



# Maine Chapter of The Wildlife Society

Excellence In Wildlife Stewardship Through Science and Education

The Maine Chapter of The Wildlife Society (MeTWS), established in 1976, is a local membership organization of The Wildlife Society, an international non-profit scientific and educational association dedicated to excellence in wildlife stewardship through science and education. The mission of MeTWS is to enhance the ability of wildlife professionals to conserve diversity, sustain productivity, and ensure responsible use of wildlife resources for the benefit of society. The membership of MeTWS includes approximately 120 wildlife professionals and other concerned individuals employed by government agencies, academic institutions, private firms, and non-governmental organizations, working to promote sound stewardship of wildlife resources throughout Maine.

## **MAINE BLACK BEAR POPULATION INFORMATION**

**April 16, 2004**

### Current Bear Status in Maine

- Black bears exist throughout the state with the exception of the extreme south-coastal region of the state.
- 23,000 bears are estimated to inhabit the state.
- Maine has the largest population of black bears of any state in the eastern U.S., and one of the largest populations within the lower-48.
- Regulated hunting and trapping are the primary methods used to manage the number of bears in the population.
- Black bears are an important component of the state's ecosystem, and are valued by society, including hunters and non-hunters.

### Management History

- State legislature has the authority to enact laws to regulate bear populations, but practical aspects of implementing regulations were transferred to the Maine Department of Inland Fisheries and Wildlife (MDIFW) in 1972.
- Bears were bountied from 1770-1957; considered a pest species until 1931 (no closed season); a short season was established and opened coincidentally with the deer season from 1931-1941; year-round open season was reinstated from 1942-1965; season lengths and harvests have changed since 1966.
- From 1966-1982, the bear hunting season was six months long, including a spring season.
- Since 1968, MDIFW has used an in-depth, public involvement process to establish population objectives for bears and other species. This process involves a public working group made up of a

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wide array of stakeholders, including landowners, forest industry, sportsmen, chambers of commerce, and other groups interested in environmental issues.

- MDIFW began monitoring bear harvests in 1969.
- Formal studies of Maine's bear population began in 1975, and were intensified in 1982.
- Since 1983, MDIFW biologists have radiotracked between 45 and 78 bears annually, and collected detailed information on their survival, reproduction, behavior, and physical condition. Over 2,000 bears have been captured and marked since 1975.
- MDIFW's study of black bears is one of the most extensive, comprehensive, and longest standing bear studies in North America.
- In 1982, the hunting of bears in spring was abolished by the legislature.
- In 1990, the lengths of time allowed for placing bait, pursuing bears with hounds, and trapping bears were reduced. This action was implemented to promote population growth of bears.
- The bear permit system was established in 1990 to better estimate hunter effort.
- The most recent public working group set bear population goals and objectives in 1999. The goals set by the working group were to:
  - Provide hunting, trapping and viewing opportunity for bears.
  - Stabilize the bear population by 2005 at no less than 1999 levels (23,000 bears) over the majority of the state (Wildlife Management Districts 1-23 and 25-28) through annual hunting and trapping harvests.
  - Increase the traditional hunting and trapping effort on bears within the existing season framework to reduce deer fawn mortality by 15% in Wildlife Management District 29.
  - Create information and education programs to promote traditional hunting and trapping methods as valid and preferred tools to manage black bear populations in Maine, and promote public tolerance of bears.

### Bear Habitat

- In general, bear habitat has increased in Maine over the past century because of farmland reverting to forestland.
- During the past 30 years, most of Maine's northern forestland has been modified through timber harvest activities, and is believed to have improved bear habitat by creating greater interspersion of vegetation types that provide more abundant seasonal foods.
- Spruce-fir acreage has declined statewide, and deciduous and/or mixed forests are now the dominant cover types because recent clearcuts are regenerating.
- Concern has been expressed for timber harvesting in mature hardwood stands, which could reduce the abundance of mature, mast producing beech trees. The net loss of beechnuts may negatively affect bear reproduction and survival in the northern forest region. However, the magnitude of any effect that the loss of mast producing trees has on the bear population has not been determined.

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Limiting Factors

- In general, bear populations are influenced more by natural food availability than other variables, especially as they approach biological carrying capacity (i.e. the maximum number of animals that habitat can support).
- Specific data collected from Maine bears over the past 25 years, support the general concept of bears being influenced by natural food availability despite the presence of artificial food sources. Bear reproductive rates, body condition, and cub survival have all been documented to decline in periods when natural food availability is limited. In addition, Maine bears enter winter dens earlier when fall natural food shortages occur.

