:*

1. Expand and maintain cooperative relationships with agencies, organizations, institutions and private landowners or individuals interested in investigating biological, ecological and social questions regarding bears and their management.
2. Seek research funding from additional sources to complement agency contributions.

3. Attend professional meetings and conferences to remain current on bear related research and maintain contacts with out of state experts.

## **6.5 Maintain Habitat Necessary to Sustain Desired Bear Populations.**

Bears have large home-ranges and occupy a broad range of habitat types. The suitability of any particular habitat is generally related to the availability of a diversity of foods including hard and soft mast and herbaceous material. Diverse forests are prime habitats for bears because they provide the variety of cover and food sources which bears require to meet their seasonal needs. In Michigan, bears tend to use a mixture of vegetation cover types including deciduous lowland forests and coniferous swamps, mature and early successional upland forests, and some degree of forest openings consisting of grasses and forbs.

Forested swamps and regenerating clear cuts provide much of the escape and resting cover bears require. Mature upland forests provide hard mast (e.g., acorns, beechnuts, hickory nuts, hazelnuts), while early successional forests provide soft mast (berries) and diverse herbaceous ground flora. Forest openings are important for food resources such as emerging grasses, herbaceous vegetation, insects, and soft mast. Approximately 75 percent of bear diet consists of vegetation (Ternent 2005). In early spring, bears frequent wetlands feeding on plants such as skunk cabbage, sedges, grasses, and squawroot (Ternent 2005). Fruits and berries are important during summer and fall, including blueberry, elderberry, blackberry, June berry, pokeberry, wild grapes, chokecherry, black cherry, dogwood, and hawthorn. Hard mast from oaks, beech, hickory, and hazelnut become important in the fall as bears accumulate significant fat reserves for the winter. A diversity of habitat is required to ensure food is available throughout the year.

As black bears continue to move into the SLP, it has become clear they can inhabit a highly fragmented landscape, provided some forested areas exist, especially along riparian zones (Carter 2007). Black bears are also becoming more common in suburban and exurban areas throughout their range (McConnell 1997, Lyons 2004, Wolgast et al. 2005, Beckman and Lackey 2008). Some aspects of human activity contribute to suitability of these areas including abundant food from row crops, orchards, apiaries, bird feeders, and human refuse.

The current amount of available bear habitat is expected to be sufficient to allow the long-term persistence of a sustainable bear population. Moreover, the amount of suitable habitat is expected to remain adequate into the foreseeable future.

To ensure the continued availability of sufficient habitat, management should focus on three areas: 1) promoting large ownership blocks and large contiguous forest areas; 2) maintaining bear habitat linkages; and 3) encouraging DNR and other partners to include provisions for bear habitat within their habitat plans both at a local and regional scale.

### 6.5.1 Promote maintenance of large ownership blocks and large contiguous forest areas.

Bears utilize large forested blocks especially when associated with wetland complexes (Carter 2007). As land parcelization increases in Michigan, it may become more difficult to maintain large tracts of ideal bear habitat. The DNR and other land management agencies continually face

choices with land purchase and disposal. These choices can impact the ability to manage larger blocks of habitat. Most agencies, including the DNR, work to consolidate parcels and develop larger, more contiguous blocks of agency owned and managed lands. Planning efforts also often focus on development of larger blocks of contiguous forested or non-forested habitats. Managing large blocks of private lands can be difficult as parcels become smaller. A comprehensive private landowner program can assist in the development and implementation of broad scale management over multiple ownerships.

*Action:*

1. Cooperate with Federal, State and Tribal agencies, land conservancies, and private landowners to consolidate or expand public landholdings to aid in landscape level habitat management on all ownerships.
2. Encourage management on all ownerships that retains or expands large forested blocks as diverse forest cover.
3. Encourage development and implementation of a private land program that educates landowners on habitat management practices that are necessary for maintaining bear populations.

6.5.2 Maintain habitat linkages to allow bear dispersal.

Bears are effective dispersers, and existing habitat linkages among large tracts of prime habitat appear to be adequate to allow long-distance movements. The types of landscape features that represent barriers to bear movements are poorly understood, but movements by bears through human-dominated landscapes are common particularly in areas of the northeast United States where bears are expanding their range. However, roadways can present a potential hazard to bears and may be a significant source of bear mortality in some regions (Simek and Eason 2003). Bears are capable of traveling through and occupying crop lands and nonforested habitats, but they likely prefer areas with some wooded cover.

Although few natural or artificial landscape features may absolutely prevent bear dispersal, maintenance of habitat linkages across the landscape may facilitate regular exchange of individuals and genetic material among larger blocks of high quality habitat. Habitat linkages may also serve to more effectively distribute bears across the landscape and aid in managing social considerations of bears (i.e., regulate local bear densities to localized social carrying capacities). Forested riparian corridors may also serve as habitat linkages in areas where the bear population is well established and also may serve as a conduit for bears as they move into southern Michigan (Carter 2007). Continued movement of bears throughout suitable bear habitat will help ensure the long-term viability of the bear population.

*Action:*

1. Cooperate with Federal, State and Tribal agencies, land conservancies, and private landowners to identify bear habitat linkage zones.

2. Cooperate with Federal, State and Tribal agencies, land conservancies, private landowners, and transportation authorities to maintain bear habitat linkage zones through habitat management and education and management assistance on private lands.
3. Maintain or increase publicly owned lands within critical habitat linkage zones.

### 6.5.3 Provide direction for local, regional, and statewide habitat planning efforts within the DNR and with other agencies and private landowners on bear habitat requirements.

The DNR and most other agencies have multiple habitat or habitat related plans in the process of development or revision. Within the DNR some of these plans include a Statewide Habitat Plan, Eco-regional Plans, Regional State Forest Management Plans, local management area master plans, Biodiversity Stewardship planning, etc. In order to be most effective, habitat planning needs to be conducted in a comprehensive fashion not species by species. This document is not meant to drive habitat planning or implementation but rather to provide guidance to these other planning efforts to ensure that these broad level, multi-species and community plans consider and maintain bear habitat at large scales.

#### *Actions:*

1. Develop generalized, high priority bear habitat considerations to aid in the development of habitat planning efforts (Appendix D).
2. Monitor and review DNR and other agency planning efforts to ensure these plans adequately address bear habitat.
3. Provide detailed information or consultation for any habitat planning efforts as needed to promote maintenance and enhancement of bear habitat throughout Michigan on all land ownerships.

## **6.6 Achieve Compatibility between Bear Distribution and Abundance and Social Carrying Capacity.**

A principal goal of this plan is to maintain a sustainable Michigan bear population that is within social carrying capacity. Accordingly, management will be conducted to maintain the bear population within the biological carrying capacity and facilitate bear-related benefits while minimizing and resolving conflicts where they occur. This plan does not identify a target population size, nor does it establish an upper limit for the number of bears in the State. As a result, public preferences regarding levels of positive and negative bear-human interactions will strongly influence the abundance and distribution of bear in the state.

The attitudes and actions of society historically influenced the abundance and distribution of bears on the landscape. Indeed, public intolerance (in conjunction with habitat destruction) of bears led to the extirpation of the species from the southern third of the State and greatly reduced

populations in the northern two thirds. During recent decades, policies that reflected significant increases in public desires for bears facilitated dramatic expansion of the population. Public attitudes still have significant influence on bear population levels.

“Social carrying capacity” refers to the range bounded by the minimum and maximum levels of bears society will tolerate. Inclusion of both a lower and an upper limit is critical to the definition, because society may not be willing to accept a decline in the bear population below a certain level, nor may it be willing to accept the challenges and costs associated with bears above a certain population level. Social carrying capacity is strongly influenced by the actual and perceived benefits and costs associated with particular levels of bear abundance and distribution.

All segments of society do not value the benefits or withstand the costs of bear presence equally. Therefore, the minimum and maximum tolerable levels of bears can vary regionally or by stakeholder group. Defining social carrying capacity becomes complicated when different segments of society hold different tolerances, because a social carrying capacity exists only when the ranges of tolerance held by different groups overlap. If the ranges of tolerance do not overlap, then a social carrying capacity can not be identified, and any goal for bear abundance and distribution would be expected to encounter social resistance and conflict.

In such a situation, social carrying capacity can be created only through a shift in tolerance at one or both ends of the range. Such a shift could be caused through: 1) management of the interactions between bears and humans to reduce costs and/or increase benefits to affected stakeholders or 2) information and education programs aimed at factors that influence tolerances for bears and bear-related interactions.

The most-recent public-attitude study found that the social carrying capacity for bears varied in different regions of Michigan (Peyton 2001). However, levels of acceptance of bear and bear-related incidents differed widely among respondents. In general, a majority of people in all regions of the LP were able to accept occasional rural sightings of bears. The acceptance of bear populations increased from south to north.

Survey-respondent preferences regarding the levels of bears within each region varied according to region of residence and stakeholder group (Peyton 2001). The preferred level of bears for their area of residence was highest in the NLP and lowest among SLP residents. Compared to non-hunters, hunters tended to be more tolerant of bears.

Given the disagreement in preferences and tolerances among different segments of the public, educational efforts are necessary in an attempt to shift public attitudes to create a social carrying capacity, by region, for bears in Michigan. Until management or education causes an adequate shift, any particular level of bears may not be acceptable to society at large. The following objectives were designed to help achieve compatibility between bear abundance and distribution and public tolerance.

#### 6.6.1 Promote consistent public understanding and appreciation of the benefits and costs associated with particular bear levels.



People can hold preferences and tolerances regarding bear abundance and distribution without a complete understanding of all the relevant issues. For example, a person who is not willing to tolerate any bears on the landscape may not be aware of or appreciate the benefits bears provide to other residents. Intolerance can also be caused by an inaccurate, exaggerated perception of the problems bears cause or threat they pose. Conversely, a person who demands the highest number of bears the available habitat can support may be unaware of or may not appreciate the costs and risks such a level would impose on certain members of society.

Public education could help foster a realistic understanding of the positive and negative consequences associated with particular levels of bear. This education could allow some Michigan residents to place a higher value on bears, alleviate concerns held by others, and thus increase general tolerance for the bear population. It could also help other residents understand the real costs and risks associated with bears and help them appreciate the potential adverse consequences of particular levels of bears for affected residents.

To some extent, personal preferences and tolerances will continue to reflect personal values, which are resistant to change (Fulton et al. 1996). However, education efforts may encourage attitude shifts that are based on consistent, accurate information and thus may aid in increasing social carrying capacity across stakeholder groups for bears in Michigan.

*Actions:*

1. Increase public awareness regarding where to obtain information on the consequences of particular levels of bear.
2. Provide the public with accurate information on the benefits and costs associated with particular levels of bear as part of a bear-based information and education program (See 6.3).

6.6.2 Manage bear-related interactions to increase public tolerance for bears.

Facilitation of bear-related benefits and effective conflict resolution could do more than serve the interests of Michigan residents. Those actions could also reduce levels of intolerance among some stakeholders and cause a shift in attitudes that leads to the development of a higher social carrying capacity for bear in the State.

There are many types of benefits people can derive from the presence of bears: 1) ecological, as bears fill an important ecological niche and improve ecosystem function; 2) cultural or religious, as people derive spiritual satisfaction or fulfillment from the presence of bears; 3) personal, as the presence of bears provides unique opportunities to interact with, study, and appreciate a particular component of the natural world; and 4) economic, as bear-based recreation and tourism draws people to local communities. The approaches that will be used to foster these types of bear-related benefits are outlined under 6.1, 6.2 and 6.3.

Conflicts associated with bears can involve human-safety concerns regarding the presence of bears near residential or recreational areas, damage to agricultural crops and products,

depredation of livestock, and concerns regarding the impact bears may be having on populations of other wildlife species. The approaches that will be used to manage specific types of bear-related conflicts are outlined under 6.7.

*Actions:*

1. Facilitate positive bear–human interactions and other bear-related benefits (see 6.1, 6.2 and 6.3).
2. Minimize and manage bear-related conflicts (see 6.7).
3. Develop an information and education program geared to southern Michigan residents to increase awareness and tolerance of bears in southern Michigan (6.1.5 and 6.3).
4. Provide assistance to individuals experiencing damage done by bears or that are experiencing unwelcome encounters with bears (See 6.3 and 6.7).

## **6.7 Manage Negative Bear-Human Interactions.**

The issue of nuisance or problem bear management is complicated, and involves human behaviors and perceptions, as well as bear behavior. There is a wide range of public opinions as to what constitutes a bear problem, or a problem bear. To some, the mere presence of a bear is a perceived problem, while others may enjoy seeing bears on a regular basis.

The presence of bears imposes more costs on some groups of Michigan citizens than others. These costs range from loss of equipment and products to anxiety over the presence of bears in residential or recreational areas. In particular, there is conflict between bears and beekeeping operations and in orchards.

When bear incidents do occur, the DNR has internal response protocols outlined in the *Michigan Problem Bear Management Guidelines*. Responses range from providing technical assistance to landowners, to physically removing a bear, to euthanizing individual bears when public safety is threatened. However, these guidelines may not always achieve the necessary outcome and it may be necessary to develop partnership opportunities where agricultural growers and apiarists are coupled with hunters who may help with harvesting bears in problem areas.

In some situations, human/bear conflicts may be avoided if certain deterrents or other evasive products are used. In many cases, problem or nuisance bears may be discouraged through the use of electric fencing, removal of attractants such as birdfeeders, garbage, etc. In many of these situations providing information to individuals experiencing negative bear interactions can be accommodated without further response. Providing information on bears and bear behavior may also increase the tolerance of an individual to bears. However, in some situations, a bear may continue to cause damage or endanger people or property. In general, The BCT approved of the DNR's current *Michigan Problem Bear Management Guidelines* however there were several recommendations made to improve DNR response to negative bear-human situations.

In many instances, humans are the source of the human-bear conflicts. For instance, supplemental feeding of wildlife involves the deliberate placement of foods for the purpose of enhancing viewing opportunities or augmenting naturally occurring food resources. While not illegal for most species, supplemental feeding is not advised by the DNR because of the potential for habituating bears and making them more likely to become involved with negative bear-human interactions.

As a document that offers guidance at the strategic level, this plan does not describe the operational methods of preventing and eliminating bear problems. The current *Michigan Problem Bear Management Guidelines* is available in (Appendix E) and will be updated in response to recommendations in this plan and as regulations, technology, and other aspects of management context change.

#### 6.7.1 Promote accurate public perceptions of the human-safety risks posed by bears and minimize actual human-safety threats.

Most wildlife has the potential to be dangerous to humans in certain situations. In most cases, people can take simple, sensible measures to avoid those situations and protect themselves against harm. Other cases may warrant higher levels of concern and professional assistance. Accurate perceptions of the human-safety risks posed by wildlife can facilitate appropriate levels of concern and responses to particular situations.

Black bears are shy, elusive animals, usually flee when encountered, and are generally not a threat to humans. However, bears are large and powerful animals that have been known to injure and even kill humans if they feel threatened. Fatal human encounters are rare; from 1900 through the summer of 2005, 57 people in North America have been killed by black bears, while it is estimated that millions of interactions between people and bears occur annually (Masterson 2006).

Based on reported bear observations in recent years, it is assumed that bears will continue to expand their range southward into more populated areas of Michigan. At the same time, residents from urban areas have continued to move into areas traditionally occupied by bears to the north. These shifts in human and bear demographics suggest that bear-human interactions are likely to become more common.

Segments of the public can overestimate or underestimate the actual human-safety risks posed by bears. Some people may feel the mere presence of a bear population poses a serious safety threat, whereas others may not recognize that bears could be dangerous to people in certain situations. Regardless of the extent to which bears pose a threat to human safety, anxieties over a perceived threat can impact the quality of life of affected residents as well as public tolerance for the bear population.

Public education could help foster a realistic understanding of the human-safety risks associated with Michigan bears. This education could help alleviate concerns held by some Michigan residents, and thus increase general tolerance, if not support, for the bear population. It could

also help other residents understand that some bear-related human-safety concerns are legitimate, and thus help them appreciate the consequences of those concerns for affected residents.

In cases where actual human safety threats exist, prompt, decisive action should be taken to prevent injuries to individuals and to continue to foster support for bears in Michigan from the public.

*Actions:*

1. Increase public awareness regarding where to obtain information on bear-related threats to human safety.
2. Provide the public with accurate information on the human-safety risks posed by bears as part of a bear-based information and education program (see 6.3).
3. Provide prompt responses to requests for information regarding bears and human safety.
4. Adhere to *Michigan Problem Bear Management Guidelines* and provide training on these guidelines (See 6.3).

6.7.2 Provide timely and professional responses to reports of bear damage.

Bear damage can occur in many forms. Some of the most common forms of damage are to apiaries, orchards and to personal property. In some cases damage can be addressed through providing information to an individual but other situations require that DNR personnel visit the sites where damage has occurred. While the DNR has a standard procedure for dealing with problem bear situations, there is some evidence that this document has been applied inconsistently across the state. The DNR will increase efforts to maintain a consistent response among DNR personnel to problem bear situations.

*Actions:*

1. Increase public awareness regarding where to report bear damage whether to person, property, livestock, or agricultural crops, the need to report damage events rapidly, and how to preserve evidence at sites where damage occurs.
2. As necessary, update and refine procedures for the investigation of suspected bear depredation of domestic animals and the *Michigan Problem Bear Management Guidelines*.
3. Train field staff on problem bear procedures and meet regularly with staff to ensure problem bear procedures are consistently applied.
4. Facilitate communication between partners such as the Farm Bureau, interested landowners and bear hunters to help address human/bear conflicts.

### 6.7.3 Minimize the occurrence of negative human-bear interactions.

Certain human behaviors and practices can attract bears and thus increase the risk of negative interactions with humans. Directly feeding bears is the most obvious way to invite problems. Baiting and feeding other wildlife can also attract bears. Feeding pets outside or leaving other bear food items accessible to bears can also increase the chance of habituating bears and creating problem bear situations. Avoiding these behaviors and practices can help reduce the risk of negative interactions with bears.

In addition to avoiding the behaviors and practices described above, livestock producers, beekeepers and orchard producers can help prevent damage through certain animal husbandry practices. For example, prompt and proper disposal of livestock carcasses may eliminate attractants that could draw bears to particular farms. Electric fencing and monitoring of apiaries based on their vulnerability, lighting systems, sirens and other noisemaking devices, flagging (fladry), movement-activated guard devices, and livestock-guarding animals are a few of the other tools and techniques that may help reduce the risk of damage caused by bears.

The DNR has limits to its authority to require residents to adopt any of the practices or techniques described above. However, public education, information-sharing, and technical assistance could provide valuable information, encourage the use of beneficial practices and techniques, and thus help reduce the risk of problem bear activity.

#### *Actions:*

1. Provide the public with information on ways to help reduce the potential for bear damage as part of a bear-based information and education program (see 6.3).
2. Provide livestock producers, beekeepers, property owners and other residents with technical assistance on methods to help prevent or minimize negative bear interactions.
3. As warranted, recommend modifications in law, policy or enforcement that could more-effectively discourage human activities that increase the risk of negative bear interactions including the prohibition of recreational feeding of bears.
4. Work with the Michigan Beekeeper's Association and other partners to develop Best Management Practices to aid in the reduction of bear damage to apiaries.
5. Support the evaluation and appropriate use of non-lethal and lethal management methods to prevent or minimize bear damage to apiaries and other agricultural crops.
6. As necessary, update and refine management responses according to the severity, immediacy and frequency of bear problems.

## **7. PLAN MONITORING AND REVIEW**

Regular communication among agencies, stakeholder groups and the general public would allow interested parties to monitor progress made toward implementation of this plan. It would also provide opportunities for management agencies to receive input on specific management issues. To facilitate these benefits, the DNR will continue meeting with the bear user group. The group convenes on a bi-annual basis, or as otherwise needed, to discuss management goals, educational opportunities, conflict resolutions, and other topics. Membership of this group may be expanded to ensure that the diversity of bear-related interests and management responsibilities in Michigan are invited to participate. The role of the bear user group will differ from that of the Michigan Bear Consultation Team, which fulfilled its charge and was disbanded following its review of this plan.

Bear abundance, distribution and the attitudes of Michigan residents concerning bears will likely continue to change through time. To address ecological, social and regulatory shifts in a timely manner, the DNR will review and update this plan at 10-year intervals. The plan-revision process will include review of the best available scientific information and substantial involvement by affected stakeholder groups and the general public.

## **8. FUNDING**

While funding was not a major issue presented at issue scoping meetings or discussed by the BCT, many of the recommendations made require a significant amount of resources to develop and implement. The current bear management program requires considerable expense with salaries, wages, population monitoring, research and other management activities. Adequate staffing levels are also needed to allow timely agency responses to damage complaints and other concerns.

Most funding for wildlife management has traditionally been derived from revenues generated by sportspersons. For example, the Michigan Game & Fish Fund is generated by State hunting and fishing license revenues, and the Federal Aid in Wildlife Restoration Act (a.k.a. Pittman–Robertson Fund) provides funds derived from a Federal tax on purchases of firearms and ammunition. In the absence of many other funding alternatives, the DNR bear management program has been supported primarily by these two funding sources. As a result, sportspersons have played a critical role in the conservation and management of Michigan bears.

Other agencies, tribes and private organizations also have played an important role by addressing education, conservation and research needs. The financial and staff resources applied by these groups have complemented traditional funding sources in ways that have broadened the bear management program.

While sportspersons and other management partners have provided most of the funding for bear management, they currently represent only a small proportion of all Michigan residents. Regardless of the inequities that may be associated with such a system, a funding approach that

relies on the contributions of these groups may fall short of management needs in the future. This is especially true if the number of sportspersons continues to decline.

