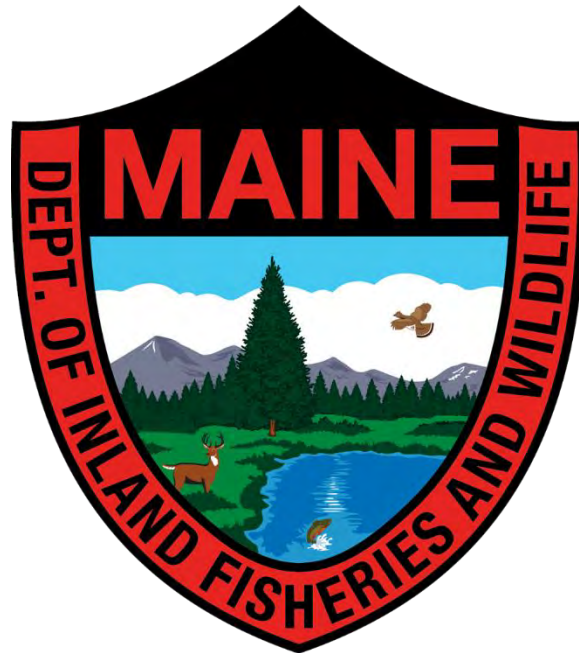# MAINE STATE LEGISLATURE

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Report from the Department of
Inland Fisheries & Wildlife

2020 Annual Report on:

Deer Population Goals & 5-Year Benchmark Report

130th Legislature – First Regular Session

Title 12 Section 10107-A

Dated: January 1, 2021

The status of Maine's northern deer population is an ongoing concern for the Department. After two successive severe winters in 2007 and 2008, our deer herd saw a significant population decline. The Department convened a working group to develop a plan of action that would rebuild the deer herd. "Maine's Game Plan for Deer" was the result of the working group and it details a comprehensive approach to rebuilding the deer herd in northern, eastern and western Maine. Specific objectives were identified in the plan, and this report provides an update on the status of those objectives.

Specific outcomes from this effort:

1. **Updates on meeting 5-year benchmark**

   • **Identify active Deer Wintering Areas (DWAs)** and obtain assurances from cooperating landowners that 100% of the acreage supporting wintering deer in northern, eastern, and western Maine is cooperatively managed with the Department by implementing the Guidelines for Wildlife: Managing Deer Wintering Areas in Northern, Western, and Eastern Maine or by developing cooperative management agreements or other methods **by December 31, 2013**.

     Update on progress: In progress; no new cooperative agreements have been developed during the last year.

     Using Outdoor Heritage Fund grant money, the Department digitized current and historic deer use data and plans to distribute results to landowners and regional biologists for management consideration. This data will facilitate habitat management critical to the benefit of deer, including mature softwood cover and provision of hardwood browse. The process to map current and historic DWAs was completed in the fall of 2014.

     The Department remains concerned that outside factors can undermine these voluntary agreements. Changes in ownership or economic markets can impact the effectiveness of the agreements. Cooperative management agreements have proven to be difficult to balance landowner objectives with the maximum habitat benefit to deer, mainly due to increased costs associated with planning and implementation of timber harvesting to incorporate adequate shelter for deer, as well as carrying mature softwood to act as cover for a longer period of time.

     Future landscape level changes are also concerning for deer in northern Maine, particularly the potential outbreak of Spruce Budworm. The Department has worked with forest industry stakeholders, the University of Maine, and other state agencies to plan for potential large-scale disturbances to deer habitat.

- Continue collaborative efforts with MaineDOT to develop and install signage at high deer collision areas **by December 31, 2012**.

    Update on progress: Completed.
    The Department collaborated with MaineDOT to develop a protocol for sign deployment, design and maintenance. This was successfully implemented in 2012. In addition, MaineDOT fabricated three mobile, vehicle-activated, flashing signs to use in high priority sites. Initial deployment results indicate a greatly reduced rate of vehicle/deer collisions. The Department will continue to review the effectiveness of this program and add or move signs as condition warrant.

- Update the Department's Deer Management Plan **by December 21, 2015**.

    Update on progress: Completed.
    The Department released updated species management plans for the four big game species: deer, bear, moose and turkey. In the most recent iteration of species plans, the four big game species were consolidated into a single Big Game Management plan. The Department actively sought to engage the public through a series of opinion surveys and focus groups to help inform management of these species in Maine. Guided by this information, the Department worked with a steering committee and sub-committees to engage stakeholders in the plan development. Subsequently, the Department has developed a Cervid Working Group to refine species management systems and institute progress towards goals identified in the plan. The updated Deer Management Plan is the primary planning document used by the Department to guide deer management in Maine.

- Update bear population estimate **by July 2012**.

    Update on progress: Completed
    The Department reassesses the bear population each year and current estimates put Maine's bear population at over 35,000 black bears.

- Stabilize the bear population at no less than 1999 levels, through annual hunting and trapping harvests **by July 2017**.

    Update on progress: Ongoing
    Maine's black bear population is growing, from 23,000 black bears in 1999 to 35,000 animals currently. The annual bear harvest has been too low to maintain Maine's bear population at 1999 levels. Maine's bear population is centered in rural sections of the state, and human tolerance for a growing black bear population has remained stable (measured in the number of complaints) despite an increasing bear population.