Population and Harvest Trends

- Bears were believed to inhabit the entire state at the time of European settlement.
- Maine's biological carrying capacity for bears was estimated to be 36,515 bears (range 31,299 – 41,732) in 1999.
- The first reliable population estimate (18,000 bears) was determined from radio telemetry data in 1984.
- In 1985, the population estimate was increased to 21,000 bears based on the availability of improved habitat data, which indicated an increase in suitable bear habitat.
- The bear population was estimated to decline to 18,490 in the late 1980's due to hunting harvests exceeding goals set by MDIFW.
- Between 1990 and 1999, the bear population increased by 28% as a result of the reduced hunting seasons and subsequent decline in hunter harvest.
- In recent years (1999-2002), the population has been maintained at approximately 23,000 by harvesting an average of 3,712 bears each year.
- Hunting has been the primary mortality factor for subadult and adult bears in Maine. Vehicle collisions with bears, predation by other bears, and other human-related mortalities have an insignificant effect on the population as a whole.
- On average, 300 bears are involved in nuisance situations each year in Maine. In comparison, New Jersey (a state where bear hunting was closed from 1969-2002) has an estimated 3,000 bears, and had approximately 1,300 nuisance complaints in 2003, but has a much denser human population.
- It is not well understood how the bear population will respond if hunting methods are restricted. However, bait, hound, and trapping seasons were restricted in 1990; over the next several years bear harvest decreased and bear numbers increased from 18,000 to 23,000 bears. Population modeling of Maine's bear population has indicated significant population increases when bear survival increased.

Harvest Methods and Demographics

- Trapping bears, hunting with hounds, and hunting over bait are all highly regulated methods, through state regulations and policies of landowners (e.g. industrial forestland, Bureau of Public Lands, etc.).

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- Hunting and trapping seasons fall within a three-month period from late August to late November. It is legal to place bait four weeks in advance of the bait hunting season, beginning in late July. Bait may not be used to hunt for bears after the four-week bait hunting season, which ends in late September, although bait sites may be legally maintained until November 10.
- Only one bear/hunter/year is allowed, regardless of hunting method.
- From 1999-2002, 72% of all bears harvested were killed by nonresidents.
- A 1988 survey of bear hunters, including deer hunters who pursued bears incidentally during the deer season, estimated 20,676 hunters (14,321 residents and 6,355 nonresidents) pursued bears that year; 62% of nonresident and 4% of resident hunters hired a guide; success was 26% for nonresidents, and 13% for residents.
- Since 1990, hunters that pursue bears with the use of bait, hounds, or traps must purchase a bear permit. Nearly half the hunters that purchase a bear permit are nonresidents.
- A survey was sent to hunters that pursued bears with bait, hounds, or traps in 1991-94 and in 1999. An average of 7,142 hunters that purchased a bear permit actually pursued bears with bait, traps, or hounds, and 34% of nonresidents and 15% of residents were successful.
- Since 1999, 78% of bears were harvested during the baiting season, 10% with the aid of dogs, 10% were incidental to deer hunting, and 2% were taken by trapping.
- Stalking and still hunting effort fluctuates, but relatively few bears are taken by these methods each year. In 2002, only 55 bears (1.6%) were taken without the aid of bait, dogs, or traps before the deer season.
- Since 1999, participation (permit sales) in bear hunting has increased, despite an overall decline in participation in hunting of other species.
- During the regular firearms season on deer, hunters are allowed to shoot a bear without possessing a bear permit.
- In Maine, 25% of hunters that use bait and hounds to hunt bears are successful in killing a bear. Maine does not have data available to determine success rates for still hunting and stalking, however, in Colorado, Massachusetts, Oregon, and Washington, where baiting and hounding are not legal methods, still hunting and stalking success rates have been estimated to be between 2-6%.
- If baiting and hounding methods are banned in Maine, some alternative methods to attempt to achieve the desired harvest level for meeting population objectives are: longer still-hunting seasons, multiple-bear bag limits, implementation of a spring season, and lethal control of nuisance bears. However, the effectiveness of these methods in Maine and the public's attitude towards these methods are unknown.
- Hunters using bait and hounds may have the opportunity to be more selective of sex and age of bears they shoot than hunters using still hunting and stalking techniques. Close, unhurried shots using these techniques can result in more humane kills and can reduce crippling losses.
- Many hunters using bait and hounds are under the supervision of professional guides. Guides can act as mentors to instruct hunters on proper equipment, hunting technique, shot placement and recovery of shot animals.

### Economic Considerations

- Bear hunting in Maine sustains a guiding and outfitting industry that contributes to the Maine economy, and is a significant component of many rural economies.

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- Survey results from 1988 indicated that bear hunting in general (all methods) generated approximately \$6.4 million to the Maine economy.
- Recent estimates derived from nonresident guiding show that a minimum of \$5,027,704 was the direct fiscal impact to the bear guiding industry in 2002.
- Baiting and hound hunting contributes an estimated \$1,496,900 annually to MDIFW's budget.
- Property damage caused by black bears may increase if the population increases, and may increase costs of animal damage control (ADC) efforts. As a result of recent state budget cuts, no public funding exists for ADC, so landowners are responsible for the costs associated with ADC.