Successful efforts to obtain funding from alternative sources could spread the financial support for bear management among a greater variety of stakeholder groups who are impacted by bears. Such an approach could help sustain the required levels of funding, and it could provide the general public with a greater stake and interest in bear management.

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**10. APPENDIX A: A REVIEW OF BEAR MANAGEMENT IN MICHIGAN**

# **A Review of Bear Management in Michigan**

October 2008



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# **A Review of Bear Management in Michigan**

## **Introduction**

Black bears (*Ursus americanus*) are an important natural resource for the residents of Michigan, and as trustee of this resource, the Department of Natural Resources (DNR) uses a scientific approach to management. Scientific management considers the status of bear populations, bear ecology, and the social issues associated with bear-human interactions (both positive and negative). Scientific information is obtained from research, in-state surveys, and published literature. Scientific management also incorporates the concept of adaptive resource management, an iterative process by which changes in management actions (e.g., hunting regulations, or educational efforts) are evaluated to determine if these changes achieve management goals. Management efforts over time are modified as new information is obtained, new analyses are conducted, or factors that influence bear ecology change.

Michigan's bear management program includes research to help understand bear ecology and social acceptance capacity of Michigan's residents. In addition, the DNR provides information to the public about bears and technical assistance to landowners with unwelcome bear encounters. Sport hunting has the capacity to influence abundance of black bears, provides recreational opportunities, and is an important tool used to manage the size of Michigan's bear population.

The purpose of this review is to present general information on black bears and specific information relevant to the situation in Michigan. It is hoped this review will provide information to assist with the development of recommendations by the Bear Management Consultation Team.

## **Biology of Black Bears**

### **Range and Distribution**

World-wide there are only eight species of bears. Three of those species occur in North America, and the black bear is the only species found in Michigan. Black bears have a scattered distribution throughout most of temperate and boreal North America from the edge of the Arctic prairies in Alaska and Canada, south to central Mexico (Baker 1983). They are found in at least 35 states and all Canadian provinces. During European colonization and expansion, black bears were largely extirpated from many of the Midwestern states, yet today populations are thriving in the Upper Great Lakes and western states and remain in parts of most eastern and southeastern states. In Michigan, black bears are common in the Upper Peninsula (UP) and areas of the Northern Lower Peninsula (NLP). Bears are occasionally observed in the Southern Lower Peninsula (SLP) and these observations have become more frequent in recent years.

## **Life History of Black Bears**

### ***Physical Characteristics***

In the Upper Great Lakes Region, most black bears have black or extremely dark brown fur. Other color variations including brown, cinnamon, grayish-blue, and blonde are found mostly in western North America (Baker 1983). Color is generally uniform except for a brown muzzle and occasional white blaze on the chest (Ternent 2005).

Average adult black bears stand less than three feet tall at the shoulder and are approximately three to five feet in length. Males are typically larger than females. Adult female black bears weigh approximately 90 to 300 pounds, and adult males weigh about 130 to 500 pounds. All bears tend to gain weight in the fall and lose weight during the winter period of inactivity (Ternent 2005). However, despite losing up to thirty percent of their fall body weight in the winter, many bears emerge from dens in the spring in relatively good condition (Gerstell 1939, Alt 1980).

### ***Reproduction and Growth***

Generally, female black bears are sexually mature at three to five years of age (Pelton 1992), yet are known to breed at two years of age in the NLP (Etter et al. 2002). Sows from the NLP typically bred earlier (two-three years of age) and had above average litter size (2.6 cubs per sow) compared to sows from other Midwestern states (Bunnell and Tait 1981, Etter et al. 2002, Rogers 1987a). Males are sexually mature at two years of age but typically do not participate in breeding until four to five years of age (Ternent 2005).

Breeding season for black bears occurs during the summer, the peak being from mid-June to mid-July (Alt 1982 and 1989). Female's exhibit delayed implantation (Wimsatt 1963); eggs are fertilized immediately but development is suspended at the blastocyst stage. In Pennsylvania, implantation typically occurs between mid-November and early December (Kordek and Lindzey 1980). Delayed implantation postpones any nutritional investment until after the critical fall foraging period (Ternent 2005). If a fall food shortage results in a reduction in fat reserves the blastocysts can be absorbed. A reduction in nutritional investment in a poor food year allows the female to breed again the following summer if nutritional resources are more favorable (Ternent 2005).

Cubs are born helpless and hairless, typically in January while females are in the den. Cubs weigh 10 to 16 ounces at birth but because of high fat contents in their mother's milk, they grow quickly (Ternent 2005). By the time the female and cubs exit the den (generally late April), the cubs will weigh between five and nine pounds. By the end of their first summer, cubs typically weigh 50 to 60 pounds. Cubs stay with their mother for about a year and a half, denning together the winter after birth and separating in late May the following spring. Adult females typically breed every other year.

### ***Mortality***

Black bears are relatively long lived, and disease and starvation contribute little to adult bear mortality. Black bears in Michigan have few natural predators and are rarely killed by wolves in



the UP (DNR, unpublished data). Most recorded mortality in Michigan is from hunting or vehicle collisions.

Intestinal parasites such as roundworms and tapeworms are common in bears but they rarely interrupt digestion or affect nutrition (Quinn 1981). The tissue parasites *Toxoplasma gondii* and *Trichinella spiralis* are found in black bears but are not thought to cause mortality (Schad et al. 1986, Briscoe et al. 1993, Dubey et al. 1995).

Bovine tuberculosis has been detected in bears in northeastern Lower Michigan, an area known to have bovine tuberculosis (TB) in the white-tailed deer herd. From 1996-2003, 3.3 percent (seven of 214) of bears tested from this area were positive for bovine TB (O'Brien et al. 2006). Bears likely contract this disease while feeding on carrion or deer gut piles left behind by hunters. Bears which test positive for bovine TB do not show the physical signs (e.g., lesions in the lungs) and bears likely serve only as a dead end host and not as a source of infection for other animals or humans (O'Brien et al. 2006).

In Michigan, black bears have been known to live up to 28 years of age (DNR, unpublished data). Annual survival for yearling and older bears in Michigan's NLP was 78 percent and hunting accounted for nearly 60 percent of annual mortalities (Etter et al. 2002). Overall cub survival for the NLP was 75 percent and within the range reported by other studies (Kasbohm et al. 1996, DeBruyn 1997, McLaughlin 1998). However, cub survival varies annually and has been linked to the availability of natural foods, particularly soft and hard mast (Jonkel and Cowan 1971, Rogers 1976, Young and Ruff 1982). Additionally, cub mortality occurs at a higher rate in a sow's first litter than in subsequent litters (McLaughlin 1998).

Human related mortality (e.g., hunting, vehicle collisions), is the primary source of mortality for black bears in Michigan (Etter et al. 2002) and across North America (Bunnell and Tait 1981, Schwartz and Franzmann 1992). Mortality rates for males are typically greater than females (Hamilton 1978, Bunnell and Tait 1981, Hellgren and Vaughan 1989) and are associated with greater vulnerability of males (particularly yearlings) to human and natural mortality factors (Bunnell and Tait 1981, Rogers 1987a).

Motor vehicle-bear collisions account for fourteen percent of bear mortalities in the NLP (Etter et al. 2002); the frequency of these events increases with increased bear density, human populations, and traffic volume. However, other factors (e.g., habitat and natural food availability) likely contribute to localized and seasonal variation in vehicle-bear collisions.

### ***Habitat Requirements***

Black bears are most frequently found in large, heavily forested areas. In Michigan, bears tend to use a mixture of vegetation cover types including deciduous lowland forests and coniferous swamps, mature and early successional upland forests, and some degree of forest openings consisting of grasses and forbs. Diverse forests are prime habitat as they provide the variety of cover and food sources which bears require to meet their seasonal needs.

Forested swamps and regenerating clear cuts provide much of the escape and resting cover bears require. Mature upland forests provide hard mast (e.g., acorns, beechnuts, hickory nuts,

hazelnuts), while early successional forests provide soft mast (berries) and diverse herbaceous ground flora. Forest openings are important for food resources such as emerging grasses, herbaceous vegetation, insects, and soft mast.

As black bears continue to move into the SLP, it has become clear they can inhabit a highly fragmented landscape, provided some forested areas exist, especially along riparian zones (Carter 2007). Black bears are also becoming more common in suburban and exurban areas throughout their range (McConnell 1997, Lyons 2004, Wolgast et al. 2005, Beckman and Lackey 2008). Some aspects of human activity contribute to suitability of these areas including abundant food from row crops, orchards, apiaries, bird feeders, and human refuse.

### ***Food Habits***

Black bears are omnivorous and opportunistic feeders, using both plant and animal matter. Approximately seventy-five percent of their diet consists of vegetation (Ternent 2005). In early spring, bears frequent wetlands feeding on plants such as skunk cabbage, sedges, grasses, and squawroot (Ternent 2005). Fruits and berries are important during summer and fall, including blueberry, elderberry, blackberry, June berry, pokeberry, wild grapes, chokecherry, black cherry, dogwood, and hawthorn. Hard mast from oaks, beech, hickory, and hazelnut become important in the fall as bears accumulate significant fat reserves for the winter. Bears feed heavily in the fall and can gain as much as one to two pounds per day. Bears are capable of doubling their body weight between August and December when mast is abundant (VDGIF 2002). When fall foods are scarce, bears tend to den earlier which can impact hunter harvest.

The majority of animal matter consumed by bears includes colonial insects and larvae such as ants, bees, beetles, and other insects (Pelton 1992). However, bears are opportunistic feeders and they are capable of preying on most small to medium sized animals including mice, squirrels, woodchucks, beaver, amphibians, and reptiles. Under certain conditions bears may actively hunt for newborn white-tailed deer fawns. In north-central Minnesota 86 percent of fawn deaths from birth to 12 weeks of age were caused by predators and bears accounted for 29 to 36 percent of the kills (Powell 2004). Bears in Pennsylvania accounted for 25 percent of fawn mortalities to 34 weeks of age (Vreeland 2002). When available, bears also feed on carrion.

Human-related foods include agricultural crops (e.g. corn, apples, peaches, and cherries), apiaries, bird feed, and garbage. Pet and some livestock foods are sometimes eaten by bears, especially when readily available or in years when natural food supplies are poor.

### ***Denning Behavior***

Black bears enter a period of winter dormancy for up to six months as an adaptation to food shortages and severe weather conditions. In Michigan, bears typically enter the den by December and timing of denning varies annually depending on food availability. Pregnant females tend to den first and adult males are the last to den. Den emergence typically occurs in late March and April; adult males generally leave dens earlier than females, and females with newborn cubs generally emerge latest (Rogers 1987a, O'Pezio et al. 1983).

Unlike true hibernators who have body temperatures that drop to near ambient conditions, black bear body temperatures decrease only slightly to 31-36°C from a normal range of 37-38°C (Folk

et al. 1972 and 1976). Heart rates and metabolism decrease in the den and although they appear lethargic, bears are easily awakened and capable of fleeing immediately if they feel threatened. Bears do not eat, drink, or defecate during winter dormancy and basic protein and water needs are partially met by recycling urea, while other adaptations such as shivering and nutrient recycling reduce the loss of muscle tone and bone density (Ternent 2005).

Black bears use a variety of den locations and generally select sites that minimize heat loss and allow conservation of energy. Dens may be excavated or constructed as ground nests. Bears will also den in rocks cavities, root masses, standing trees, openings under fallen trees, and brush piles. Dens are often lined with dead grass, leaves, and small twigs. Locations vary from year to year; however, the occasional reuse of dens has been documented in Michigan.

Bears can lose up to 25-30 percent of their body weight during denning, and after emergence, bears may continue to lose weight while searching for scarce early spring foods that tend to be low in nutritional value (VDGIF 2002). Lactating females raising cubs may be stressed nutritionally after leaving their dens

### ***Home Range, Movements and Activity***

Black bears shift activity patterns seasonally in response to the availability of food. The area that a bear occupies seasonally or annually is referred to as its “home-range.” The size of home-ranges typically varies by the sex and the age of the bear. The home-range size of a mature female is influenced by whether or not she has cubs. Females with newborn cubs have smaller home ranges that gradually increase as cubs mature (Ternent 2005). Annual male home ranges are generally larger than females. In Michigan, mean annual home range size for males and females were among the largest reported for the species (Etter et al. 2002). Females in the NLP had an average home range size of about 50 square miles, and males had an average home range size of about 335 square miles. Home ranges of female bears generally overlap, but overlap of mature male home ranges is less common. The home range for a single adult male may encompass several female home ranges. Young males disperse away from their natal home range before establishing a new territory, whereas young females are less likely to disperse and sometimes occupy areas that include portions of their mother’s home-range (Ternent 2005). In the NLP, 32 percent of radio-collared yearling females dispersed from their natal home range and 95 percent of radio-collared yearling males dispersed from their natal home-range (Etter et al. 2002). Male bears dispersed an average of 14 miles in Pennsylvania (Alt 1977 and 1978).

Black bears are most active at dusk and dawn. Nocturnal activity is uncommon, but may occur if bears are avoiding daytime disturbance by people (Ternent 2005). Black bears can travel long distances to exploit concentrated food sources such as soft and hard mast, human refuse, and agricultural crops (Garshelis and Pelton 1981, Rogers 1987b). Activity intensifies during the breeding season and again in the late summer and fall when foraging increases.

### ***Social Structure***

Black bears are solitary animals with the exception of females accompanied by cubs or yearlings, and during the breeding season when mature males and females can be seen together. Bears establish and maintain a dominance hierarchy by using threatening gestures and sounds including stamping feet, charging, huffing and chopping jaws (Rogers 1977). Fights among bears are

uncommon except by males during the breeding season when they are competing for females or when females are protecting young (Ternent 2005). A communal rubbing tree where bears rub, bite and claw is another form of communication and these trees are assumed to be used as part of the process of establishing a social structure within the population. Tree rubbing peaks during the summer and multiple bears may mark the same tree (Ternent 2005).

## **Assessment of Bear Populations**

The DNR estimates the long-term trend and size of bear populations to help understand bear population dynamics, evaluate whether annual harvests achieve desired management objectives, and to help make recommendations for annual harvest quotas to the Michigan Natural Resources Commission (NRC). For the purpose of assessing bear populations, the State is divided into three ecological regions or land types (Albert 1995). The regions include, Eastern Upper Peninsula (EUP), Western Upper Peninsula (WUP), and NLP. The DNR uses a combination of multiple population indices, population estimators, and population models to assess the bear population on a regional and statewide basis. Primary sources of data used in population indices, estimators and models are derived from a combination of information from the published literature, field surveys, mandatory registration of harvested bears, and an annual mail survey of bear hunters. Field surveys include historical radio-telemetry projects, bait station surveys, and additional research projects found in DeBruyn (1997), Etter et al. (2002), Etter and Mayhew (2008); Mayhew and Etter (2008); Visser (1993; 1995; 1996; 1997; and 1998) and Winterstein and Scribner (2004).

Since 1982, all successful Michigan bear hunters have been required to register their bear at a DNR registration station within 72 hours of the time of harvest. A bear patch was developed in 1985 to encourage hunters to register their bear and to make the carcass available for the collection of biological data. Patches were given free to successful bear hunters who brought their bears to registration stations until patches were discontinued in 2007 as a cost saving measure by the DNR. Starting in 2008 patches will be available for a fee from Michigan Bear Hunters Association (MBHA). Profits from the patch program will be donated by MBHA to the DNR for use in bear and wildlife education efforts.

Registration information collected by the DNR includes the harvest location of the bear, date harvested, and sex of the bear. A pre-molar tooth is extracted and used to age the bear by counting cementum layers after the tooth is cross sectioned (Hildebrandt 1976, Willey 1974) and the reproductive tracts of female bears have been collected periodically to assess reproductive history. Knowing the age of bears harvested is essential for calculating several population indices and helps in the development of population models. The pre-molar tooth provided by successful hunters is also essential for estimating bear populations in the UP and NLP using capture-recapture methods (described below).

Annual mail surveys of a randomly selected subset of bear license holders have been conducted in most years since 1982 (Frawley 2008). The purpose of these surveys is to provide an estimate of bear harvest and to collect additional data used in the calculation of several bear population indices.

## **Bear Population Indices**

The use of indices to monitor wildlife populations is a common wildlife management practice (Lancia et al. 1996), and many agencies use a variety of indices for evaluating bear populations. Bear population indices measure an attribute of the population and can be used independently to monitor changes in population status. While indices do not estimate or enumerate the number of bears in a population, they can be used to determine whether the population is increasing, decreasing, or is stable over time. Indices determine population trends over multiple years and are not reliable indicators of annual changes in population size unless a known relationship between the index and the population is determined. The DNR considers the logistics of data collection including cost, data reliability, and ability of the index to detect population change when selecting an index. Use of multiple indices strengthens the assessment of population status and the DNR uses several indices (described below) to monitor regional bear populations.

### ***Hunter Harvest***

In theory, mandatory registration provides a total count of the number of bears harvested annually. Hunter compliance with mandatory registration is high based on comparisons between registration results and mail survey estimates of the harvest (Frawley 2008). Changes in the harvest from season to season are related to changes in the size of the bear population as well as population-independent factors such as the availability of natural foods, weather, and hunter experience.

### ***Hunter Success and Hunter Effort***

The responses of hunters to questions in the annual mail survey are used to estimate the number of bears harvested, the days of “effort” required to harvest a bear, and overall success of hunters in a region. When other factors are equal, trends in hunter effort and hunter success are believed to reflect changes in the bear population. Hunter effort is inversely related to population size, that is, as the population declines, the effort required to harvest an individual animal increases. Hunter success is positively related to population size because as the population increases, individual hunter success also increases.

### ***Bait-station Surveys***

Bait-station surveys have been used to monitor the status of Michigan’s bear populations since the mid-1980s. Annual changes in visitation rates by bears to a baited area are used as an indicator of changes in the bear population. Baits, usually bacon or sardines, are suspended from a tree in a fashion that makes it difficult for animals other than a bear to access the bait. Baits are spaced approximately one-half mile apart along roads and trails to reduce the chances of a single bear taking multiple baits. Baits are checked after one week and the number of sites visited by bears is determined to produce a visitation rate. Visitation rates are related to population size because it is assumed that as the population decreases, fewer baits are visited by bears.

### ***Harvest Age and Sex Distribution***

Changes in the age distribution of harvested bears may reflect real changes in bear reproduction and survival. If natural mortality and reproduction of a population are stable, a change in age distribution over time towards a higher proportion of younger animals is thought to be indicative of

an exploited population. Younger black bear populations can be less productive because most female bears in Michigan are not sexually mature until three to five years of age.

### **Bear Population Estimators**

Population estimators attempt to enumerate population size. Some population estimators allow calculation of confidence intervals around a mean estimate, effectively providing a range of estimates. Efforts are made to track and estimate populations at the regional level, but some of the estimators lack sufficient data to produce separate estimates for the EUP and WUP. In those cases all the UP data are combined to produce a single UP estimate.

#### ***Population Reconstruction***

The bear population can be “reconstructed” by using known ages from individual bears. Mandatory registration of all harvested bears and the cementum aging of bear teeth provide the data necessary to reconstruct bear populations. However, population reconstruction from harvest data provides only an estimate of the minimum population size in the relatively recent past (i.e., five to seven years ago) because bears can live to greater than 20 years of age. Additionally, hunting is only one source of mortality for bears. An estimate of the total population can be obtained from harvest data by dividing minimum estimates by a lifetime recovery rate (Roseberry and Woolf 1991) which for UP bears is less than fifty percent (Mayhew and Etter 2008).

#### ***UP Tetracycline Capture-Recapture Estimator***

Since 1989, a tetracycline based capture-recapture survey has been used to estimate the size of the UP bear population (Garshelis and Visser 1997, Mayhew and Etter 2008). Tetracycline is an antibiotic that binds to calcium in bones and teeth, and fluoresces under ultraviolet light. Tetracycline-laced baits are placed across the UP in the summer. Baits are suspended from a tree in a fashion that makes it difficult for animals other than a bear to access the bait. A bear becomes “captured” or “marked” when it consumes bait laced with tetracycline. By marking a large number of bears using tetracycline-laced baits and later collecting and examining the teeth from hunter-harvested bears (“recaptured”), an estimate of population size can be calculated.

Tetracycline-based population estimates have not been derived for Drummond Island (DI) or the NLP. Tetracycline-based population estimation was attempted for these areas in the mid-1990s. On DI, an insufficient sample of marked bears was obtained without risking “double-marking” bears (i.e., bears that take greater than one tetracycline bait). Additionally, the low number of bear harvested annually on DI reduces the probability of recaptures and influences the estimate. An additional issue in the NLP was the inability to identify an unknown source of tetracycline in some bears. This may have been the result of bears consuming honey or bees from apiaries because bee keepers often use tetracycline to treat bees.

#### ***NLP Genetic Capture-Recapture Estimator***

The same principles that are used for the tetracycline capture-recapture estimator also apply to the NLP Genetic Capture-Recapture Estimator. The difference is that individual bears can be “captured” or “marked” and later identified with genetic techniques using hair and tissue samples (Dreher et al. 2007, Etter and Mayhew 2008). Bears are attracted with bait to a barbed wire

“snare” configured around three to four closely spaced trees. Bears deposit hair samples while navigating through the barbed wire to access the bait. For several weeks during the summer, hair snares are checked and samples collected. Deposited hair follicles, which contain DNA, are used to identify individual bears from each sample period (one week). A final recapture event includes collection of tissue samples (contained in teeth) from each bear harvested from the NLP. This technique has advantages over the tetracycline capture-recapture technique because individual bears can be identified using DNA, whereas the tetracycline technique does not allow for identification of individual bears unless they are recaptured in the harvest. This difference allows for the use of more sophisticated statistical models potentially increasing the accuracy and precision of the bear population estimate. However, the genetic technique is much more labor intensive and costly than the tetracycline technique, making it prohibitive to operate in the UP where the bear population is considerably larger and many more bears are harvested annually.

### **Bear Population Model**

Population models also attempt to describe the population based on past and present demographic information including harvest data. The population model currently being used by the DNR was developed in 1984 by the Minnesota DNR (Garshelis and Snow 1988), and was subsequently upgraded by Minnesota and Wisconsin researchers. The model is a conceptually simple accounting type model based on a variation of the equation:

$$N_{t+1} = N_t + B_t - D_t$$

where  $N_t$  is the population size at time  $t$ ,  $B_t$  is the number of bears recruited to the population through births, and  $D_t$  is the number of deaths of bears alive at time  $t$ . In the model, immigration (bears moving into the population from an outside source) and emigration (bears dispersing from the population) are considered equal. The model is deterministic which means that each run with the same inputs will produce identical results. There is no component of random variation and therefore no confidence intervals are produced in the output. The necessary model inputs include: 1) a starting and ending year, 2) a starting population size, 3) an initial sex and age composition, 4) reproductive parameters (litter size, cub sex ratio, and percentage of females producing cubs at each age), 5) natural and other human-caused mortality rates, and 6) harvest mortality (actual number). All mortality parameters are sex and age specific. Input parameters used to model the bear population are derived from population estimates from Michigan surveys, information from the published literature, research conducted in Michigan, and data from the annual bear harvest.

### **Current Population Status and Range in Michigan**

Bear populations in Michigan have been steadily increasing since at least the 1990s (Figure 1). An estimated 19,000 bears (including cubs) occupy approximately 35,000 square miles of suitable bear habitat in the UP and NLP. Greater than eighty-five percent of the bear population resides in the UP where large tracts of state, federal, and private commercial forest lands contain good to excellent bear habitat. Bear populations in both Peninsulas are believed to be stable to increasing, and an increasing number of bear observations in southern Michigan suggest that bears are expanding from the NLP into the SLP.

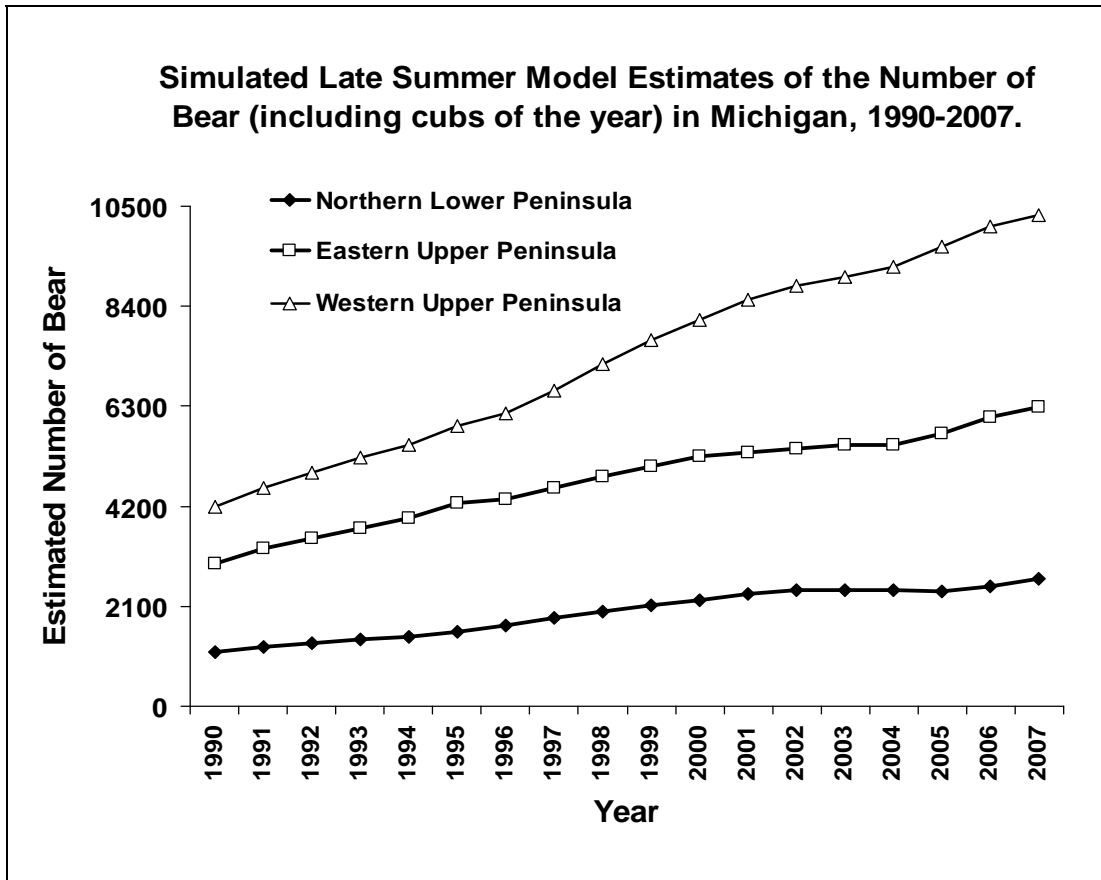


Figure 1. Simulated late summer model estimates of the number of bear in Michigan, 1990-2007.

Black bears are relatively common north of a line from Muskegon to Saginaw. Bears are less common and in some cases likely only seasonal transients in much of the area south of this line. A simulated model of preferred bear habitat indicates that less than three percent of the landscape in southern Michigan is suitable for black bears (Carter 2007). However, this model was based on data collected from radio-collared bears that resided in the NLP and may not fully describe the potential for bears to become established in southern Michigan. For example, bear populations are expanding and growing rapidly in New Jersey, the most densely populated state in the nation (McConnell 1997). Bears living on the fringes of suburbs in Southern California have altered their foraging times to later at night when human activity is minimal (Lyons 2004). Based on these references and an increasing number of bear observations, southern Michigan may provide better bear habitat than predicted by the simulated model.



## **Harvest Management**

### **Legal Authority**

The DNR has a public trust responsibility for the management of all wildlife species and populations. Primary legal authority for wildlife management and regulation comes from the Natural Resources and Environmental Protection Act, Public Act 451 of 1994. Part 401 of Public Act 451 gives authority to the NRC and the DNR Director to issue orders (the Wildlife Conservation Order) specific to wildlife management and hunting.

In 1996, Michigan voters supported a hunting ballot initiative requiring the NRC to use “principles of sound scientific management” in making decisions concerning the taking of bear and other wildlife. This legislation also gave exclusive authority to the NRC over the method and manner of take for game species. Following passage of the initiative, it was codified as Section 40113a of Public Act No. 451 of the Public Acts of 1994, MCL 324.40113a.

### **A Brief History of Bear Hunting in Michigan**

Sport hunting of black bears was first regulated in 1925 when the Michigan legislature declared the species a game animal. Prior to 1925, bears could be taken at any time and by any means. In 1939, the legislature rescinded statewide bear regulations, but authorized the Conservation Commission (now the NRC) to grant protection for bears in counties requesting it. Using bait for bear hunting has always been legal in Michigan and hunting bears with dogs became legal in 1939. Cubs were first protected in 1948, and in 1952 the legislature empowered the NRC to open or close bear hunting seasons as necessary, and to prescribe methods of take. Also in 1952, bear trapping was outlawed except under special permit.

In general, bear hunting opportunities coincided with the firearm deer hunting season through 1952. The first and only spring bear season (April 1-May 31) was held in 1953. Early (August 15-September 15 in the UP, and October 1-November 5 in the LP) and late fall (November 15-30) hunting seasons were established and continued through 1964. In 1965, bear hunting was closed in the NLP due to concerns about a declining bear population and limited hunting opportunities in the NLP resumed in 1969.

The first bear hunting stamp (license) was issued in 1959. However, only small game license holders who were interested in hunting bear were required to affix the stamp to their license. The stamps were issued through 1963. From 1959-1963, firearm deer license holders were not required to possess a stamp to harvest a bear during the firearm deer season. During the 1964 and 1965 seasons, a separate bear license was required of all bear hunters. Again, between 1966 and 1979, firearm deer license holders were not required to possess a stamp to harvest a bear during the firearm deer season. It was not until 1980 that a separate bear license was required. In 1990, bear hunting was placed under a zone and quota system which is still in use today, and during the same year it became illegal to take bear during the November firearm deer season.

When regulated, the bag limit has been one bear per year per person in Michigan. Beginning in 1995, it became unlawful to take a female bear accompanied by cubs. Hunters in Michigan usually use bait, dogs or a combination of both to pursue bear (Frawley 2008).

## **Current Management Areas**

### ***Regions***

To facilitate the management of bears, primary bear range in Michigan is broken into three ecological regions; the EUP, WUP, and NLP. Drummond Island (DI) at the east end of the Upper Peninsula is semi-isolated and a unique habitat for bears and thus is managed separate from the UP and NLP. Population dynamics are assessed relative to the ecological characteristics of each distinct ecoregion. Although populations of bears are not physically isolated by ecological boundaries (i.e., there is not complete demographic closure among regions), differences in genetic population structure are evident between the UP and NLP suggesting that movements of bears between the two peninsulas are infrequent (Lopez 2004).

### ***Bear Management Units***

In 1990, a zone and quota system was established to regulate the bear harvest and limit the number of bear hunters in specific areas. Ecological regions (EUP, WUP and NLP) are presently divided into 11 zones called Bear Management Units (BMUs; see 2008 Michigan Bear Hunting Guide). Bear Management Units are designed to help distribute hunters and thus the bear harvest throughout the entire ecological unit, rather than allowing hunters to target animals only in optimal habitats. Some BMUs have only one time period when hunting is allowed, while others have several, sometimes overlapping, hunt periods. By distributing hunters throughout the ecological region, BMUs also help to assure that biological information obtained from harvested bears is representative of the entire region's population. Boundaries of BMUs typically are established as clearly recognizable roads, rivers or county lines for the benefit of hunters and to assist with law enforcement.

## **Quota System for Distributing Bear Hunting Licenses**

Because of increasing demand for bear hunting opportunities, in 1990, a quota system was established to limit the number of bear hunters and to better influence the distribution and density of hunters in the different BMUs. Under the quota system, the number of hunters participating in each unit and hunt period is limited by the number of licenses issued to achieve a desired bear harvest but still maintain a high level of recreational opportunity. Under this system, beginning in 2000, individuals that apply for a bear license receive a preference point each year that they apply for a bear license but are unsuccessful at drawing a license. In the drawing, applicants with the greatest number of points in each BMU and hunt period are issued licenses first. Applicants may opt to receive a preference point only, and bank the point for future drawings. Beginning in 2007, applicants could indicate a second choice hunt which is considered if all licenses for the first choice hunt are awarded. The second choice hunt was established to provide additional hunting opportunities and meet the desired harvest levels. Black bear populations have increased over the years (Figure 1), leading to more hunting opportunity and increased license availability. However, during the same period, there has also been an increase in the number of bear hunters (Frawley 2008). This has led to increased

competition for licenses in some BMUs. Odds of drawing a license are specific to each BMU and hunt period. The number of hunters applying for licenses increased most years from 1990 to 2004, but has been relatively stable for the last four years.

Because approximately 85 percent of Michigan's black bears are in the UP, there are also more bear hunting opportunities in the UP. Over 80 percent (approximately 10,000) of the 12,000 possible licenses were available in the UP in 2007 and similar opportunities are available in 2008.

### **Current Bear Hunting Periods**

The timing and length of bear hunting seasons varies throughout the state in order to achieve desired harvest levels, while at the same time providing ample recreational hunting opportunities. Additionally, the number of hunters who desire to hunt in a particular region also varies. In general, bear hunter demand is highest in BMUs with a combination of high bear densities and close proximity to higher human populations. Currently, bear hunting seasons occur in mid-September in the NLP and from September 10 through October 26 in the UP. There is also an archery-only season in early October in the Red Oak BMU in the NLP. The season in the UP is arranged in three overlapping hunt periods. The first hunt period has a five day quiet period from September 10-14 during which dogs may not be used.

These seasons were determined over time using a combination of biological and social factors. Hunting success, particularly for hunters not using dogs, is most closely tied to periods of natural food availability. When there is an abundance of natural food, hunting success tends to decrease (MacDonald 1994). Prior to mid-September, both soft and hard mast is available in abundance, suggesting that in most years hunting success would be relatively low during this time. A second consideration is the effect of weather, both on bear movement patterns and the resulting hunter success levels. Meat care may also be an issue in some areas. Higher temperatures, particularly in inland areas and earlier hunt periods, may result in meat spoilage.

### **Land Ownership**

Black bears are generally forest animals and forested cover types and land management practices within these cover types can impact available habitat for bears. Michigan has nearly 19 million acres of forest land, and approximately 65 percent is privately owned. The DNR manages approximately 3.9 million acres of forest land scattered across the UP and NLP. Slightly more than half (51.6 percent) of DNR owned forest land is located in the NLP eco-region. The EUP and WUP eco-regions contain 26.5 percent and 21.9 percent of forested cover types, respectively (Michigan State Forest Management Plan 2008). Approximately 35,000 square miles of suitable bear habitat is located in the UP and NLP (Bostick et al. 2005).

Ownership patterns provide unique challenges for bear management. In general, public lands consist of good bear habitat (mostly forested); whereas private lands vary in the quality of habitat they provide. Individual bears have large home-ranges and seasonal movements of ten to 20 miles are common for black bears. Mature males in Michigan have been known to move even greater distances during the breeding season. As bears move across the landscape they cross multiple jurisdictional boundaries and private land parcels. Land uses and management practices

vary widely across bear range, particularly on private lands. Because of these various uses and practices, bears may be in conflict with some private land owners while others may want to attract bears to their property for viewing or hunting opportunities. Additionally, access to private lands to hunt bears is also limited by the property owner which can influence bear harvest in different areas of the state. In the UP, approximately 40 percent of lands are in public trust (state and federal lands), 20 percent are in private ownership, but open to the public through the Commercial Forestlands Act, and the remaining 40 percent are in private ownership. In the NLP (Zone 2; see 2008 Michigan Hunting and Trapping Guide), approximately 31 percent of lands are in public trust, less than one percent are in CFA agreement, and 68 percent are in private ownership. In the SLP (Zone 1, see 2008 Michigan Hunting and Trapping Guide) less than five percent of lands is in public trust, with the remainder in private ownership.

## **Population Goals**

Wildlife managers often develop goals for wildlife species whose numbers can be influenced through management actions. Population goals can be important targets sometimes established as a function of the biological and social carrying capacity (see below). If population goals are established, factors such as a species' life history, available habitat, land use and ownership patterns, habitat management plans, wildlife-human interactions, and social tolerance must be considered. Natural resources decision makers can use established population goals to direct management policies and impact resource allocation for wildlife species.

There are two different types of population goals that can be developed for black bear populations: qualitative goals and quantitative goals. Qualitative goals are based on the social desires for a particular abundance of bears in an area. The actual population does not need to be enumerated, but rather stated as “not enough,” “too many,” or “just the right amount” of bears relative to a desired social attribute. From a management standpoint, biologists can state desired population goals as increase, decrease, or maintain the bear population relative to current levels. Qualitative goals can also be stated relative to quantitative measures. For example, there may be a social desire to maintain a certain level of bear hunter satisfaction, or minimize bear-nuisance complaints. Both of these “indices” can be measured quantitatively, but they still reflect a social desire relative to attitudes towards bears. Qualitative goals also can be measured against enumerated population levels if the bear population can be estimated accurately. However, this approach should be viewed with caution because accurate estimates of wildlife populations are difficult and expensive to obtain, and social attitudes towards wildlife change frequently due to factors that may or may not be related directly the relative abundance of a species.

Quantitative population goals attempt to identify a desired population size or a numeric range within which the population is considered to be at the desired goal. Black bear management plans that establish quantitative population goals require more intensive data collection and analysis compared to those using qualitative goals. Population size estimates are generated from data sets that often require intensive field collection efforts. Staff time and available funding can be constraints to conducting this level of data collection. Although more data intensive, numeric population goals and their requisite population size estimates can offer an advantage over qualitative goals by determining the degree to which a population is over or under goal.

Regardless of the type of goal used, it is important that population goals be adaptive to changes in the landscape, relative abundance of bears, number of hunters, and social attitudes. Presently, the DNR uses a combination of qualitative and quantitative goals to manage the state's bear population.

## **Management Strategies**

Public Act 451 requires that the DNR use sound science when making bear management decisions. Scientific information is obtained from research, in-state surveys, and published literature. Social issues associated with bear-human interactions (both positive and negative) are also important factors that must be considered when making decisions regarding the harvest of bears in Michigan. Qualitative social information is obtained from discussions with tribal governments, stakeholders, DNR field staff, and other agency staff. Quantitative social information is obtained from surveys such as the annual "Michigan Black Bear Hunter Survey", which asks questions pertaining to specific management options or objectives. Additional quantitative social information, not necessarily associated with hunting, is also obtained through surveys (e.g., Peyton et al. 2001).

Scientific management incorporates the concept of adaptive resource management, an iterative process by which changes in management actions (e.g., hunting regulations, or educational efforts) are evaluated to determine if these changes achieve management goals. Management efforts over time are modified as new information is obtained, new analyses are conducted, or factors that influence bear ecology change.

The current bear management program includes research to help understand the ecology of bear and social acceptance capacity of Michigan's residents. In addition, the DNR provides information to the public about bears and technical assistance to landowners with unwelcome bear encounters. Sport hunting has the capacity to influence abundance of black bears, provides recreational opportunities, and is an important tool used to manage the distribution of Michigan's bear population.

The mission of the Department's black bear management program is to maintain a healthy black bear population that provides a balance of recreational opportunities for residents while at the same time minimizes conflicts with humans. To fulfill this mission, the DNR has established six strategic bear management goals focusing on populations, recreational opportunity, and education.

### Population

- 1) Maintain long-term, viable populations of bear within habitats suitable for the species.
- 2) Maintain bear populations at levels compatible with land use, recreational opportunities, and the public's acceptance capacity for bears.
- 3) Manage black bear habitat to provide for the long-term viability of the species.

- 4) Use hunting as the primary tool to help achieve population goals.

### Recreation

- 5) In addition to hunting, provide bear-related recreational opportunities which recognize the aesthetic value of bears.

### Education

- 6) Promote education about bears, bear-related recreational activities, and how to minimize negative human-bear interactions.

## **Regulatory Process**

### **Establishment of Bear Harvest Objectives and License Quotas**

Each year, population estimators, indices, and models are updated by the state bear specialist and research biologist. This information is forwarded to members of the Bear Management Workgroup, Management Unit Supervisors (MUS), tribal governments in the 1836 ceded territories, and other interested agencies. Workgroup members and the supervisors meet with the wildlife habitat biologists in their respective areas to assess the status of local bear populations and determine harvest levels necessary to manage populations at desired levels. They also discuss any issues relevant to bear management that would require changes to regulations. Government-to-government consultations with the 1836 Treaty Tribes are conducted to discuss harvest quotas and any proposed regulations changes. Additional meetings with US Forest Service or other agency biologists may occur to discuss management issues of particular interest to these groups. Further, the DNR receives feedback and information on bears and bear management on a continual basis from user groups interested in bears, from agricultural groups, and from the general public. Perceived or measured social tolerance (which varies geographically) is given strong consideration when making harvest recommendations. After taking all of the available biological and social information into consideration, and weighting the factors appropriately for their management unit, MUSs forward to the field coordinator and statewide bear specialist their regional population trajectory recommendations (e.g., increase, decrease, or stabilize the regional population) and any other proposed changes to bear hunting regulations. The bear specialist reviews these recommendations in the context of statewide issues and needs. Any conflicts are moved to the species section supervisor and field coordinator for resolution.

The regional (EUP, WUP or NLP) bear population model is used to determine the level of harvest required to achieve these goals. This harvest level is termed the “desired harvest” and is represented by the number of bears in a region that would have to be harvested during the hunting season in order to allow the population to reach the population trajectory goal.

Once the desired harvest levels for each region have been established, the MUSs distribute the proposed regional harvest among BMUs within that region. In the UP where there are three hunt periods, the desired harvest is first distributed equally among hunt periods and then the number

of licenses is calculated to achieve this harvest in each period. The number of licenses (quota) that will be recommended for each BMU and hunt period is determined using a three-year running average of license success (bears harvested/number of licenses issued) by hunt period for each respective BMU. If past license application rates do not appear to be high enough to achieve the desired harvest in a given hunt period, the harvest is adjusted into other hunt periods to try to maintain the overall desired harvest and have no leftover licenses. Applicants may select a first and second hunt choice. If any licenses remain after first and second hunt choices are awarded, leftover licenses become available to unsuccessful applicants for a week and then become available to individuals that have not applied for a bear license.

Once these recommendations have been reviewed and approved by all of the DNR Resource Bureau Division Chiefs and the Director, they are forwarded to the NRC for consideration.

### **Natural Resources Commission Process**

The NRC has an established process for review and approval of all Wildlife Conservation Order amendments. While a 60-day public review is built into that process, 30 days of public review are required by Act No. 451 of the Public Acts of 1994.