Artificial Feeding and Baiting of Wildlife

- Artificial feeding of wildlife involves placing natural or artificial food into the environment to supplement naturally occurring food of a given species. Artificial feeding has wide variation in degree and intent. Examples of artificial feeding include: backyard bird feeding; providing winter forage to 14,000 elk and 600 bison at Grand Teton National Park, Wyoming; and supplying alternative food sources to wintering deer.
- Artificial feeding of wildlife is a significant concern among wildlife professionals, as many negative impacts to wildlife populations have been documented, especially in populations of wild cervids (deer family). Artificial sources of food may influence wildlife distribution, seasonal movements, survival, digestive health, competition, and may facilitate disease transmission. Observations (both positive and negative) associated with artificial feeding include:
  - increased local carrying capacity for, and thus altered winter distribution of, bald eagles in Maine; “intercept” feeding influenced spring movements of black bears in Washington, resulting in reduced damage to saplings;
  - enhanced survival of bald eagles in Maine, and enhanced survival of elk in Wyoming;
  - artificial feeding of elk in Wyoming has contributed to reduced carrying capacity for moose of surrounding habitat; raccoons and skunks attracted to artificial feeding stations for white-tailed deer in Texas potentially may increase nest predation of ground-nesting birds; reduced forest understory associated with artificial feeding of ungulates in Pennsylvania may have favored bark-foraging birds over ground-nesting birds;
  - improved nutritional status and reproductive success among some ungulates (e.g. deer, bison) that used feeding stations in various areas of North America but not in others; improved nesting success among bald eagles in Alaska, but not in Maine; black bears that frequented residential areas and garbage dumps in Minnesota were heavier and had higher reproductive rates than bears that did not frequent residential areas and dumps;
  - aggressive behavior by black bears involved in artificial feeding for public viewing opportunity resulted in human injuries and deaths (e.g. Yellowstone National Park), and subsequently dumps were closed and feeding of bears prohibited in national and state parks;
  - diseases that may be transmitted among wildlife directly between individuals, for instance when they congregate at feeding stations, include bovine tuberculosis in wild cervids (deer family), chronic wasting disease in deer, bovine brucellosis in elk and bison, psoroptic mange in elk, demodectic mange in white-tailed deer, mycoplasmal conjunctivitis in house finches, and salmonellosis in passerine birds; foods that contain toxins could potentially cause disease in wildlife, for example aspergillosis among birds;

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- white-tailed deer in Wisconsin that were artificially fed during summer were more likely to visit bait sites during hunting season.
- Wildlife baiting is similar to artificial feeding in that both involve placing food, lures, or decoys to attract or entice wild animals to a specific area. Baiting differs from wildlife feeding in terms of purpose and duration. Baiting usually includes an element of negative stimulus for the intended wildlife: baiting is used to aid hunters and trappers, vaccinate wild populations against disease, poison problem wildlife, and capture wildlife for management or research purposes.
- The potential ecological effects of baiting include: physical condition and reproductive success of wildlife; population processes; disease transmission; community processes; and wildlife mortality by hunting. Observations associated with wildlife baiting include:
  - hunting mortality – baiting is used for hunting bear in 10 states and 8 Canadian provinces, deer in 24 states and 5 provinces, and wild turkey in 7 states;
  - diseases that may be transmitted among wildlife directly between individuals, for instance when they congregate at deer-bait stations, include bovine tuberculosis in wild cervids and chronic wasting disease in deer; foods that contain toxins could potentially cause disease in wildlife, for example aspergillosis among wild turkeys.
- The ecological effects of artificial feeding and baiting are difficult to quantify, vary by species, and information gaps exist; cause-and-effect relationships are very difficult to ascertain.
- In Maine, it is legal to feed wildlife, and no restrictions are placed on this practice. Conversely, baiting of wildlife is regulated by state statute. If the proposed referendum passes, regulated baiting practices will be abolished, however, artificial feeding of wildlife will remain a legal and unregulated practice.

Additional Information

- Twenty-eight states and 12 of 13 Canadian provinces have bear hunting seasons. Ten states and 8 provinces allow hunting bear with bait; 17 states and 2 provinces allow hunting bear with hounds. Bear trapping is legal in Maine and 7 provinces.
- Variability of hunting methods and habitats across jurisdictions often influences hunter success. In Pennsylvania, where open deciduous forests are most common, ~100,000 hunters harvest ~3,000 bears within a 3-day season by hunting in large groups and flushing, or “driving” bears to each other. In western states where open rangeland occurs, bears can be spotted from long distances, so stalking bears is achievable. In Maine’s dense forests, the success rate of hunting in conjunction with bait allows harvest objectives to be attained by regulating effort through timing and duration of seasons.

**INFORMATION SOURCES:**

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Note: Information printed herein also was derived from various peer-reviewed publications, wildlife agency websites, unpublished MDIFW documents, and personal communication with MDIFW biologists.

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