- 1) The process begins on the Monday following the regularly scheduled monthly NRC meeting when the Department submits a memo outlining the recommendations to the NRC. This action puts the recommendations on the NRC calendar for the following month and opens a public review period.
- 2) At the following month's NRC meeting, the Department typically makes a presentation "for information" on the recommendations, and questions from the NRC are addressed. At this time the public has an opportunity to speak before the NRC to voice their concerns, support, or opposition to the recommendations. The NRC does not take action to approve the recommendations at this meeting.
- 3) At the subsequent NRC meeting (approximately 60 days after the recommendation memo was submitted), the NRC typically takes action on the recommendations. There is another opportunity for the public to voice their concerns, support, or opposition to the recommendations. At the end of the meeting, most often the NRC votes on the recommendations, yet can defer the decision to a later meeting following additional public comment. If approved, the recommendations become part of the Wildlife Conservation Order and the Department can take actions to ensure the approved recommendations are implemented.

### **Economic Impacts**

There are a variety of economic impacts of having bears in Michigan. One economic benefit is from bear hunting. For example, in Michigan during 1998, an estimated 7,196 hunters spent an average of 474 dollars per bear hunt, for an estimated total of 3.4 million dollars (Etter et al. 2002). Baiting and hunting bears with dogs lend themselves to outfitting, and a significant bear outfitting industry has developed in some areas.

Wildlife viewing also contributes to the economy of Michigan. While it is difficult to assess what portion of wildlife viewing funds are generated due to bears specifically, bears are a popular, large animal that visitors often seek to encounter. United States Forest Service surveys indicate that National Forest visitors rank seeing a bear high on their list of desired activities when recreating in the National Forest system. Over three million people participate in wildlife viewing annually in Michigan and Michigan ranks sixth in the nation in dollars contributed (2.68 million dollars) to the economy from wildlife viewing activities (Leonard 2008).

Bears can also cause negative economic impacts. Bears visit apiaries, orchards, row crops, individual residences and cottages in search of food. Although economic cost estimates are not available for bear damage on a statewide basis, bears can cause considerable damage. An individual bear can cause significant damage to bee hives and one bee keeper reported bear damage costs of 24,000 dollars in a single year (DNR unpublished). Fruit growers and bee keepers incur costs to erect electric fences and other deterrents to protect their crops from bear damage. Damage can also occur within privately-owned cervid facilities, when bears consume deer feed and prey on fawns.

## **Bear-Human Interactions**

### **Biological and Social Carrying Capacity**

The abundance and distribution of black bears in Michigan is influenced by biological carrying capacity (BCC) and social carrying capacity (SCC). The concept of BCC proposes the abundance of any wildlife species is limited by the ability of the available habitat to support the population. The concept of SCC proposes the abundance of a wildlife species is limited by the human social environment or human tolerance for that wildlife species.

Biological carrying capacity is determined by habitat components such as food, water, shelter and space, and addresses the maximum population size that can be sustained under varying availability of these factors. It can be influenced by bear social behavior which is influenced by bear density. If a population is at BCC, bear productivity may be limited because of later ages of first reproduction, longer intervals between litters, smaller litter sizes, decreased cub and yearling survival rates, and greater social conflict. The high productivity and low natural mortality rates observed in Michigan suggest that the bear populations are below BCC.

While BCC only addresses the maximum population that can be sustained by the available habitat, SCC is defined by both the maximum and minimum population sizes that society will tolerate. Issues and conflicts occur when stakeholders disagree on acceptable levels of bear-human interactions. Bear management often focuses on managing issues created by bear-human interactions and dealing with the differences in stakeholder values, beliefs, and tolerances regarding those interactions.

Bear-human interactions can be positive or negative. Positive interactions may include knowing bears are present in an area, observing bears, and bear hunting. Negative interactions may include bears causing property damage and people fearful of bears for a variety of reasons. Both positive and negative interactions are important to stakeholders and influence their tolerances



and preferences for bear abundance. Social carrying capacity is determined more by the type of interactions people have with bears than bear population size per se.

A SCC model was developed in the Lower Peninsula (LP) of Michigan in 2000 by Michigan State University and the DNR (Peyton et al. 2001). As part of the study, surveys were sent to 6,000 LP residents. Four zones from north to south were identified based on the approximate density of bears, and mailings were stratified accordingly. Results of the study indicated that 10 percent of the respondents were intolerant of the presence of bears, while 60 percent indicated they would only become intolerant if they perceived a personal threat by a bear. A greater proportion of respondents in the most southern stratum were intolerant of the presence of bears and this proportion decreased in the northern strata. Over 60 percent of the respondents indicated the existence value of bears was an important benefit, and “the role bears play in nature” and recreational viewing also were considered important. Recreational hunting was not seen as a personal benefit by a majority of the respondents.

For addressing problem bears, the most accepted management option was to “leave the bear alone, provided no one was injured.” The next preferred options were “a carefully regulated hunt,” and then “capture bears which repeatedly cause problems for people and relocate them to another part of the LP.” The option to “destroy bears which repeatedly cause problems for people” was the least favored.

Respondents desired a clear policy and guidelines for managing nuisance bears. They desired agency employees with training and equipment to implement the policy, and good communication with the agency concerning the policy and rationale. Since completion of this study, the DNR has developed the *Michigan Problem Bear Management Guidelines* and annually conducts training of personnel in the safe capture and handling of bears. A *Living With Bears* slide presentation has been created and presented to a number of interested stakeholder groups. Additional public education materials have been developed and shared with the public, including a *Preventing Bear Problems* section on the DNR website at [www.michigan.gov/dnr](http://www.michigan.gov/dnr).

### **Bear-Human Encounters**

Black bears are shy, elusive animals, usually flee when encountered, and are generally not a threat to humans. However, bears are large and powerful animals that have been known to injure and even kill humans if they feel threatened. Fatal human encounters are rare; from 1900 through the summer of 2005, 57 people in North America have been killed by black bears, while it is estimated that millions of interactions between people and bears occur annually (Masterson 2006).

Based on reported bear observations in recent years, it is assumed that bears will continue to expand their range southward into more populated areas of Michigan. At the same time, residents from urban areas have continued to move into areas traditionally occupied by bears to the north. These shifts in human and bear demographics suggest that bear-human interactions are likely to become more common.

## **Baiting and Supplemental Feeding**

Black bear hunting is an established tradition in Michigan, and has strong statewide support among hunting groups. The majority of Michigan bear hunters use bait to attract bears and improve harvest opportunities. Over 90 percent of Michigan bear hunters either hunt directly over a baited site, or use bait to attract bears to a specific site so that they can be hunted with dogs (Frawley 2008).

Some individuals or special interest groups contend that baiting bears for hunting habituates bears to human foods and thus increases the likelihood that individual bears will become a nuisance. However, others contend that bear that visit baits placed by hunters are less likely to survive or have negative associations with humans (hunters) at bait sites and are thus less likely to become a nuisance. Neither of these hypotheses have been tested, so it uncertain whether either is true.

Supplemental feeding of wildlife involves the deliberate placement of foods to draw bears into the proximity of people for the purpose of enhancing viewing opportunities or augmenting naturally occurring food resources. Supplemental feeding is not advised by the DNR because of the potential for habituating bears and making them more likely to become involved with negative bear-human interactions.

## **Recreational Viewing**

Historically, some northern Michigan restaurants and towns maintained open garbage dumps as feeding sites for the purpose of attracting and viewing bears. Today this practice has been discontinued in most areas because of improved sanitary requirements meant to protect people and wildlife. Many Michigan residents and visitors still desire to see black bears in the wild, or have the opportunity to photograph one. However, recreational viewing of a species that exists at low relative density is likely to remain a function of local bear abundance, seasonal habitat quality, time spent afield, and random chance. The best viewing times would coincide with prime bear activity times of dawn and dusk. Black bears are naturally reclusive animals that tend to prefer habitats with thick vegetative cover; most bear observations are likely to remain a rare event.

## **Orphaned Cubs**

Female bears rarely abandon their cubs, but if unexpected sow mortality or persistent site disturbance (especially den sites) occurs, cubs are sometimes orphaned in the wild. Depending on the time of year when cubs are orphaned, the chances for their survival are very low. Because this is a very rare event, the population level implications are minimal. However, popular public opinion is that the DNR should respond to instances regarding orphaned cubs and make efforts to return cubs to the wild. The DNR maintains a small number of radio-collared female bears to act as foster mothers for orphaned cubs. If cubs are orphaned soon after their birth in the winter den, in many instances they can be successfully added to the existing litters of nursing, radio-collared sows. After den emergence, female black bears will sometimes accept a foster cub if the orphan's scent can be masked and it is placed in the same setting with the sow's own cubs. In

rare instances if placement with a surrogate mother is not possible, orphaned cubs can be held and cared for by a trained wildlife rehabilitator. After July 1, cubs are considered old enough to survive on their own and cubs obtained after that date are released to the wild. Zoos or accredited wildlife facilities are sometimes used as a permanent home for orphaned cubs when other options are not available.

## **Bear-vehicle accidents**

Most recorded bear mortality in Michigan is from hunting or bear-vehicle collisions. However, unlike deer-vehicle collisions, the Michigan State Police does not maintain an official database to track bear accidents. In some areas where bear-vehicle accidents are common, caution signs similar to deer crossing signs have been placed to alert motorists of the potential for bear crossings. As the bear population expands into areas of the state with higher human densities, the possibility of bear-vehicle accidents increases not just in the traditional northern bear range, but statewide. In the last five years, bear-vehicle accidents have been reported in a number of southern Michigan counties including Barry, Kent, Genesee, and Muskegon. A mechanism to gather bear-vehicle accident information has not been established, nor have protocols been developed to recover bear carcasses resulting from vehicle collisions.

## **Problem Bear Protocols**

The issue of nuisance or problem bear management is complicated, and involves human behaviors and perceptions, as well as bear behavior. There is a wide range of public opinions as to what constitutes a bear problem, or a problem bear. To some, the mere presence of a bear is a perceived problem, while others may enjoy seeing bears on a regular basis. Publications such as *Preventing Bear Problems in Michigan* provide useful and proactive suggestions to minimize the chance of negative bear-human interactions and people can often solve their own bear concerns before they become a nuisance. However, when bear incidents do occur, the DNR response follows steps outlined in the *Michigan Problem Bear Management Guidelines*. Responses range from providing technical assistance to landowners, to physically removing a bear, to euthanizing individual bears when public safety is threatened. The information in this guidance document is part of an educational effort that integrates personnel from DNR Law Enforcement, Wildlife, and Office of Lands and Facilities staff, as well as local law enforcement agencies and emergency dispatchers, and in some unique cases, zoos or accredited rehabilitation facilities.

## **Additional Bear Hunting Issues**

### **Hunter Conflicts**

Conflicts sometimes arise between bear hunters and other outdoor users in part due to limited opportunities to hunt bears and because bear season(s) coincide with a time of increased outdoor recreation (e.g., other hunting seasons, wildlife viewing). Historically, bear hunters in Michigan have been permitted to use bait and/or dogs to hunt bears. Both methods are effective, particularly in rugged areas of Michigan with limited access. Greater than 90 percent of Michigan bear hunters use bait to attract bears (Frawley 2008). Approximately 12 percent of hunters use dogs or a combination of dogs and bait.

Bear hunters are permitted to establish no more than three bait stations per hunter. Baits cannot be placed for bears prior to August 10 in the UP or prior to 30-days before the opening of bear season in the LP (August 19 in 2008). It is unlawful to use man-made materials or a container at a bait site on public or commercial forest lands (CFL) however, these materials are legal on private land. One issue related to baiting for bears is that some individuals assume “territorial ownership” of public lands and they attempt to exclude all other hunters (including hunters of game species other than bear) from the area they are baiting. Additionally, although bait containers are illegal on public land some hunters use and leave them when their hunt is done. Removing this refuse is then at the expense of the land owner (e.g., DNR, USFS, CFL owner). Complaints about disturbance of bear bait hunters by other outdoor recreationists is also common, particularly in the NLP where bear season does not open until after many of the small game (e.g., grouse, rabbit, hare) hunting seasons open. There are additional special deer hunting seasons open during the bear hunting season in portions of the NLP and these overlapping seasons also have potential to cause conflicts among hunters.

Bear hunters may pursue bears with dogs except during certain times of year and during certain periods of the open bear hunting season. These periods of no bear dog activity are commonly referred to as “quiet periods.” Most bear hunters who use dogs will train their dogs during the summer before bear hunting season begins. In order to protect nesting birds and young wildlife during the time of year in which they are most vulnerable, a quiet period was established between April 15 and July 15; no hunting dogs (includes all hunting dogs) may be trained on game between those dates except on specially designated state lands or unless the dog handler receives a permit from the DNR to conduct a special dog hunting field trial. Under current regulations in the UP, hunters may not pursue bears using dogs the first five days of the first hunt period. This quiet period was put in place to reduce potential conflicts between hunters using bait and hunters using dogs. However, in the NLP both methods are permitted simultaneously throughout the general one-week bear hunting season. Dogs are not permitted for hunting bear in the Red Oak BMU during the archery-only season (October 5 to 11 in 2008).

Conflicts between bear bait and dog hunters sometimes occur on public lands. Hunters using bait sometimes complain that dogs chase bears off of their baits, while dog hunters claim that other factors, not their dogs, are the reason for decreased bear activity at an individual bait site. Controversies have also occurred between private landowners and dog hunters. Bears have large home ranges and can potentially cross multiple parcels of land (in both private and public ownership) while being chased by dogs. This can lead to conflicts between bear dog hunters and private land owners who do not want dogs or hunters on their property.

Another issue arises when some dog hunters alter road conditions to facilitate locating fresh bear tracks. Dog hunters will sometimes drag a chain link fence or other object down a dirt road or on the shoulder of a paved road to scarify the soil. They return at a later time to locate fresh bear tracks from which they can start a bear chase with their dogs.

### **Standardization of Bear Hunting Regulations**

In recent years, constituents have proposed regulation changes that vary but fall under the general category of standardization of bear hunting regulations. These changes typically center on the concept of having similar start dates and seasons including a bait-only season or portion of a season in the NLP as exists in the UP. Current season structures vary significantly between the UP and the NLP (see 2008 Michigan Bear Hunting Guide). The ability to achieve desired bear harvest levels in the two Peninsulas, with very different season structures, is a complex interplay of many factors including, overall bear density and distribution, land ownership patterns, available bear habitat, hunter access, and hunter success. Based on the harvest location of bears reported by hunters, distribution of bears in the UP is relatively uniform with the exception of around human population centers (e.g., Marquette, Sault Ste. Marie, Escanaba). In the NLP, bear harvest centers around three core areas, the Luther-Mitchell Swamp in Lake and Newaygo Counties, the Dead Stream Swamp in northeast Missaukee County, and an area in the northeast NLP around the intersection of Montmorency, Alpena, Oscoda, and Alcona Counties (also commonly referred to as “Club Country”). Bear harvest intensity is likely an index to bear density and distribution. Bear hunter success varies by BMU and hunt periods in the UP (Frawley 2008). However, in most years overall hunter success is only slightly higher (one to five percent) in the UP compared to the NLP. Additionally, the number of days (effort) spent by hunters pursuing bears can influence bear hunter success and harvest. From 1996-2007, the average number of days spent by hunters pursuing bears was greater in the UP (seven -eight days) compared to the NLP (five days). However, the number of days each hunter can possibly hunt for a bear in a given season in the UP is 32 to 42 days compared to seven to 14 days in the NLP. These discrepancies are likely due in part to the interplay of the factors listed about as well as economic (e.g., influence of fuel prices) and social factors (e.g., proximity to human population centers) which are difficult to measure.

As an example of how standardization of UP and NLP bear seasons could potentially influence bear hunter recreational opportunities, in 2008 the NRC approved a significant season change on Drummond Island (DI) from a seven-day season with no quiet period to a 42-day season with a five-day quiet period (i.e., identical to the first hunt period in the remaining UP BMUs). Because of the anticipated increase in bear harvest success rates on DI, the number of available licenses recommended by the DNR to the NRC was reduced from 15 for a seven-day season to eight for a 42-day season. We are awaiting harvest results from 2008 to evaluate this change in regulations on DI. However, if additional days were added to lengthen the bear season in the LP, it is likely that license quotas would need to be reduced in some or all NLP BMUs to maintain current desired bear harvest levels.

### **BMU Boundaries**

The primary function of BMUs is to distribute hunters and thus hunting effort to achieve desired regional bear harvest objectives. Bears are not evenly distributed across the landscape and the majority of bear hunters hunt bears where they perceive the population to be at highest density (Frawley 2008). There are alternative views to present BMU boundaries with respect to bear distribution and distributing hunter harvest. Some hunters request that the size of BMUs be reduced to address perceived localized bear density. Others contend that BMU boundaries should be representative of bear ecology and natural landscape features as opposed to the desires of hunters.

Recommendations regarding the establishment or expansion of BMUs must take into account land ownership, the landscape or eco-region, bear home-range size, the ability to collect meaningful population level data, and clearly defined boundaries for easy identification by hunters, biologists and law enforcement personnel. Potential future expansion or creation of new BMUs in southern Michigan (areas presently closed to bear hunting) may also need to consider hunting methods or season dates to affect a desired bear harvest in a landscape dominated by private ownership.

### **Baiting/Disease Issues**

Baiting for bear is defined as, “a site where food or lure is placed that attracts bear.” Bear baits may include meat and meat products, fish and fish products, and bakery/confectionery products (see 2008 Michigan Bear Hunting Guide for a list of products) without quantity restrictions in both peninsulas. Additionally, prior to October 1 in the UP, baits may include up to two gallons of grains, fruits, vegetables, salt and minerals per bait station provided these materials are made inaccessible to deer. After October 1 these items may be used, accessible to deer, provided hunters abide by deer baiting regulations (quantity and distribution of bait). Grains, fruits, vegetables, salt and minerals are no longer permitted for baiting bears in the LP because since the discovery of Chronic Wasting Disease (CWD) in a deer in the LP. This discrepancy in legal materials for baiting between the UP and NLP may cause confusion among bear hunters using bait.

In the past, there have been some concerns expressed to the DNR regarding the possibility of poisoning of wildlife with chocolate at baits established for bears. Theobromine or Chocolate poisoning has been observed in Michigan in the past, occurring in raccoons in 2002 and 2005. These poisonings occurred at bear bait sites in Alpena, Otsego, and Dickinson counties and in all cases involved finding multiple dead raccoons on the bait sites. It may be possible for a bear to be poisoned by chocolate, but due to the size of the animal and the amount of chocolate that would need to be consumed, mortalities have not been observed and would not be likely. This and additional future disease issues may require further changes to bear baiting regulations in Michigan.

### **Bear Participation/No Kill Tag License**

In the late 1980's, a concern was voiced by Michigan bear hunters regarding group hunting for bears by non-resident hunters using dogs. In 1989, an Opinion of the Attorney General clarified that “A person shall not hunt bear without a bear license,” and further “hunt and hunters means the pursuing, capturing, shooting, killing, or taking of wild animals, and including attempting to take a wild animal.” The Attorney General concluded that all persons engaged in hunting—or pursuing—bear must possess a bear hunting license. This opinion also concluded “that any person who pursues a bear with dogs must have a valid bear hunting license ..., regardless of whether the individual is carrying a firearm, and regardless of whether the person intends to kill the bear or is merely engaged in the training of dogs.” Based on this Opinion of the Attorney General, a valid license is required to actively participate in “pursuing” bears with dogs during the open season. For hunters not in possession of a valid kill tag, this license became known as a

“participation license.” In 2008 the reference to “participation license” was dropped and the license is now known as a “No Kill Tag Bear License.” Currently, hunters pursuing bear are required to possess a no kill tag bear license or a bear license with a kill tag. This is a statutory requirement in Public Act 451 of 1994 and is not within the authority of the NRC.

## **Guides**

Some bear hunters hire a bear hunting guide. Hunters typically have an expectation that, for a fee or compensation provided to the guide, they will experience a quality hunt with an opportunity to harvest a bear. Guides can assist bear hunters in a number of ways including scouting for bear sign, finding a hunting location, providing dogs and setting and maintaining baits. Often, guides are hired by bear hunters that live outside of their hunt area, are unfamiliar with the hunt location, or are not able to scout and set up a bait site in preparation for the hunt.

Guides must follow all applicable bear hunting regulations. However, although individual bear hunters are permitted to establish no more than three bait stations per hunter, an authorized representative (i.e., bear guide) can maintain multiple baits for multiple hunters without limit. For example, an authorized representative for ten hunters could establish and maintain thirty total baits. The issue of “territoriality over bait sites” has the potential to be further magnified by commercial bear guides who may represent multiple clients and whose source of income is in part dependent on providing an undisturbed, quality hunting experience, often on public land. Similar issues may also arise for bear guides using dogs.

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**11. APPENDIX B: MICHIGAN BEAR CONSULTATION TEAM REPORT**

# Recommendations for Bear Management in Michigan

Report of the Michigan Bear Consultation Team  
to the  
Director of the Michigan Department of Natural Resources

December 2008

## Michigan Bear Consultation Team Members

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Matt Wood, Michigan Hunting Dog Federation  
Ron LeClair, Michigan Longbow Association  
Kevin Erickson, Michigan Sheriff's Association  
John Kirtbide, Michigan United Coonhunters Association  
Amy Spray, Michigan United Conservation Clubs  
Nancy Hudson, Upper Peninsula Bear Houndsmen Association  
Chris Schumacher, U.S. Forest Service  
Dan Linden, The Wildlife Society



## **Introduction**

We, the Michigan Bear Consultation Team (BCT), present these recommendations to the Michigan Department of Natural Resources (DNR) to help guide the future management of black bear and bear-related issues. We ask the DNR to consider these recommendations, contained here within, in the development of a Bear Management Plan. We believe these recommendations represent the diverse interests of Michigan society and will best serve the management of black bear for years to come.

## **The Role of the Bear Consultation Team**

The DNR recognizes that the citizens of Michigan have an interest and stake in the future management of bears and should have an opportunity for their points of view to be represented. To address this need, the DNR established the BCT. Our membership represents a diversity of stakeholder viewpoints and includes 18 agencies and organizations, including environmental and ecological interests, hunting interests, agricultural interests, public-safety interests, Tribes, and private land interests.

The BCT met on three occasions (five full days) to review, prioritize, and discuss bear management issues. We were expected to provide constructive comments and guidance to the DNR, and recommend potential solutions to bear management issues.

We understood that the Bear Management Plan, scheduled for completion by spring 2009, will be strategic in nature, and that our recommendations should be strategic as well. However, in some instances our recommendations were more operational in nature because we felt it was important to do so. We agreed to seek consensus on all recommendations being submitted to the DNR.

We understand the DNR has considerable latitude to select and implement specific methods for achieving strategic goals and objectives. We trust the DNR will, to the extent legal and practical, develop a strategic Bear Management Plan consistent with our recommendations. In the following sections, we have offered explanations to clarify our intent and thus ensure the correct interpretation of the recommendations. We appreciate having had this opportunity to shape the future of black bear management in Michigan.

## **A Shared Vision of Success for Michigan's Bear Management**

We were asked to create a shared vision of success for Michigan's bear management program to guide our discussions and recommendation. The 18 member BTC, representing a diversity of stakeholders' interests, had little trouble agreeing to the following vision.

*Our vision for successful bear management in Michigan is to cooperatively manage bear populations at biologically and socially acceptable levels using sound science and education so current and future generations can continue to value Michigan's bears.*

## Issues to address

The DNR provided us a list of fundamental management issues based on review of scientific literature, input from public meetings, and results of public attitude surveys. We were presented background information on each issue and asked to discuss and prepare a recommendation, if we wished. In most instances, we felt a recommendation was warranted, and for others the current policy and/or regulations seemed like the best approach for addressing the issue. There was only one issue where we could not agree and reach consensus. The following is the list of issues that were presented to us by the DNR.

- Bear Abundance and Distribution -- Direction is needed in balancing the desires of Michigan citizens and bear abundance.  
Associated issues requiring guidance include those such as:
  - strategies to address BMU size and location
  - strategies to address changes in the landscape (impacts on bear habitat)
  - strategies to address recreation opportunities (hunting and wilderness experience)
  - strategies to address season structures and season dates
  - strategies to address baiting issues related to wildlife disease management
  
- User Conflicts -- Direction is needed to effectively address conflict that emerges among users regarding bear hunting opportunities.  
Associated issues requiring guidance include those such as:
  - strategies to address trespass issues
  - strategies to address conflicts among users during bear hunting season (bait/dog hunter, guides, bear hunters and other hunting seasons)
  
- Human-Bear Conflicts -- Direction is needed to effectively address issues that emerge from the presence of bears including destruction of personal property, apiaries, orchards, and other agricultural crops and bear behavior creating public concerns for safety.  
Associated issues requiring guidance include those such as:
  - appropriate policies regarding destruction of personal or business property due to bears
  - selection of intervention methods to avoid bear problems
  - strategies to direct the selection and use of methods to remove and/or control problem bears
  
- Information and Education -- Direction is needed regarding the importance and scope of outreach efforts as a means of managing bear-related issues.

## **Recommendations from the Bear Consultation Team**

### **Bear Abundance and Distribution**

#### **Landscape/Habitat**

Black bears are generally forest animals. Michigan has nearly 19 million acres of forest land, and approximately 65% is privately owned. Around 35,000 square miles of suitable bear habitat is located in the Upper Peninsula (UP) and Northern Lower Peninsula (NLP).

Land management practices within different forest cover types can impact available habitat for bears. Ownership patterns can also uniquely challenge bear management. In general, public lands consist of good bear habitat; whereas private lands vary in the quality of habitat they provide. Individual bears, especially males, have large home-ranges and seasonal movements of ten to twenty miles are common for black bears. Mature males have been known to move even greater distances during the breeding season.

We have a desire for current and future bear hunters to have access to huntable lands -- both public and private. Access is being reduced due to the loss of Commercial Forest lands, sale of private lands, road closures and habitat fragmentation. We also recognize that the loss of public land may impact the land base on which treaty rights may be exercised. We are also concerned about the loss of large blocks of land to parcelization, which impacts bear habitat, the distribution of bear on the landscape, and hunting opportunities

We understand the DNR is involved in numerous planning efforts, such as the Statewide Forest plan, Eco-regional Resource plans, the Wildlife Action Plan, and the Wildlife Division Habitat Plan. These plans should compliment one another and take into consideration the habitat needs of Michigan's black bear.

#### **Recommendations:**

##### **In regard to access...**

- We recommend the DNR continue to investigate and encourage incentives or programs that provide access to public and private lands for recreational use. These activities should include new levels of cooperation and communication between hunters, landowners, and the DNR.
- We recommend the DNR actively seek public involvement in decisions related to existing road closures and other actions that could change or hinder bear hunting access opportunities.

##### **In regard to parcelization...**

- We recommend the DNR continue to actively acquire and consolidate public lands and encourage conservation programs (easements, leases) that provide large blocks of accessible land.

In regard to habitat...

- We recommend the DNR consider bear habitat and bear population management when acquiring and consolidating lands.
- We recommend the DNR consider bear habitat and bear population management when crafting larger scale resource management plans.

### **Southern Michigan Bear Distribution**

Black bear are common in the UP and areas of the NLP and are observed occasionally in the Southern Lower Peninsula (SLP); these SLP observations have become more frequent in recent years. There are many different viewpoints concerning bears and their potential expansion into southern Michigan; some citizens are favorable and others are more concerned about potential risks to bears and to the public. We recognize that bear moving into urban areas can be a public safety challenge and in some cases alarming to the local residents and dangerous to the bears. Education is one of the most important components in an information strategy that targets the public's acceptance for bears expanding into southern Michigan. The DNR response plan to problem bears in previously unoccupied habitat will also be critical in elevating public acceptance.

Recommendation:

- We recommend the bear population be allowed to expand naturally into southern Michigan to the extent that social acceptance allows. Proactive education should be aimed at developing tolerance among the public and understanding the value of the cost and benefits of living with bears.

### **Establishing Bear Population Goals**

The DNR uses a combination of multiple population indices, estimators, and mathematical models to assess the bear population on a regional and statewide basis. The primary sources of data are derived from published literature, field surveys, mandatory registration of harvested bears, and an annual mail survey of bear hunters. Field surveys include historical radio-telemetry projects, bait station surveys, and additional research projects.

We understand the DNR establishes eco-regional population trend goals, which are recommended by DNR field personnel; determines desired regional harvests by population modeling; distributes licenses by BMU to achieve desired bear population levels in the Upper and northern Lower Peninsulas; and utilizes a preference point drawing system to issue bear hunting licenses each year.

No recommendation needed:

- We support the current DNR process for setting and establishing regional bear population trend goals. The team does not feel changes are necessary to this process.

### **Bear Management Unit (BMU) Size and Location**

We understand the primary function of BMU boundaries is to distribute hunters and hunting harvests to achieve regional bear population management objectives. We also recognize that bears are not evenly distributed across the landscape and hunting effort occurs mostly where hunters perceive the population to be at the highest density. Some hunters have requested that the DNR reduce the size of some BMUs to address perceived issues of bear over-abundance on a local scale. Others contend that BMU boundaries should be representative of bear ecology and natural landscape features.

We believe the current process that the DNR uses for establishing BMUs, and the purpose that unit boundaries serve in managing Michigan's regional bear populations are acceptable. We also appreciate that there are isolated areas across the landscape where localized bear populations are not being addressed at the BMU level. However, we believe that consistent BMU boundaries, over time, are critical for population assessment and management, and changes to the BMU boundaries should be made by the DNR with extreme caution. Clearly defined boundaries for easy identification by hunters, biologists and law enforcement efforts are also important considerations.

The creation of new or additional BMUs in southern Michigan (areas presently closed to bear hunting) may also be necessary for management purposes as bear expand into this region of the state. Special consideration will need to be given to hunting methods and season dates to achieve desired bear harvests in a landscape dominated by private ownership, should the need occur.

We acknowledge there are vast differences in ecological land types, land ownerships, and bear densities across the state, and that research may be needed to understand these differences and how they impact local bear populations before specific management issues can be addressed. We recognize this as "mid-scale" management. We discussed mid-scale management opportunities and believe the DNR should have a protocol in place for situations when BMU tools are unsuccessful. We believe mid-scale management may be necessary for the health of the bear population and to enhance social tolerance for bears.

All management decisions should be based on the best available science. We recognize the importance of research in wildlife management and strongly encourage the DNR to conduct bear research, when deemed appropriate, to strengthen bear management in Michigan.

Recommendations:

- We recommend the DNR conduct a collaborative research project in NLP “Club Country” and surrounding areas. The project would examine local bear population dynamics and densities on both public and private lands. The intent of the study would be to understand habitat conditions and assess localized bear population management issues in the NLP. The “Club Country” has offered to partner with the DNR in a research project. We recognize this study may take several years to complete, but urge the DNR to begin the study within one year.
- We support bear research and believe it is an integral part of a successful bear management program. We recommend wildlife research remain a high priority to the DNR in order to help develop and implement regulations based on sound science.
- We recognize that BMU boundaries serve to distribute hunters and harvests, facilitate enforcement and provide for biological assessment of regional population trends. The DNR Bear Management Work Group should continue to consider local biological and social factors when recommending boundary unit changes.
- We recommend the DNR adopt an adaptive management framework for dealing with mid-scale (e.g., sub-BMU) management issues such as population over/under abundance, landowner conflicts, and depredation. The process (framework) should include the following:
  1. Verify the situation using scientific information and professional judgment.
  2. Understand how the situation links to regional population goals.
  3. Explicitly identify the negative consequences of the situation.
  4. Consult with Tribes and affected stakeholders on proposed actions.
  5. Implement an agreed upon mid-scale management approach that alleviates the negative situation.
  6. Monitor and evaluate the effectiveness of management techniques.

### **Preference Point System**

As black bear populations have increased in Michigan, so has the interest of hunters. In 2000, the DNR created the preference point system to distribute limited licenses in a fair and equitable manner. Individuals who apply for a bear license receive a preference point each year they apply but are unsuccessful at drawing a license. Applicants with the greatest number of points for each BMU and hunt period are issued licenses. We understand there are individuals who would like the preference point system to be altered or removed altogether. We believe the current licensing system is fair and equitable to all hunters and has shown itself to be successful in distributing hunting opportunities.

No recommendation needed:

- We felt there was no compelling reason to recommend an adjustment or modification to the current preference point system.

### **Application Period**

As part of the preference point system, hunters may submit an application between May 1 and June 1 each year. Hunters have indicated an earlier application period would provide them greater lead time to plan vacation time and plan their hunting activities. We recognize if the application period was any earlier in the year, it would hinder the DNR's ability to propose regulation changes, complete the NRC public input process, and print any changes in the bear application guide.

We felt that most hunters have an idea (given the number of preference points they have) if they are going to be drawn for a bear license in any given year. Furthermore, there is a 3<sup>rd</sup> hunt period in the UP where someone can draw a license generally every year. We believe it is important to provide the DNR adequate time to use the previous year's harvest data when formulating regulation changes and making license quota recommendations and, therefore, do not support an earlier application period.

No recommendation needed:

- We felt there was no compelling reason to recommend an adjustment or modification to the application period time frame.

### **No Kill Tag Bear License (Participation License)**

We understand that in 1989, an Opinion of the Michigan Attorney General clarified that "A person shall not hunt bear without a bear license," and further "hunt and hunters means the pursuing, capturing, shooting, killing, or taking of wild animals, and including attempting to take a wild animal." The Attorney General concluded that all persons engaged in hunting—or pursuing—bear must possess a bear hunting license. This opinion also concluded "that any person who pursues a bear with dogs must have a valid bear hunting license ..., regardless of whether the individual is carrying a firearm, and regardless of whether the person intends to kill the bear or is merely engaged in the training of dogs." Based on this Opinion of the Attorney General, a valid license is required to actively participate in "pursuing" bears with dogs during the open season. For hunters not in possession of a valid kill tag, this license became known as a "participation license." In 2008 the reference to "participation license" was dropped and the license is now known as a "No Kill Tag Bear License." Currently, hunters pursuing bear are required to possess a no kill tag bear license or a bear license with a kill tag. This is a statutory requirement in Public Act 451 of 1994 and is not within the authority of the Natural Resources Commission (NRC).

We believe the No Kill Tag license requires clarification to facilitate hunter recruitment and consistent law enforcement. We understand individuals may be observers in the hunt without participating in the hunt (e.g., youth hunts), and we encourage their participation.

A hunting organization is currently working with state legislators to change the No Kill Tag license so it will be needed only by individuals who own or possess the dogs being used in a bear hunt. To support our vision, we believe it is imperative that hunter recruitment be supported and by limiting the need of a no kill tag license to certain individuals more youth or aging hunters may share in a bear hunt experience.

Recommendation:

- We recommend the DNR take the necessary steps to change the current participation (no kill tag) license so it is only required by individuals that own or possess dogs actively engaged in a bear hunt.

### **Bear Baiting**

Baiting for bear is defined as, “a site where food or lure is placed that attracts bear.” Baiting may begin one month prior to the opening of bear hunting season. Prior to the opening day of the archery deer season (October 1) in the UP, baits may include up to 2 gallons of grains, fruits, vegetables, salt or minerals per bait station provided these materials are made inaccessible to deer. After October 1 these items may be used, provided hunters abide by deer baiting regulations (type, quantity and distribution of bait). Regulating bait is important in managing the spread of wildlife disease; this is particularly important with the discovery of chronic wasting disease (CWD) in Michigan in August 2008. Baiting in the NLP may only be with those materials that do not attract deer.

The majority of Michigan bear hunters use bait to attract bears and improve harvest opportunities. Over 90% of Michigan bear hunters either hunt directly over a baited site, or use bait to attract bears to a specific site so they can be hunted with dogs.

Some individuals and special interest groups contend baiting bears habituates bears to human foods and thus increases the likelihood that individual bears will become a nuisance. Others contend bears that visit baits placed by hunters are less likely to survive or more likely to have negative associations with humans (hunters) at bait sites and are thus less likely to become a nuisance. Neither of these hypotheses has been tested, so we are uncertain that either claim is true.

Recommendations:

- We recognize bear hunting is a necessary management tool, and in Michigan baiting bear is an effective technique. In the event of a disease threat, the DNR should adjust baiting regulations to help reduce wildlife disease transmission.

No recommendations needed:

- We discussed the start date for baiting. We felt there was no compelling reason to adjust or modify the current regulation.



- We discussed the number of baits allowed per hunter. We felt there was no compelling reason to adjust or modify the current regulation.

Note: We discussed the use of barrels for baiting bear on public land, but the group could not agree on a recommendation. We recognize barrel baiting is legal on private land and it may reduce conflict between dogs and wolves. However, some of us felt there would be substantial impacts on the environment, such as litter and inappropriate use of Off-Road Vehicles on public lands, if barrels were allowed on public lands.

## **Recruitment and Retention of Hunters**

As the number of participants in many recreational hunting opportunities continues to decline, we recognize the critical importance of hunter recruitment and retention. We understand the DNR Director has made this a priority by creating the multi-organizational Hunter Recruitment and Retention Work Group. We appreciate the Work Group's effort in passage of the Apprentice license and lowering of the hunting age. We also support the DNR's current youth hunting season opportunities.

We want future generations to appreciate and value the cultural significance of bears and believe active recruitment and retention efforts are crucial to achieve this goal. We recognize the importance of a sound conservation ethic and the role hunters play in perpetuating that ethic. In addition, hunters provide financial support for public land access and habitat management, which benefits all recreational users of these lands.

Recommendation:

- The DNR should *strongly* encourage and promote the recruitment and retention of hunters. Opportunities such as Apprentice hunting licenses, youth-only seasons, mentoring programs, and other retention and recruitment methods need to be reviewed and widely implemented.

## **User Conflicts**

### **Trespass**

Problems occur sometimes between private landowners and bear hunters using dogs. Bears have large home ranges and can potentially cross multiple parcels of land (both private and public ownerships) while being pursued by dogs. This can lead to conflicts between bear dog hunters and private land owners who do not want dogs or hunters on their property. We believe dog owners should be allowed to retrieve their dogs when they run onto private property. We also believe dog owners should be respectful of property owners and adhere to recreational trespass laws. We feel that an educational effort to inform both hunters and landowners of the laws concerning dogs and recreational trespass could help alleviate conflicts between these two groups.

No recommendation needed:

- We discussed the issue of trespass on private land. The team felt the current regulatory structure (Recreational Trespass law) requires no changes.

Recommendation:

- We recommend the DNR cooperatively educate hunters and landowners on trespass (rules, rights, and responsibilities). We would like recreational trespass guidelines to be included in the Bear Hunting Guide, with explicit definitions of requirements such as “posting,” “notification,” “permission,” “warning,” “right to retrieve,” and “penalties.”

### Quiet Periods

Bear hunters may pursue bears with dogs except during spring and certain periods of the open bear hunting season. These periods of no bear dog activity are commonly referred to as “quiet periods”. Most bear hunters who use dogs will train their dogs during the summer and up to the start of the bear hunting season. In order to protect nesting birds and young wildlife during the time of year in which they are most vulnerable, a quiet period was established between April 15 and July 15; no dog training on game is permitted between those dates except on specially designated state lands or unless the dog handler receives a permit from the DNR to conduct a special hunting dog field trial.

Under current regulations in the UP, hunters may not pursue bears using dogs the first five days of the first hunt period. This quiet period was put in place to reduce potential conflicts between hunters using bait and hunters using dogs. However, in the NLP both methods are permitted simultaneously throughout the general one-week bear hunting season. Dogs are not permitted for hunting bear in the Red Oak BMU during the archery-only season (October 5 to 11 in 2008).

Conflicts between bait and dog hunters do occur occasionally on public lands. Hunters using bait sometimes claim that dogs chase bears off of their baits, while dog hunters claim that other factors, not their dogs, are the reason for decreased bear activity at an individual bait site. We recognize there is conflict or perceived conflict between these two groups. In order to minimize conflict, we discussed various quiet period and dog training opportunities.

Recommendations:

- We recommend in the Upper Peninsula adding a five-day quiet period (no running of bear dogs) prior to the start of the first hunt period. (The first 5-days of the season would also remain as a bait-only opportunity).
- We recommend in the Lower Peninsula adding a five-day quiet period (no running of bear dogs) prior to the start of the hunt season. We also recommend the first day of the LP hunt season be open to bait hunters only. We propose two

additional hunt days to be added to the end of LP firearm season, and these two days be for dog hunters only.

- We recommend all dog training begin on July 8<sup>th</sup> for the entire state.

### **Commercial Guiding on Public Lands**

Some bear hunters hire a hunting guide. Hunters typically have an expectation that, for a fee or compensation provided to the guide, they will experience a quality hunt with an enhanced opportunity to harvest a bear. Guides can assist bear hunters in a number of ways including scouting for bear sign, finding a hunting location, providing dogs and setting and maintaining baits.

We realize there are situations where guides may cause conflict with other hunters. For example, an authorized representative for ten hunters could establish and maintain thirty total baits as per the regulation that allows a hunter or representative to tend up to three baits per hunter. The issue of “territoriality over bait sites” has the potential to be magnified further by commercial bear guides who may represent multiple clients and whose source of income is in part dependent on providing an undisturbed, quality hunting experience, often on public land. Similar issues may also arise for bear guides using dogs.

We would like current and future bear hunters to have access to bears and public lands, without unfair competition from commercial guiding operations. Where allowed, guiding operations must operate ethically and legally, without privatizing access to publicly-owned bears and hunting areas.

#### **Recommendation:**

- We recommend the DNR develop and implement licensure of hunting guides. Licensure should, at a minimum, address liability and performance bonding, safety and responsibility certification, and training in legal and ethical hunting requirements.

### **Human-Bear Conflicts**

The issue of nuisance or problem bear management is complicated, and involves human behaviors and perceptions, as well as bear behavior. There is a wide range of public opinions as to what constitutes a bear problem, or a problem bear. To some, the mere presence of a bear is a perceived problem, while others may enjoy seeing bears on a regular basis.

We understand the presence of bears imposes more costs on some groups of Michigan citizens than others. These costs range from loss of equipment and products to anxiety over the presence of bears in residential or recreational areas. In particular, we recognize there is conflict between bears and beekeeping operations. We value the importance of

honey bees for pollination of agricultural crops. Therefore, minimizing nuisance problems between bears and apiaries is critical.

When bear incidents do occur, the DNR has response protocols outlined in the *Michigan Problem Bear Management Guidelines*. Responses range from providing technical assistance to landowners, to physically removing a bear, to euthanizing individual bears when public safety is threatened. The information in this guidance document is part of an educational effort that informs personnel from DNR Law Enforcement, Wildlife, and Office of Lands and Facilities staff, as well as local law enforcement agencies and emergency dispatchers, and in some unique cases, zoos or accredited rehabilitation facilities on how best to deal with a wide range of negative bear situations. We feel this Guidance document, which is an internal DNR document, is appropriate for handling most issues; however, there seem to be discrepancies in the DNR staff's use of the policy and we believe the DNR needs additional training in the procedures associated with human-bear conflicts. There are cases where DNR staff has been inconsistent in their interpretation of these guidelines when handling problem bears, especially in bear-apiary situations.

We support partnership opportunities where agricultural growers and apiarists are coupled with hunters who may help with harvesting bears in problem areas. We hope the DNR can identify those partners and facilitate these relationships.

We recognize there are situations where human-bear conflicts may be avoided if certain deterrents or other aversive products are used. Therefore, we believe that the development of Best Management Practices (BMPs) for beekeeping would lessen negative bear/apiary situations. We believe there is an opportunity for the Michigan Beekeepers' Association, Farm Bureau, and the DNR to develop these BMPs. Once developed, these BMPs should be part of the *Michigan Problem Bear Management Guidelines*. Also, we recognize there may be instances where a permit to apiarists to kill a problem bear may be appropriate. This should be done in a consistent manner across the State.

We believe it is important the DNR be supportive of landowners who may be dealing with problem bear situations, and provide guidance on the types of tools that may be available for lessening impacts of bears on agriculture.

We recognize there are instances when humans are the source of human-bear conflicts. For instance, supplemental feeding of wildlife involves the deliberate placement of foods for the purpose of enhancing wildlife viewing opportunities or augmenting naturally occurring food resources. Supplemental feeding is not advised by the DNR because of the potential for habituating bears and increasing the likelihood of individual bears becoming involved in negative bear-human interactions. We are familiar with situations where restaurants place food to attract bears as a tourism attraction. This is unacceptable. We are opposed to any human behaviors that habituate bears to humans. In almost all habituated situations, the bear will have to be euthanized due to public safety concerns.

Recommendations:

- We recommend the DNR Law Enforcement and Wildlife Division staff meet periodically to discuss the Problem Bear Management Guidelines to ensure they are consistently applied. The DNR should also develop educational materials that clearly communicate these Guidelines to the public.
- We recommend the DNR facilitate communication between partners such as Farm Bureau, interested landowners, and bear hunters to help address human-bear conflicts. Landowners will retain all rights of hunter selection and access.
- We recommend the DNR, in cooperation with partners such as the Michigan Beekeepers' Association, develop Best Management Practices related to bear and bee management.
- We recommend the DNR should provide timely and professional responses to bear/bee hive depredation.
- We acknowledge there is a conflict between bear and apiaries and strongly urge the DNR to develop bear control permitting protocols to address these situations.
- We recommend a legal framework be created to prohibit all recreational feeding of bears.

### **Information and Education**

Information and Education is a major component within any management plan; however it is often overlooked. We believe the DNR should give high priority to planning and implementing an effective information and education communication strategy regarding bears. The strategy should identify audiences (internal and external), informational messages, and tools used to deliver messages. We recognize there are countless opportunities for the DNR to partner with many organizations to help deliver these messages. An important component of this effort should include a regular needs assessment and an evaluation of program effectiveness.

An Information and Education program should:

- Educate about bear ecology.
- Educate about the benefits and risks associated with bears.
- Educate about trespass laws.
- Inform individuals how to reduce risks of human-bear conflicts.
- Provide educational information to local law enforcement officials on how to deal with urban bear situations.
- Disseminate information on current and past research programs related to bears and bear management.
- Create partnerships to assist in the dissemination and presentation of bear information.

Recommendations:

We recommend the DNR provide timely information to support bear-related education and management efforts.

We recommend the DNR create, coordinate, and evaluate the effectiveness of a comprehensive bear management communication strategy.

We, the members of the Bear Consultation Team, as the designated representatives of our respective agencies and organizations, reached consensus on all of the preceding recommendations and hereby certify we support the information set forth in this report.

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Hank Bailey  
Grand Traverse Band of Ottawa and Chippewa Indians

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Date

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John Cishke  
DNR Law Enforcement Division

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Date

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Tim Reis  
DNR Wildlife Division

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Date

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Miles Falck  
Great Lakes Indian Fish and Wildlife Commission

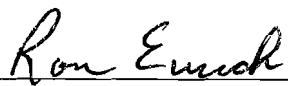
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Bill Walker  
Michigan Bear Hunters Association

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Larry Hilbert  
Michigan Beekeepers' Association

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Ron Eurick  
Michigan Bow Hunters Association

12-04-08  
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Rick Gleason  
Michigan Farm Bureau

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Mike Thorman  
Michigan Hunting Dog Federation

4-12-04  
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Jerry Keck  
Michigan Longbow Association


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Date

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Sheriff Tilman Crutchfield  
Michigan Sheriff's Association

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Date

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Ben Bartlett  
Michigan State University Extension

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Jim Wale  
Michigan United Coonhunters Association

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Bill Krepps  
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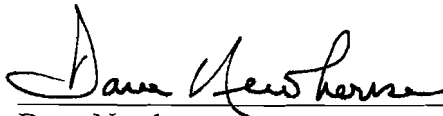
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Wayne Sitton  
Turtle Lake Club

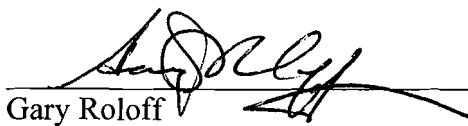
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Joe Hudson  
Upper Peninsula Bear Houndsmen Association

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Dave Newhouse  
U.S. Forest Service


4 Dec 2008  
Date

  
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Gary Roloff  
The Wildlife Society

4 Dec 2008  
Date



We, the members of the Bear Consultation Team, as the designated representatives of our respective agencies and organizations, reached consensus on all of the preceding recommendations and hereby certify we support the information set forth in this report.

  
\_\_\_\_\_  
Hank Bailey  
Grand Traverse Band of Ottawa and Chippewa Indians

12-4-08  
Date

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John Cishke  
DNR Law Enforcement Division

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Tim Reis  
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John Cishke  
DNR Law Enforcement Division

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Tim Reis  
DNR Wildlife Division

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Miles Falck  
Great Lakes Indian Fish and Wildlife Commission

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Bill Walker  
Michigan Bear Hunters Association

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Larry Hilbert  
Michigan Bee Keepers Association

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Ron Eurick  
Michigan Bowhunters

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Rick Gleason  
Michigan Farm Bureau

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Mike Thorman  
Michigan Hunting Dog Federation

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Date

We, the members of the Bear Consultation Team, as the designated representatives of our respective agencies and organizations, reached consensus on all of the preceding recommendations and hereby certify we support the information set forth in this report.

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Grand Traverse Band of Ottawa and Chippewa Indians

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Miles Falk  
Great Lakes Indian Fish and Wildlife Commission

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*Bill Walker*  
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Michigan Bear Hunters Association

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*Dec. 3, 2008*  
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Michigan Bee Keepers Association

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Michigan Bowhunters

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*Larry Hilbert*  
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Michigan Beekeepers' Association

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Michigan Bow Hunters Association

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Rick Gleason  
Michigan Farm Bureau

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12/03/08

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Mike Thorman  
Michigan Hunting Dog Federation

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Date

Jerry Keck  
Michigan Longbow Association

Date

*Tilman L. Crutchfield*  
Sheriff Tilman Crutchfield  
Michigan Sheriff's Association

*12-4-08*  
Date

Ben Bartlett  
Michigan State University Extension

Date

Jim Wale  
Michigan United Coonhunters Association

Date

Bill Krepps  
Michigan United Conservation Clubs

Date

Wayne Sitton  
Turtle Lake Club

Date

Joe Hudson  
Upper Peninsula Bear Houndsmen Association

Date

Dave Newhouse  
U.S. Forest Service

Date

Gary Roloff  
The Wildlife Society

Date

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Jerry Keck  
Michigan Longbow Association

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Sheriff Tilman Crutchfield  
Michigan Sheriff's Association

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12/3/08  
Date

Dave Newhouse  
U.S. Forest Service

Date

Gary Roloff  
The Wildlife Society

Date

**12. APPENDIX C: FEBRUARY 9 MEMORANDUM TO THE NATURAL RESOURCES  
COMMISSION**



JENNIFER M. GRANHOLM  
GOVERNOR

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

LANSING



REBECCA A. HUMPHRIES  
DIRECTOR

SUBMITTED: February 9, 2009  
RESUBMITTED: March 9, 2009

MEMORANDUM TO THE NATURAL RESOURCES COMMISSION

Subject: Bear Quotas and Regulations  
Wildlife Conservation Order Amendment No. 5 of 2009

Authority:

The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, authorizes the Director and the Commission to issue orders to manage wild animals in this state.

Discussion and Background:

In recent years, there has been an increasing call from bear hunters to attempt to reduce real or perceived conflicts between bait and hound hunters. While hound activity may not alter bear behavior in all situations, there is a perception among bait hunters that hound activity prior to the start of season reduces their chances at harvesting a bear. This issue was one of three operational items the Natural Resources Commission (NRC) requested be specifically addressed through the statewide bear planning effort and by the Bear Consultation Team (BCT). The BCT is a group of interested stakeholders convened to assist in developing the statewide strategic bear plan. During the course of this discussion, recommendations were made to try to alleviate some of the conflict between bait and hound hunters. The hound training and hunting days proposed in this amendment are a result of the consensus recommendation decisions made by the BCT.

The other two operational issues addressed at the request of the NRC were (a) standardization of regulations between the Upper and Lower Peninsula and (b) appropriateness of current bear management unit (BMU) boundaries.

**Upper Peninsula**

This proposal recommends no bear hound training for the five days prior to the start of the first bear hunting period. Currently, hounds may be trained on bears right up to the start of the first hunt period. The first five days of this hunt are bait-only. By prohibiting the training of bear hounds for the five days prior to the hunt, bears may establish visitation patterns to bait sites without being pursued by hounds. This reduction in training time will not significantly impact the hound hunter's ability to enjoy their recreational pursuits, especially if additional time is made available in the early summer for training purposes.

NATURAL RESOURCES COMMISSION  
Keith J. Charters, Chair • Mary Brown • Hurley J. Coleman, Jr. • John Madigan • J. R. Richardson • Frank Wheatlake  
STEVENS T. MASON BUILDING • P.O. BOX 30028 • LANSING, MICHIGAN 48909-7528  
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**Lower Peninsula**

Similar to the proposal for the Upper Peninsula (UP), this proposal recommends no bear hound training for the five days prior to the start of the first bear hunting period. Currently, hounds may be trained on bears right up to the start of the season in the Lower Peninsula (LP). It is recommended that the first day of bear hunting in the LP (all BMUs) be bait only. By prohibiting the training of bear hounds for the five days prior to the hunt and creating a one-day bait-only hunting period, bears have the opportunity to establish visitation patterns to bait sites without being pursued by hounds. Since the LP season is much shorter than the UP seasons and only one hunt period exists, this recommendation extends the season by two days for hound-only to allow both hunting methods some time without competition from the other method.

**Statewide**

Throughout the bear planning process, concern over the loss of hound training time presented a significant obstacle to developing recommendations to reduce bait/hound hunter conflicts. In these discussions, the possibility of extending dog training activities in the month of July were proposed. The no-dog training period in spring currently runs from April 15-July 15. The intent of this period has been to reduce potential impacts on young animals. Many states allow spring dog training and have not seen negative effects on wildlife populations. To retain similar hound training and recreational opportunities, we recommend that dog training on wild animals be allowed from July 8 through April 14.

The Department of Natural Resources (DNR) is also recommending a change to the “participation” or “no kill tag” language in the Wildlife Conservation Order (WCO) to conform to PA 347 of 2008, which clarifies who is required to have a “no kill tag” license to participate in a bear or bobcat hunt.

In recent years there has been increasing concern and conflict surrounding commercial guiding operations, especially in the UP. While the BCT and the draft bear plan do not identify specific changes to current baiting regulations, they do recommend that the DNR develop a strategy to license guides. This is likely a long-term change that will take some time and considerable input from the public. In the interim, the DNR is recommending a change to the WCO that will maintain the restriction of three bait stations per hunter, and restrict the total number of bait stations any individual can establish or maintain to 12 bait stations.

**Red Oak BMU Changes**

The DNR has received comments regarding the Red Oak BMU and the distribution of bears and harvest opportunities. Concern has been expressed that current regulations and license quotas are insufficient to address issues associated with the dense bear population in the portion of the Red Oak BMU, commonly known as “club country” of the unit. Concern has also been expressed over the potential impact to hunting opportunities in the rest of the Red Oak BMU if bear numbers are reduced in “club country.” In the development of the statewide strategic bear

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plan, the BCT recommended evaluation of this issue. There is a need to identify the negative components of higher bear densities and alternatives for how they may be addressed. Some of the questions that remain unanswered include the following: What are the tools available to reduce bear densities and the impacts of these tools on hunting opportunities? Will reducing bear populations in club country have biological impacts on the rest of the Northern LP bear populations? This year, the NRC has requested alternatives for consideration that would assist in evaluating the Red Oak bear distribution issue. The alternatives are:

**Option “A”- Create Private-Land Only Zone in the Red Oak BMU**

The creation of a new private-land only zone within the Red Oak BMU encompassing club country would allow the DNR to increase licenses available to club country without affecting license quotas for the rest of the Red Oak unit. By creating a private-land only zone within the Red Oak BMU, the DNR can maintain the license quota in the remainder of the Red Oak BMU as previously determined, while providing targeted licenses for a sub-unit. This would be useful to determine the actual interest in bear hunting in the club country, along with success rates and hunter effort information specifically for club country. Increasing harvest in this area may also assist in evaluating source/sink dynamics within the Red Oak BMU.

The license quota for Red Oak BMU would remain constant and successful applicants would be able to hunt all lands in the entire Red Oak BMU (including the White Oak sub-BMU). Individuals that apply for White Oak would only be able to hunt private land within the White Oak sub-BMU. The license quota for the White Oak sub-BMU would be determined by calculating the number of permits needed to achieve the same proportion of harvest as seen from the club country area (22% of the total Red Oak BMU harvest). Assuming the same success rate as the entire Red Oak BMU for the White Oak sub-BMU, the license quota for the private-land only White Oak sub-BMU would be 300. It is generally well accepted that this portion of Red Oak has a much higher success rate than the rest of the unit. Individuals interested in hunting the small amount of public land in the White Oak sub-BMU or having more flexibility have the option of applying for a Red Oak BMU hunt.

Implementation of this alternative would allow the assessment of the ability of a private-land only “sub” BMU to reduce social issues associated with localized higher bear densities within a larger BMU. The DNR would also be able to monitor the biological and social impacts that increased bear harvest in club country has on the rest of Red Oak BMU. It may be possible to monitor bear movements between the two areas to determine if the increased harvest in club country reduces the “source” nature of club country for the rest of Red Oak BMU. It may also be possible to evaluate impacts on hunter success and opportunity in the rest of the Red Oak BMU. The White Oak sub-BMU regulations should be in place for three years prior to evaluation, resulting in potential regulations changes in the fourth year.

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The recommended boundaries of the White Oak sub-BMU are:

"White Oak" means private lands in that area of Montmorency, Alpena, Alcona, and Oscoda counties bounded by a line beginning at the junction of highway M-32 and highway M-33 in eastern Montmorency county, then easterly on highway M-32 to highway M-65, southerly on M-65 to the Alpena-Alcona county line, easterly on the Alpena-Alcona county line to Hurbert road, easterly on Hurbert road to Hubbard Lake road (also known as Scout road), southerly on Hubbard Lake road to Spruce road, continue southerly on Hubbard Lake road to highway M-72, westerly on highway M-72 past the city of Curran and crossing the Alcona-Oscoda county line to highway M-72 and highway M-33 near the city of Fairview, northerly on highway M-33 crossing the Oscoda-Montmorency county line to the point of beginning.

**Option "B"- One Week Season Extension**

The DNR created an extended season in the northern portion of the Baldwin BMU in 2008 to help increase harvest in areas with significant nuisance complaints and historically low bear harvest. Five bears were harvested in the north area. Three of these bears were harvested in the early extension of the season. It appears that a season extension may be an effective way to increase harvest in targeted areas of a given BMU. Application of this approach in club country may also serve to increase harvest. A three year trial season extension in the club country of Red Oak BMU would allow for an evaluation of the effectiveness of this technique. The evaluation would also cover the impact of localized bear density reduction on biological and social factors in the remainder of the Red Oak BMU. If this technique proves effective, it may function to address club country concerns without having a dramatic impact on recreational opportunities outside of the club country area.

The recommended boundaries of the extended zone are:

"White Oak" means that area of Montmorency, Alpena, Alcona, and Oscoda counties bounded by a line beginning at the junction of highway M-32 and highway M-33 in eastern Montmorency county, then easterly on highway M-32 to highway M-65, southerly on M-65 to the Alpena-Alcona county line, easterly on the Alpena-Alcona county line to Hurbert road, easterly on Hurbert road to Hubbard Lake road (also known as Scout road), southerly on Hubbard Lake road to Spruce road, continue southerly on Hubbard Lake road to highway M-72, westerly on highway M-72 past the city of Curran and crossing the Alcona-Oscoda county line to highway M-72 and highway M-33 near the city of Fairview, northerly on highway M-33 crossing the Oscoda-Montmorency county line to the point of beginning.

**Option "C"- Retain Present Hunt Structure in Red Oak**

Currently, bear harvest within the Red Oak BMU closely mirrors reported bear density differences. While "club country" composes only approximately 5% of the land area of the Red Oak unit, it makes up approximately 22% of the total Red Oak harvest. An increase in licenses for the entire Red Oak BMU increases harvest in club country.

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**License Quotas**

Michigan black bear management includes using recreational hunting to manipulate bear populations using a zone and quota system of license and harvest allocation. Factors that have been considered in recommending these quotas include bear population estimates using mark/recapture techniques, population models, hunter success rates, harvest effort, recreational opportunities, and social concerns about bear-related incidents.

License quotas are designed to spread the bear harvest relatively evenly among the hunt periods, except when adjusted to avoid leftover licenses. The average hunter success rate for the previous three years is used to calculate the estimated harvest and license quota for each hunt period. This calculation is used so single year effects of hunter success due to changes in food availability, weather, and other outside factors do not result in large annual fluctuations in harvest and license quotas.

In accordance with the 2007 Inland Consent Decree, the DNR has consulted with the tribes on bear issues prior to making these recommendations. The DNR determined the desired regional population trend (increase, decrease, or stabilize) for the Eastern Upper Peninsula (EUP), Western Upper Peninsula (WUP), and the Northern Lower Peninsula (NLP). Using population models, desired harvests were calculated which result in the recommended population outcome in each of the regions. The five tribes covered by the 1836 Treaty can authorize up to ten percent of the available harvest in BMU within in the 1836 ceded territories. The remaining harvest is allocated to state-regulated hunters as recommended in this amendment.

The desired harvest for the WUP in 2008 is 930 bears. Based on the average hunter success rates from 2006 – 2008 for each hunt period, the license quota for the WUP in 2009 is 4,600; 21% percent less than the number of licenses available in 2008. The three WUP BMUs are outside of the 1836 ceded territories and no adjustments were made for tribal harvest. Based on the population model and hunter harvest estimates, this harvest level will result in a stabilized population in the WUP this year.

The desired harvest for the EUP (excluding Drummond Island BMU) is 875 bears. The Carney BMU is outside of the 1836 ceded territories and was not adjusted for tribal harvest. The Gwinn and Newberry BMUs were adjusted ten percent for tribal harvest (27 and 45 bears respectively). With these adjustments, the number of state-regulated licenses was calculated based on a desired harvest of 807 bears by state-licensed hunters. Based on the average hunter success rates from 2006 – 2008, the proposed license quota for the EUP in 2009 is 4,960; two percent more than the number of licenses available in 2008. Based on the population model and hunter harvest estimates, this harvest level will result in an estimated two percent increase in population over the next ten years.



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The desired harvest for the Drummond Island BMU is one bear. Using average hunter success rates from 2006 – 2008, the proposed state-regulated license quota for Drummond Island BMU is three licenses; a decrease from eight in 2008. Tribal harvest for Drummond Island is also one bear.

The desired harvest in the NLP is 360 bears. All three BMUs in the NLP were adjusted for tribal harvest (Red Oak-32 bears, Gladwin-two bears, Baldwin-three bears). With these adjustments, the number of state-regulated licenses was calculated based on a desired harvest of 323 bears by state-licensed hunters. Based on the average hunter success rates from 2006 – 2008, the proposed license quota for the NLP is 1,575; a decrease (30%) from 2,240 in 2008. Based on the population model, this harvest level will result in an estimated population decline of five percent over two or three years in the NLP bear population. A primary reason for the reduction of licenses was the higher than anticipated success rate in the Red Oak unit in 2008, resulting in a greater reduction in the NLP bear population than anticipated. In order to continue a gradual five percent reduction in the population it was necessary to reduce the desired harvest for 2009. If Option A is implemented the private land only quota for “White Oak” would be 300 licenses.

Leftover licenses have occurred during the third hunt period in some of the UP bear management units. This situation indicates interest in recreational opportunities in the third hunt period has been exceeded by license quotas. Quotas have been adjusted to the first and second hunt periods where demand exceeds permit availability. Any leftover licenses will be distributed to unsuccessful applicants to allow for full distribution of available licenses. Also, to increase the efficiency of license distribution and continue the opportunity for complete distribution of licenses, hunters are able to make a second choice on their application. Information on the potential units where leftovers may be available will be noted in the *2009 Black Bear Hunting Guide*.

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Recommendation:

This order is being submitted for information and consideration. This item appeared on the DNR's February, 2009, calendar and may be eligible for approval on April 2, 2009.

Russ Mason, Chief  
Wildlife Division

Ronald A. Olson, Chief  
Parks and Recreation Division

Lynne Boyd, Chief  
Forest, Mineral and Fire Management Division

Gary Hagler, Chief  
Law Enforcement Division

Arminda S. Koch  
Resource Management Deputy

I have analyzed and discussed these recommendations with staff and concur as to matters over which the Natural Resources Commission has authority.

Rebecca A. Humphries  
Director

# **WILDLIFE CONSERVATION ORDER**

## **Option "A"**

### **Amendment No. 5 of 2009**

By authority conferred on the Natural Resources Commission and the Director of the Department of Natural Resources by sections 40107 and 40113a of 1994 PA 451, MCL 324.40107 and 324.40113a, it is ordered that effective April 3, 2009, the following section(s) of the Wildlife Conservation Order shall read as follows:

#### **3.200b Bear population, harvest quotas.**

Sec 3.200b. (1) The black bear hunt seasons and quotas for general licenses valid on all land within the listed units shall be as follows:

<b>BMU Name</b>	<b>Hunt Period</b>	<b>Licenses</b>	<b>Total</b>
<b>Amasa</b>	First	135	
	Second	190	
	Third	355	
Unit total			680
<b>Baraga</b>	First	380	
	Second	690	
	Third	1,270	
Unit total			2,340
<b>Bergland</b>	First	350	
	Second	605	
	Third	625	
Unit total			1,580
<b>Carney</b>	First	205	
	Second	435	
	Third	540	
Unit total			1,180
<b>Drummond</b>	First	3	3
<b>Gwinn</b>	First	250	
	Second	360	
	Third	860	
Unit total			1,470
<b>Newberry</b>	First	400	
	Second	490	
	Third	1,420	
Unit total			2,310
<b>UP Total</b>			9,563
<b>Baldwin</b>	First	60	
<b>Gladwin</b>	First	150	

<b>Red Oak</b>	First	1,365	
<b>White Oak Area</b>		300	
<b>NLP total</b>			1,875
<b>State-wide total</b>			<b>11,438</b>

**3.203 Bear hunting, open seasons, described.**

Sec. 3.203. (1) The open season for taking bear with firearms, crossbows, or bow and arrow in the Carney, Bergland, Baraga, Amasa, Gwinn, and Newberry bear management units in zone 1 shall be from September 10 through October 26.

(2) A person shall not take a bear on Bois Blanc island.

(3) The open season for taking bear in the Drummond island bear management unit shall be September 10 through October 21.

(4) The open season for taking a bear with firearms, crossbows, or bow and arrow in the red oak bear management unit in zone 2 shall be from the first Friday following September 15 and 8 days thereafter. The open season for taking a bear with bow and arrow only in the red oak bear management unit shall be from the first Friday following October 1 through 6 days thereafter.

(a) The open season for taking a bear with firearms, crossbows, or bow and arrow in the red oak bear management unit, white oak area, as defined in section 12.551, shall be from the first Friday following September 15 and 8 days thereafter. The open season for taking a bear with bow and arrow only in the red oak bear management unit, white oak area, shall be from the first Friday following October 1 through 6 days thereafter.

(5) The open season for taking a bear with firearms, crossbows, or bow and arrow in the Gladwin bear management unit shall be days from the first Friday following September 15 and 8 days thereafter.

(6) The open season for taking a bear with firearms, crossbows, or bow and arrow in the entire Baldwin bear management unit shall be from the first Friday following September 15 and 8 days thereafter.

(a) The open season for taking a bear with firearms, crossbows, or bow and arrow in the Baldwin bear management unit, north area, as defined in section 12.557, shall be a total of 14 days from 7 days prior to the first Friday following September 15 and 6 days thereafter.

(7) There shall be no open season for the taking of bear in the Dansville bear management unit.

**3.205 Bear; unlawful acts.**

Sec. 3.205. (1) in zones 2 and 3 it shall be unlawful to take a bear without the aid of dogs on the seventh and eighth day after the first Friday following September 15.

(2) It shall be unlawful to establish or tend a bait station that attracts bear prior to 31 days before the bear hunting season in any management unit. It also shall be unlawful to tend or establish a bait station for the purposes of attracting bear after the close of bear season in any management unit. For the purposes of this section, "bait station" means a site where food or lure is placed that may attract bear.

(3) It shall be unlawful to hunt over a bait that attracts bear that was established prior to 31 days before the bear hunting season in any management unit. It shall be unlawful to hunt over a bait that is not placed on the ground on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws; or contains plastic, any wood products, paper, glass, rubber, concrete, or metal on public or commercial forest lands; or has, within 100 yards of the bait site, any containers used to transport bait to the baiting site.

(4) It shall be unlawful to hunt over bait that contains any food materials other than meats, meat products, fish, fish products, or bakery products if the bait is placed in an area unlawful to feed deer or elk or bait deer. In an area where the baiting of deer, or feeding of deer or elk, is lawful, a person may hunt over, place, establish or tend a bait station using food materials that lure, entice or attract deer or elk only if the person uses these food materials in compliance with the season, volume, bait type, placement, scattering and other requirements which apply to the baiting or feeding of deer. In an area in which it is lawful to bait for deer, a person may use up to 2 gallons of grains at any 1 point in time per bait station prior to the legal deer baiting season if the grains are placed on the ground in such a manner as to exclude wild, free-ranging white-tailed deer and elk from gaining access to the grains.

(5) It shall be unlawful to use metal containers, tires, plastic, wood, glass, fabric, cloth, concrete, or paper at a bait station on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws.

(6) It shall be unlawful to place bait other than on the ground at bait stations on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws.

(7) Any containers used to transport bait to the bait station must be removed and disposed of properly.

(8) (a) It shall be unlawful for any licensed bear hunter or their designee to establish or tend more than 3 bait stations per hunter.

(b) It shall be unlawful for any person to establish or tend more than a total of 12 bait stations.

(9) It shall be unlawful for any nonresident to assist in any manner another person in taking bear for a fee or other consideration or service of value, either directly or indirectly.

(10) It shall be unlawful for a person that transfers their success in the bear lottery to a minor hunter or adult hunter with an advanced illness to assist the minor hunter or adult hunter with an advanced illness in any manner in taking bear for a fee or other consideration or service of value, either directly or indirectly.

(11) It shall be unlawful for a person to buy or sell success in the bear license lottery, or an adult to acquire a license after being unsuccessful in the lottery, unless the person has received from a physician a written statement of advanced illness which shall be produced upon the request of a peace officer.

(12) It shall be unlawful to take a cub bear. "Cub bear" means a bear less than 1 year of age. It shall be unlawful to take a female bear accompanied by a cub bear.

(13) It shall be unlawful to disturb, harm, or molest a bear in its den at any time.

(14) A person shall not pursue, capture, shoot, kill, chase, follow, harass, or harm a bear while the bear is swimming in a pond, lake, stream, or other body of water.

### **6.3 Hunting with dogs, license requirement.**

Sec 6.3. Chasing or locating game with dogs during the open season for that game is allowed if a current valid hunting license for the game being chased or located is possessed by the following:

(a) Any person possessing a firearm, crossbow, or bow and arrow.

(b) The owner, when present, or individual in possession of any dog chasing or locating bear or bobcat if accompanying a licensed individual on a hunt.

#### **6.4 Hunting with dogs, unlawful acts.**

Sec. 6.4. (1) It shall be unlawful for any person to hunt bear with dogs in zone 1 from September 5 through September 14.

(2) It shall be unlawful for any person to hunt bear with dogs in zones 2 and 3 on the first Friday following September 15, except in the Baldwin north area where it shall be unlawful for any persons to hunt bear with dogs the Friday preceding September 15.

#### **6.5 Dog training, unlawful acts.**

Sec. 6.5. (1) It shall be unlawful for any person to dog train on bear in zone 1 from September 5 through September 14.

(2) It shall be unlawful for any person to dog train on bear in zones 2 and 3 from 5 days prior to the first Friday following September 15 through the first Friday following September 15, except in the Baldwin north area where it shall be unlawful for any person to train dogs on bear 12 days prior to the first Friday following September 15 for 5 days thereafter.

#### **12.551 "Red Oak bear management unit" defined.**

Sec. 12.551. (1) "Red Oak bear management unit" means all of Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Crawford, Emmet, Missaukee, Montmorency, Oscoda, Otsego, Presque Isle, and Roscommon counties; those portions of Grand Traverse, Kalkaska, and Wexford counties located east of US-131; and those portions of Ogemaw and Iosco counties located north of a line beginning at the Roscommon-Ogemaw county line intersection with M-55, easterly on M-55 into Tawas city to the end of M-55 (also known there as Hemlock street) at intersection with US-23 (also known as lake street in Tawas), then heading due southeast (crossing US 23 for about 100 feet) from said intersection into Tawas bay and into Lake Huron.

(2) "White Oak Area" means private land in that area of Montmorency, Alpena, Alcona, and Oscoda counties bounded by a line beginning at the junction of highway M-32 and highway M-33 in eastern Montmorency county, then easterly on highway M-32 to highway M-65, southerly on M-65 to the Alpena-Alcona county line, easterly on the Alpena-Alcona county line to Hurbert road, easterly on Hurbert road to Hubbard Lake road (also known as Scout road), southerly on Hubbard Lake road to Spruce road, continue southerly on Hubbard Lake road to highway M-72, westerly on highway M-72 past the city of Curran and crossing the Alcona-Oscoda county line to highway M-72 and highway M-33 near the city of Fairview, northerly on highway M-33 crossing the Oscoda-Montmorency county line to the point of beginning.

#### **14.3 Dog training, seasons, exceptions.**

Sec. 14.3. (1) Dogs may only be trained on game which can be lawfully hunted with dogs as defined in section 6.2 during the period of July 8 of one year to April 15 of the following year, except as provided in subsections (2) and (3), sections 14.4 and 15.2, or as otherwise permitted by law.

Issued this 2nd day of April 2009.

Approved as to matters over which the Natural Resources Commission has authority.

Keith J. Charters, Chairman  
Natural Resources Commission

Approved as to matters over which the Director has authority.

Rebecca A. Humphries  
Director

# **WILDLIFE CONSERVATION ORDER**

## **Option "B"**

### **Amendment No. 5 of 2009**

By authority conferred on the Natural Resources Commission and the Director of the Department of Natural Resources by sections 40107 and 40113a of 1994 PA 451, MCL 324.40107 and 324.40113a, it is ordered that effective April 3, 2009, the following section(s) of the Wildlife Conservation Order shall read as follows:

#### **3.200b Bear population, harvest quotas.**

Sec 3.200b. (1) The black bear hunt seasons and quotas for general licenses valid on all land within the listed units shall be as follows:

<b>BMU Name</b>	<b>Hunt Period</b>	<b>Licenses</b>	<b>Total</b>	
<b>Amasa</b>	First	135		
	Second	190		
	Third	355		
Unit total			680	
<b>Baraga</b>	First	380		
	Second	690		
	Third	1,270		
Unit total			2,340	
<b>Bergland</b>	First	350		
	Second	605		
	Third	625		
Unit total			1,580	
<b>Carney</b>	First	205		
	Second	435		
	Third	540		
Unit total			1,180	
<b>Drummond</b>	First	3	3	
<b>Gwinn</b>	First	250		
	Second	360		
	Third	860		
Unit total			1,470	
<b>Newberry</b>	First	400		
	Second	490		
	Third	1,420		
Unit total			2,310	
<b>UP Total</b>			9,563	
<b>Baldwin</b>	First	60		
<b>Gladwin</b>	First	150		
<b>Red Oak</b>	First	1,365		
<b>NLP total</b>			1,575	
<b>State-wide total</b>			11,138	

### **3.203 Bear hunting, open seasons, described.**

Sec. 3.203. (1) The open season for taking bear with firearms, crossbows, or bow and arrow in the Carney, Bergland, Baraga, Amasa, Gwinn, and Newberry bear management units in zone 1 shall be from September 10 through October 26.

(2) A person shall not take a bear on Bois Blanc island.

(3) The open season for taking bear in the Drummond island bear management unit shall be September 10 through October 21.

(4) The open season for taking a bear with firearms, crossbows, or bow and arrow in the red oak bear management unit in zone 2 shall be from the first Friday following September 15 and 8 days thereafter. The open season for taking a bear with bow and arrow only in the red oak bear management unit shall be from the first Friday following October 1 through 6 days thereafter.

(a) The open season for taking a bear with firearms, crossbows, or bow and arrow in the red oak bear management unit, white oak area, as defined in section 12.551, shall be A total of 16 days from 7 days prior to the first Friday following September 15. The open season for taking a bear with bow and arrow only in the red oak bear management unit, white oak area shall be from the first Friday following October 1 through 6 days thereafter.

(5) The open season for taking a bear with firearms, crossbows, or bow and arrow in the Gladwin bear management unit shall be days from the first Friday following September 15 and 8 days thereafter.

(6) The open season for taking a bear with firearms, crossbows, or bow and arrow in the entire Baldwin bear management unit shall be from the first Friday following September 15 and 8 days thereafter.

(a) The open season for taking a bear with firearms, crossbows, or bow and arrow in the Baldwin bear management unit, north area, as defined in section 12.557, shall be a total of 14 days from 7 days prior to the first Friday following September 15 and 6 days thereafter.

(7) There shall be no open season for the taking of bear in the Dansville bear management unit.

### **3.205 Bear; unlawful acts.**

Sec. 3.205. (1) In zones 2 and 3 it shall be unlawful to take a bear without the aid of dogs on the seventh and eighth day after the first Friday following September 15.

(2) It shall be unlawful to establish or tend a bait station that attracts bear prior to 31 days before the bear hunting season in any management unit. It also shall be unlawful to tend or establish a bait station for the purposes of attracting bear after the close of bear season in any management unit. For the purposes of this section, "bait station" means a site where food or lure is placed that may attract bear.

(3) It shall be unlawful to hunt over a bait that attracts bear that was established prior to 31 days before the bear hunting season in any management unit. It shall be unlawful to hunt over a bait that is not placed on the ground on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws; or contains plastic, any wood products, paper, glass, rubber, concrete, or metal on public or commercial forest lands; or has, within 100 yards of the bait site, any containers used to transport bait to the baiting site.

(4) It shall be unlawful to hunt over bait that contains any food materials other than meats, meat products, fish, fish products, or bakery products if the bait is placed in an area unlawful to feed deer or elk or bait deer. In an area where the baiting of deer, or feeding of deer or elk, is lawful, a person may hunt over, place, establish or tend a bait station using food materials that lure, entice or attract deer or elk only if the person uses these food materials in compliance with the season, volume, bait type, placement, scattering and other requirements which apply to the baiting or feeding of deer. In an area in which it is lawful to bait for deer, a person may use up to 2 gallons of grains



at any 1 point in time per bait station prior to the legal deer baiting season if the grains are placed on the ground in such a manner as to exclude wild, free-ranging white-tailed deer and elk from gaining access to the grains.

(5) It shall be unlawful to use metal containers, tires, plastic, wood, glass, fabric, cloth, concrete, or paper at a bait station on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws.

(6) It shall be unlawful to place bait other than on the ground at bait stations on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws.

(7) Any containers used to transport bait to the bait station must be removed and disposed of properly.

(8) (a) It shall be unlawful for any licensed bear hunter or their designee to establish or tend more than 3 bait stations per hunter.

(b) It shall be unlawful for any person to establish or tend more than a total of 12 bait stations.

(9) It shall be unlawful for any nonresident to assist in any manner another person in taking bear for a fee or other consideration or service of value, either directly or indirectly.

(10) It shall be unlawful for a person that transfers their success in the bear lottery to a minor hunter or adult hunter with an advanced illness to assist the minor hunter or adult hunter with an advanced illness in any manner in taking bear for a fee or other consideration or service of value, either directly or indirectly.

(11) It shall be unlawful for a person to buy or sell success in the bear license lottery, or an adult to acquire a license after being unsuccessful in the lottery, unless the person has received from a physician a written statement of advanced illness which shall be produced upon the request of a peace officer.

(12) It shall be unlawful to take a cub bear. "Cub bear" means a bear less than 1 year of age. It shall be unlawful to take a female bear accompanied by a cub bear.

(13) It shall be unlawful to disturb, harm, or molest a bear in its den at any time.

(14) A person shall not pursue, capture, shoot, kill, chase, follow, harass, or harm a bear while the bear is swimming in a pond, lake, stream, or other body of water.

### **6.3 Hunting with dogs, license requirement.**

Sec 6.3. Chasing or locating game with dogs during the open season for that game is allowed if a current valid hunting license for the game being chased or located is possessed by the following:

(a) Any person possessing a firearm, crossbow, or bow and arrow.

(b) The owner, when present, or individual in possession of any dog chasing or locating bear or bobcat if accompanying a licensed individual on a hunt.

### **6.4 Hunting with dogs, unlawful acts.**

Sec. 6.4. (1) It shall be unlawful for any person to hunt bear with dogs in zone 1 from September 5 through September 14.

(2) It shall be unlawful for any person to hunt bear with dogs in zones 2 and 3 on the first Friday following September 15, except in the Baldwin north area where it shall be unlawful for any persons to hunt bear with dogs the Friday preceding September 15.

### **6.5 Dog training, unlawful acts.**

Sec. 6.5. (1) It shall be unlawful for any person to dog train on bear in zone 1 from September 5 through September 14.

(2) It shall be unlawful for any person to dog train on bear in zones 2 and 3 from 5 days prior to the first Friday following September 15 through the first Friday following September 15, except in the Baldwin north area where it shall be unlawful for any person to train dogs on bear 12 days prior to the first Friday following September 15 for 5 days thereafter.

### **12.551 "Red Oak bear management unit" defined.**

Sec. 12.551. (1) "Red Oak bear management unit" means all of Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Crawford, Emmet, Missaukee, Montmorency, Oscoda, Otsego, Presque Isle, and Roscommon counties; those portions of Grand Traverse, Kalkaska, and Wexford counties located east of US-131; and those portions of Ogemaw and Iosco counties located north of a line beginning at the Roscommon-Ogemaw county line intersection with M-55, easterly on M-55 into Tawas city to the end of M-55 (also known there as Hemlock street) at intersection with US-23 (also known as lake street in Tawas), then heading due southeast (crossing US 23 for about 100 feet) from said intersection into Tawas bay and into Lake Huron.

(2) "White Oak Area" means that area of Montmorency, Alpena, Alcona, and Oscoda counties bounded by a line beginning at the junction of highway M-32 and highway M-33 in eastern Montmorency county, then easterly on highway M-32 to highway M-65, southerly on M-65 to the Alpena-Alcona county line, easterly on the Alpena-Alcona county line to Hurbert road, easterly on Hurbert road to Hubbard Lake road (also known as Scout road), southerly on Hubbard Lake road to Spruce road, continue southerly on Hubbard Lake road to highway M-72, westerly on highway M-72 past the city of Curran and crossing the Alcona-Oscoda county line to highway M-72 and highway M-33 near the city of Fairview, northerly on highway M-33 crossing the Oscoda-Montmorency county line to the point of beginning.

### **14.3 Dog training, seasons, exceptions.**

Sec. 14.3. (1) Dogs may only be trained on game which can be lawfully hunted with dogs as defined in section 6.2 during the period of July 8 of one year to April 15 of the following year, except as provided in subsections (2) and (3), sections 14.4 and 15.2, or as otherwise permitted by law.

Issued this 2nd day of April 2009.

Approved as to matters over which the Natural Resources Commission has authority.

Keith J. Charters, Chairman  
Natural Resources Commission

Approved as to matters over which the Director has authority.

Rebecca A. Humphries  
Director

# **WILDLIFE CONSERVATION ORDER**

## **Option "C"**

### **Amendment No. 5 of 2009**

By authority conferred on the Natural Resources Commission and the Director of the Department of Natural Resources by sections 40107 and 40113a of 1994 PA 451, MCL 324.40107 and 324.40113a, it is ordered that effective April 3, 2009, the following section(s) of the Wildlife Conservation Order shall read as follows:

#### **3.200b Bear population, harvest quotas.**

Sec 3.200b. (1) The black bear hunt seasons and quotas for general licenses valid on all land within the listed units shall be as follows:

<b>BMU Name</b>	<b>Hunt Period</b>	<b>Licenses</b>	<b>Total</b>
<b>Amasa</b>	First	135	
	Second	190	
	Third	355	
Unit total			680
<b>Baraga</b>	First	380	
	Second	690	
	Third	1,270	
Unit total			2,340
<b>Bergland</b>	First	350	
	Second	605	
	Third	625	
Unit total			1,580
<b>Carney</b>	First	205	
	Second	435	
	Third	540	
Unit total			1,180
<b>Drummond</b>	First	3	3
<b>Gwinn</b>	First	250	
	Second	360	
	Third	860	
Unit total			1,470
<b>Newberry</b>	First	400	
	Second	490	
	Third	1,420	
Unit total			2,310
<b>UP Total</b>			9,563
<b>Baldwin</b>	First	60	
<b>Gladwin</b>	First	150	
<b>Red Oak</b>	First	1,365	
<b>NLP total</b>			1,575
<b>State-wide total</b>			11,138

### **3.203 Bear hunting, open seasons, described.**

Sec. 3.203. (1) The open season for taking bear with firearms, crossbows, or bow and arrow in the Carney, Bergland, Baraga, Amasa, Gwinn, and Newberry bear management units in zone 1 shall be from September 10 through October 26.

(2) A person shall not take a bear on Bois Blanc island.

(3) The open season for taking bear in the Drummond island bear management unit shall be September 10 through October 21.

(4) The open season for taking a bear with firearms, crossbows, or bow and arrow in the red oak bear management unit in zone 2 shall be from the first Friday following September 15 and 8 days thereafter. The open season for taking a bear with bow and arrow only in the red oak bear management unit shall be from the first Friday following October 1 through 6 days thereafter.

(5) The open season for taking a bear with firearms, crossbows, or bow and arrow in the Gladwin bear management unit shall be days from the first Friday following September 15 and 8 days thereafter.

(6) The open season for taking a bear with firearms, crossbows, or bow and arrow in the entire Baldwin bear management unit shall be from the first Friday following September 15 and 8 days thereafter.

(a) The open season for taking a bear with firearms, crossbows, or bow and arrow in the Baldwin bear management unit, north area, as defined in section 12.557, shall be a total of 14 days from 7 days prior to the first Friday following September 15 and 6 days thereafter.

(7) There shall be no open season for the taking of bear in the Dansville bear management unit.

### **3.205 Bear; unlawful acts.**

Sec. 3.205. (1) In zones 2 and 3 it shall be unlawful to take a bear without the aid of dogs on the seventh and eighth day after the first Friday following September 15.

(2) It shall be unlawful to establish or tend a bait station that attracts bear prior to 31 days before the bear hunting season in any management unit. It also shall be unlawful to tend or establish a bait station for the purposes of attracting bear after the close of bear season in any management unit. For the purposes of this section, "bait station" means a site where food or lure is placed that may attract bear.

(3) It shall be unlawful to hunt over a bait that attracts bear that was established prior to 31 days before the bear hunting season in any management unit. It shall be unlawful to hunt over a bait is not placed on the ground on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws; or contains plastic, any wood products, paper, glass, rubber, concrete, or metal on public or commercial forest lands; or has, within 100 yards of the bait site, any containers used to transport bait to the baiting site.

(4) It shall be unlawful to hunt over bait that contains any food materials other than meats, meat products, fish, fish products, or bakery products if the bait is placed in an area unlawful to feed deer or elk or bait deer. In an area where the baiting of deer, or feeding of deer or elk, is lawful, a person may hunt over, place, establish or tend a bait station using food materials that lure, entice or attract deer or elk only if the person uses these food materials in compliance with the season, volume, bait type, placement, scattering and other requirements which apply to the baiting or feeding of deer. In an area in which it is lawful to bait for deer, a person may use up to 2 gallons of grains at any 1 point in time per bait station prior to the legal deer baiting season if the grains are placed on the ground in such a manner as to exclude wild, free-ranging white-tailed deer and elk from gaining access to the grains.

(5) It shall be unlawful to use metal containers, tires, plastic, wood, glass, fabric, cloth, concrete, or paper at a bait station on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources

and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws.

(6) It shall be unlawful to place bait other than on the ground at bait stations on public or commercial forest lands as defined in Part 511, Commercial Forests, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, sections 324.51101 to 324.51120 of the Michigan Compiled Laws.

(7) Any containers used to transport bait to the bait station must be removed and disposed of properly.

(8) (a) It shall be unlawful for any licensed bear hunter or their designee to establish or tend more than 3 bait stations per hunter.

(b) It shall be unlawful for any person to establish or tend more than a total of 12 bait stations,

(9) It shall be unlawful for any nonresident to assist in any manner another person in taking bear for a fee or other consideration or service of value, either directly or indirectly.

(10) It shall be unlawful for a person that transfers their success in the bear lottery to a minor hunter or adult hunter with an advanced illness to assist the minor hunter or adult hunter with an advanced illness in any manner in taking bear for a fee or other consideration or service of value, either directly or indirectly.

(11) It shall be unlawful for a person to buy or sell success in the bear license lottery, or an adult to acquire a license after being unsuccessful in the lottery, unless the person has received from a physician a written statement of advanced illness which shall be produced upon the request of a peace officer.

(12) It shall be unlawful to take a cub bear. "Cub bear" means a bear less than 1 year of age. It shall be unlawful to take a female bear accompanied by a cub bear.

(13) It shall be unlawful to disturb, harm, or molest a bear in its den at any time.

(14) A person shall not pursue, capture, shoot, kill, chase, follow, harass, or harm a bear while the bear is swimming in a pond, lake, stream, or other body of water.

### **6.3 Hunting with dogs, license requirement.**

Sec 6.3. Chasing or locating game with dogs during the open season for that game is allowed if a current valid hunting license for the game being chased or located is possessed by the following:

(a) Any person possessing a firearm, crossbow, or bow and arrow.

(b) The owner, when present, or individual in possession of any dog chasing or locating bear or bobcat if accompanying a licensed individual on a hunt.

### **6.4 Hunting with dogs, unlawful acts.**

Sec. 6.4. (1) It shall be unlawful for any person to hunt bear with dogs in zone 1 from September 5 through September 14.

(2) It shall be unlawful for any person to hunt bear with dogs in zones 2 and 3 on the first Friday following September 15, except in the Baldwin north area where it shall be unlawful for any persons to hunt bear with dogs the Friday preceding September 15.

### **6.5 Dog training, unlawful acts.**

Sec. 6.5. (1) It shall be unlawful for any person to dog train on bear in zone 1 from September 5 through September 14.

(2) It shall be unlawful for any person to dog train on bear in zones 2 and 3 from 5 days prior to the first Friday following September 15 through the first Friday following September 15, except in the Baldwin north area where it shall be unlawful for any person to train dogs on bear 12 days prior to the first Friday following September 15 for 5 days thereafter.

**14.3 Dog training, seasons, exceptions.**

Sec. 14.3. (1) Dogs may only be trained on game which can be lawfully hunted with dogs as defined in section 6.2 during the period of July 8 of one year to April 15 of the following year, except as provided in subsections (2) and (3), sections 14.4 and 15.2, or as otherwise permitted by law.

Issued this 2nd day of April 2009.

Approved as to matters over which the Natural Resources Commission has authority.

Keith J. Charters, Chairman  
Natural Resources Commission

Approved as to matters over which the Director has authority.

Rebecca A. Humphries  
Director

**13. APPENDIX D: IMPORTANT BLACK BEAR HABITAT  
CONSIDERATIONS FOR USE IN HABITAT PLANNING EFFORTS**

### **13. APPENDIX D: IMPORTANT BLACK BEAR HABITAT CONSIDERATIONS FOR USE IN HABITAT PLANNING EFFORTS**

- Bear habitat management should focus on maintenance and enhancement of principal bear food requirements (Hirsch 1989).
  - Approximately 75 percent of bear diet consists of vegetation (Ternent 2005). In early spring, bears frequent wetlands feeding on plants such as skunk cabbage, sedges, grasses, and squawroot (Ternent 2005). Fruits and berries are important during summer and fall. Hard mast becomes important in the fall. Bears in Michigan's NLP are known to utilize aspen cover types (Carter 2007) for feeding on aspen catkins and leaves in spring (Rogers and Allen 1987) and soft mast in summer and fall.
  - Mature upland forests provide hard mast (e.g., acorns, beechnuts, hickory nuts, hazelnuts), while early successional forests provide soft mast (berries) and diverse herbaceous ground flora. Forest openings are important for food resources such as emerging grasses, herbaceous vegetation, insects, and soft mast.
- Diverse forests are prime habitat as they provide the variety of cover and food sources that bears require to meet their seasonal needs (Carter 2007). Bears tend to use a mixture of vegetation cover types including deciduous lowland forests and coniferous swamps, mature and early successional upland forests, and some degree of forest openings, consisting of grasses and forbs. Areas of high bear density in Michigan are often in large wetland complexes interspersed with a wide variety of habitat types but little human development (Carter 2007).
- Escape and resting cover required by bears can be maintained with regenerating clear cuts and maintaining forested swamps.
- Rogers et al. (1986) found areas comprised of 15 percent spring food producing, 50 percent summer food producing and 35 percent hard mast producing vegetation types was ideal bear habitat.
- In a study of bears in the NLP, lowland hardwoods, lowland conifers, and shrub dominated wetlands were found to be the most important habitat types for bears, although bears were found to use all available habitat types to some degree (Rudolph 1999). Bears preferred wetland complexes interspersed with uplands that provided a diversity of vegetative forage species.
- Rudolph (1999) found, that bears used Land Type Associations (LTA) 3, 4, and 5 (See Albert 1995) at a significantly higher rate than these LTAs were found on the landscape. These LTAs are comprised of rolling topography dominated by northern hardwoods, as well as riparian areas and associated wetlands dominated by lowland conifers and hardwoods as well as aspen and shrub species.



- Maintenance of diverse forest types within riparian and wetland zones will assist in maintaining important bear habitat and in linking areas of high quality bear habitat in upland areas (Rudolph 1999).

### **Citations and Other Bear Habitat-related Literature**

- Albert, D.A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. North Central Forest Experiment Station. Forest Service- U.S. Department of Agriculture. St. Paul MN. 250pp.
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## **14. APPEDIX E: MICHIGAN PROBLEM BEAR GUIDELINES**

## **Michigan Problem Bear Management Guidelines\***

\*By authority of Part 401 of 1994 PA 451



## **Policy**

The Michigan Department of Natural Resources (DNR) strives to minimize conflicts between bears and people. An annual hunting season is held to help regulate the size of the bear population. However, unwanted bear encounters may occur even when black bear numbers are managed. The DNR provides technical assistance to landowners to avoid unnecessary bear problems and to maintain public support for sound scientific bear management. Although the State of Michigan does not compensate landowners for damage caused by wildlife, in situations where bears continue to be a problem or cause property damage the DNR will remove offending animals if all recommended control measures fail. Bears will not be relocated for causing minor property damage, such as destroying bird feeders, tipping over garbage cans, or eating pet foods.

## **Summary of Recommendations**

Landowners shall be encouraged to harvest problem animals during the open season under the authority of a hunting license or invite hunters to their lands during the open season to help resolve conflicts.

Ensure all management units are consistent in their handling of problem bear complaints.

Develop self-help materials on the cause, prevention, and resolution of bear-human conflicts.

Educate the public about co-existing with bears, using a variety of methods including written material, audiovisual presentations, media interviews, and web-based information.

Develop and utilize a problem bear complaint form.

Law Enforcement and Wildlife Divisions share responsibility for resolving problem bear complaints. Chemical immobilization of bears is solely the responsibility of the Wildlife Division.

Hire seasonal employees assigned to problem bear complaints and public education. The costs should be shared equally between LED and Wildlife.

Provide management units with chemical immobilization equipment and train selected Wildlife Division employees to chemically immobilize bears. Personnel trained and authorized to use dart guns and drugs for chemical immobilization shall be granted that authority by exemption letter.

Only personnel trained and authorized to carry and use firearms on official duty may use firearms to euthanize wildlife. Personnel authorized to use firearms on duty will have a signed exemption letter.

Provide employee training in dealing with the press and local law enforcement agencies for situations involving bears in urban situations.

Provide training to the Law Enforcement Division and Wildlife Division on this guideline and other problem bear related information.

## **Guidelines**

A. *Upon receiving a report involving a bear incident, Department employees should first classify the situation as one of the following four categories (examples are provided on pages 5-6):*

***Category I*** - bears considered to be a threat to public safety because:

- a- the bear is known to have directly caused human injury or death.

***Category II*** – bears considered a potential threat to public safety because:

- a- the bear is injured or diseased, or
- b- the bear is physically confined to an area, or is located in an urban area, and is incapable of leaving, or
- c- the bear is exhibiting repeated aggressive behavior towards humans.

***Category III*** – bears considered a threat to personal property because:

- a- the bear is known to have caused property damage, or
- b- the bear has been repeatedly observed and remains in an area, or
- c- a previously captured bear has reappeared and again is a problem bear.

***Category IV*** – bears that presently are not considered a threat to public safety or personal property because:

- a- the bear has no history of being a problem bear, or
- b- the bear has only been sighted or reported and has not remained in or near human occupied areas.

## *B. Response Guidelines*

1. Incidents involving a *Category I* bear require an immediate, on-site response by the Department.
  - a- A list of chemical immobilization/dart gun qualified Wildlife Division employees will be maintained at the RAP dispatchers location.
  - b- The nearest available qualified Wildlife Division employee and/or Law Enforcement officer shall respond; where possible two DNR employees should respond. The Law and/or Wildlife Supervisor or designee, and local public safety agency shall be immediately notified.
  - c- DNR personnel or local law enforcement officers shall immediately euthanize *Category I* bear by capture and lethal injection, capture and shooting or free-range shooting, if necessary.
  - d- The DNR Wildlife Disease Laboratory shall be contacted for disposition of euthanized bears.
  - e- Employees may advise the reporting party of their legal right to kill wildlife in self defense, when it is judged that a serious threat to human safety exists and a Department employee or public safety officer is not available to respond in a timely manner.
  - f- Law Enforcement Division will assume primary responsibility for public safety incidents.
  
2. Incidents involving a *Category II* bear require an immediate, on-site response by the Department.
  - a- Advise the reporting party that the bear should be considered dangerous.
  - b- The nearest available qualified Wildlife Division employee and/or Law Enforcement officer shall respond; where possible two DNR employees should respond. The Law and/or Wildlife Supervisor or designee, and local public safety agency shall be immediately notified.
  - c- The Department shall attempt to capture/on-site aversive condition or capture/relocate *Category II* bears; euthanize sick or injured *Category II* bears with a poor prognosis of recovery; or euthanize *Category II* bears when no other options exist.

- d- The DNR Wildlife Disease Laboratory shall be contacted for disposition of euthanized bear.
  - e- DNR employees and law enforcement officers may euthanize a bear that is judged to be an immediate threat to public safety.
  - f- Employees may advise the reporting party of their legal right to kill wildlife in self defense, when it is judged that a serious threat to human safety exists and a Department employee or public safety officer is not available to respond in a timely manner.
  - g- Law Enforcement Division will assume primary responsibility for public safety incidents.
3. Incidents involving a *Category III* bears may not require an immediate, on-site response by the Department. The Department shall consider:
- a- Advising the reporting party that the bear should be considered potentially dangerous.
  - b- Advising the reporting party that a Department employee may not be immediately dispatched to the area. If an employee is not going to be immediately sent to the area, the person receiving the call shall advise the caller to contact the Department again, if the situation does not improve.
  - c- The Department shall treat *Category III* bears with aversive conditioning techniques if the opportunity exists; the Department shall attempt to capture and condition and/or relocate *Category III* bears that cannot be free-range conditioned or do not respond to free-range aversive conditioning. **In emergencies, *Category III* bears involved in depredation or other types of property damage may be killed or taken under the provisions of Wildlife Conservation Order Section 9.4**
  - d- Offer technical assistance on bear-proofing the property, area, or neighborhood.
4. Incidents involving *Category IV* bears do not require an on-site response. The Department shall:
- a- offer technical assistance on bear-proofing the area
  - b- *Category IV* bears shall not be upgraded to *Category III* if the resident does not comply with recommendations for bear-proofing, provided by the Department.



*C. Bear Activity Report forms detailing bear complaints, the handling of problem bears, tagging, euthanasia, or injuries shall be completed and distributed to appropriate DNR personnel.*

*D. When the capture of a Category I, II, or III bear requires the use of tranquilizing drugs, all procedures required in the use of these drugs shall be followed. In addition,*

- 1- No tranquilized bear shall be released into an area open to bear hunting within 30 days prior to the opening season date or anytime during the hunting season.
- 2- Tranquilized bears that can not be released shall be euthanized.

*E. Captured bears shall only be released at locations approved by the Wildlife Division and Law Enforcement Unit supervisors. All release sites require pre-approval of the jurisdictional land-managing agency. Procedures for releasing bears shall include:*

- 1- Release bears only in pre-approved sites.
- 2- If relocating, release at least 50 miles (*recommended distance*) from the capture location.
- 3- Captured bears which are conditioned but not relocated may be released on site or within a short distance (5-10 miles) of the capture location.
- 4- Bears that cannot be released shall be euthanized.
- 5- Bears captured in Alcona, Alpena, Crawford, Montmorency, Oscoda, Otsego and Presque Isle counties shall not be relocated outside those counties.
- 6- Females with cubs of the year shall not be relocated but may be captured, conditioned, and released on site.

*F. Orphaned Bear Cubs.* Prior to July 1, Department employees shall attempt to capture and place orphaned cubs with a surrogate mother, if available, or with a qualified wildlife rehabilitator selected by the DNR. If capture is not possible, Department personnel shall monitor the area through contact with local residents. Should young cubs begin to exhibit behavior that improves the possibility for capture, Department personnel shall attempt capture and placement. Cubs older than seven months of age (after July 1) shall be allowed to roam free and fend for themselves.

## **Examples**

### ***Category I –***

Bears involved in direct attacks resulting in human injury or death.

### ***Category II –***

Bears with an injury or disease;

Bears treed or confined within an urban setting. ***Crowd control is key in these situations.***

Bear repeatedly approaches humans closely including but not limited to bluff charging, chasing and following people, non-yielding behavior when approached by humans, refusal to respond to loud noises or aggressive attempts by people to drive the animal off.

### ***Category III –***

Bears involved in the following negative behaviors:

Entries or attempted entries into occupied buildings. Damaged screens, broken windows, and scratched/damaged doors and siding of homes shall be considered as attempted entries, whether the animal actually entered or not;

Entries or attempted entries into motor vehicles;

Attacks or killing of domestic pets and large (horse, sheep, goat, pig, captive cervid, etc.) or small (rabbits, chickens, turkeys, geese, etc.) livestock;

Recognizable bear damage to orchards, nurseries, vineyards, row crops, or apiaries;

Property damage estimated by the property owner to be in excess of \$500 to buildings, homes, sheds, garages, vehicles, home gardens, fruit trees and ornamental plantings;

Repeated visits (more than 2 visits) after property owner has followed recommendations of DNR personnel);

Repeated habitual use of trash dumpsters or neighborhood trash cans as a food source (more than 2 visits after property owner has followed recommendations of DNR personnel).

***Category IV –***

Bears exhibiting normal behavior and not creating a nuisance or a threat to public safety or property damage:

Bears that are observed and reported to the DNR by the public or local authorities. These animals may be considered by the caller to be a nuisance or danger because the caller has no previous interactions with bears; or

Bears passing through rural and suburban neighborhoods;

Bears observed by hunters, hikers, campers, and others using facilities in black bear habitat;

Bears that may occasionally visit birdfeeders and trash containers as food sources during the course of their normal activity.

### Management Option Table

The following table is intended to summarize information found in previous pages and can serve as a decision tree for management personnel. However, each problem bear situation is unique and DNR personnel are urged to use their best judgment in addition to these guidelines.

<b>Management Option</b>	<b>CAT I</b>	<b>CAT II</b>	<b>CAT III</b>	<b>CAT IV</b>
<b>Give advice</b>	<b>N/A</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Remove attractants</b>	<b>N/A</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Conduct site visit/immediate response</b>	<b>Mandatory</b>	<b>Mandatory</b>	<b>Discretionary</b>	<b>Discretionary</b>
<b>Attempt to haze free-ranging bear</b>	<b>N/A</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
<b>Attempt to trap and condition</b>	<b>N/A</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
<b>Attempt to trap and relocate</b>	<b>N/A</b>	<b>Yes</b>	<b>Discretionary</b>	<b>No</b>
<b>Euthanize</b>	<b>Mandatory</b>	<b>Discretionary</b>	<b>Discretionary</b>	<b>No</b>

**Yes=Permitted No=Not permitted**

**Discretionary=At the discretion of the Wildlife Division employee/s on scene.**

## Aversive Conditioning Techniques

Aversive conditioning techniques may include pyrotechnics (shell crackers, screamers, etc.) to frighten bear, reinforced with negative feedback in the form of pain from rubber buckshot. Use of pepper spray in the trap or capture, chemical immobilization, and handling are also effective.

High velocity rubber buckshot (Defense Technologies Def-Tech HV-23) may be fired at well-muscled portions (e.g. shoulder, hindquarters) at a distance greater than 10 yards, but less than 25 yards. Pyrotechnics should be fired in the direction of the bear, but not to hit the animal. Caution must be taken in situations where pyrotechnics could cause a fire in dry leaves, grass, or other flammable materials.

Be aware when a bear is subjected to aversive conditioning techniques, the potential exists that the bear may behave in an unpredictable manner. They could run into traffic, through a crowd of people, climb a tree, or display other undesirable behavior. Department employees must assess the potential that aversive conditioning will escalate the public safety threat.

Pepper spray is an effective form of aversive conditioning while the bear is in a culvert or other type of trap.

Law Enforcement officers and departmental personnel who are authorized to use weapons may use rubber bullets. It is necessary to issue a Wildlife Damage and Nuisance Control permit to Wildlife Division personnel in order **to** allow them to discharge rubber bullets at problem bears.

## **Chemical Immobilization**

The DNR shall adhere to the American Veterinary Medical Association's approved methods of chemical immobilization.

Chemical immobilization of free-ranging bears shall only be considered in situations involving only Category I and II bears. Category 3 bears captured in traps may be immobilized for purposes of conducting aversive conditioning.

Selected individuals from the Wildlife Division will be properly trained and certified in the chemical immobilization of bears. The *Wildlife Handling and Chemical Immobilization for Wildlife Professionals* course offered by Wildlife Veterinary Resources ([www.wildliferesources.org](http://www.wildliferesources.org)) is recommended for initial training. Refresher training will be conducted on a periodic basis for personnel certified in chemical immobilization. Refresher training will be conducted by DNR staff with knowledge and previous experience with the techniques used to drug bears, on an as needed basis.

Employees certified in chemical immobilization techniques shall adhere to the Wildlife Division *Security Control – Controlled Substances* policy and procedures (Interoffice Communication, July 26, 2002) concerning authorization, use, and storage of immobilizing drugs.

Employees certified in chemical immobilization techniques shall adhere to all instructions for the proper use, dosage, and method of administration of drugs as approved by the Wildlife Division veterinarian.

No DNR personnel are authorized to discharge a firearm, including a dart gun, inside the boundaries of a city, town, village, or township prohibiting the discharge of firearms by the public, unless this discharge has been coordinated in advance with the local authorities. However, conservation officers may kill an animal posing an immediate threat to public safety without prior coordination.

Chemically immobilized problem bear shall not be ear tagged or otherwise permanently marked. They may be temporarily marked using techniques such as external dye, lip tattoos, etc., in order to evaluate the animal's response to conditioning or relocation. Bears captured and handled as part of a research project may be permanently marked.