The Department is working to increase hunting opportunity and hunter participation to stabilize bear population growth. However, our ability to increase harvest is limited due to an already permissive fall hunting season (16 weeks with a variety of methods including bait, hounds, traps, and still-hunting/stalking). The updated Bear Management Plan identifies several strategies to increase bear harvest, including requesting that the legislature broaden the Department's authority to establish bear hunting season dates and bag limits in rule. In addition, the Department's enhanced R3 program has made significant steps in promoting bear hunting to both resident and non-resident hunters. While still below the level necessary to stabilize population growth, the fall 2020 bear harvest was the highest since 2004.

IFW received funding to manage predation of deer by coyotes in and adjacent to DWAs. The results of this effort are discussed in detail in Section 4.

2. **Annual goals for wildlife management districts (WMDs) and the progress toward meeting the goals**

- **Maine Deer Population Overview**
  Deer in Maine are not managed towards any specific number of animals, rather populations in each district are steered in a desired direction considering many inputs such as current population status and trends, deer-human conflict levels, public and law enforcement inputs, and habitat status. Currently, it is our aim to increase deer numbers in 16 of 29 WMDs, stabilize numbers in 8 WMDs, and decrease deer numbers in 5 WMDS. Deer numbers in much of northern Maine, parts of Downeast Maine, and the western mountainous region of Maine are lower than desired owing to poor habitat conditions for deer and severe winter conditions. Deer in central and southern Maine are abundant or over-abundant.

- **Maine Deer Management Overview**
  Each year, department biologists, game wardens, and administrators participate in a series of meetings to discuss deer management issues and deer population status in each WMD and to develop recommendations for Any-deer permit allocations in the coming hunting seasons. Other region-specific management issues may also be discussed. Any-deer permits allow hunters to harvest either a buck or a doe and are the primary means for MDIFW to manipulate Maine's deer population. Any-deer permit recommendations are made in consideration of a diverse set of data derived from the registered kill, examination of harvested animals, hunter and citizen reports on hunting effort and deer sightings, winter severity monitoring, and reports of deer-human conflicts. Recommendations are presented for consideration by the MDIFW Advisory Council and MDIFW Commissioners, and once permit allocations are determined, permits are distributed by lottery to Maine's deer hunters. Because the

deer population in some WMDs is low, some WMDs may be open only to buck hunting. Additional management options exist at smaller scales, for example antlerless permits may be issued at a sub-WMD scale in areas with high levels of deer-human conflicts, archery hunting opportunity may be provided in areas where gun hunting is not feasible, and depredation permits may be issued to alleviate problems with over-abundant deer at the parcel scale.

- **Population Management and Assessment Tools**

    Harvest Data
    It is mandatory for deer hunters in Maine to register their deer in person, and data from registered deer provide the backbone for deer management in Maine. Registration data provides information on population trends, hunter success rates, and harvest relative to objectives. With the introduction of online registration tools in 2018, MDIFW is also able to provide nearly real-time tracking of harvest for consumption by the public and for in-season monitoring.

    Biological Data
    Each year, department biologists examine 15-20% of the annual deer harvest to verify biological data including age of deer by tooth wear and replacement. This provides valuable information on deer population demographics, particularly the percent of yearlings in the adult population for bucks and does, which can be used to estimate overall mortality rates for each sex. Additional data are collected when available such as weights, yearling antler beam diameters, number of antler points, and lactation status of does.

    Deer Tooth Analysis/Aging
    From deer examined during the hunting season, biologists also collect a sample of ~1,500-2,000 incisors (teeth) from yearling and older deer while all other examined deer are aged by tooth replacement observations. Aging deer teeth is akin to looking at growth rings in a section of a tree. This method provides the most accurate aging of deer by year. The finer level of data that comes from sectioning teeth in the lab provides deer age by year and provides reliable information on adult sex ratios, adult male and female age distribution, and information on annual mortality rates.

    Whitetail Productivity
    In determining levels of allowable harvest, it is important to estimate how many deer are added into the population each year. Historically, MDIFW has used data on doe lactation status at harvest and embryo rate estimates for this. Because doe harvest is limited in some areas and determining lactation status is unreliable, a citizen science project to collect observations of does with fawns was initiated in 2020 to supplement and improve understanding of whitetail productivity in Maine.

Deer-Human Conflicts

Data on deer-human conflicts are collected from the Maine Warden Service, Maine Center for Disease Control and Prevention, and Maine Department of Transportation. These data are used to identify areas of high deer-human conflict levels, which may be candidate for additional antlerless deer harvest.

Hunter Effort Survey

MDIFW administers a statewide deer-hunter effort survey to examine the amount of time and effort Maine deer hunters dedicate to the pursuit of deer during the regular firearms season for deer. This is used as an index for overall deer hunter effort. While deer abundance estimates are not a critical component of Maine deer management, population estimates are still valued by the Department and public, and models such as the Sex-Age-Kill (SAK) model may be used to model abundance. Because models such as the SAK are sensitive to changes in hunter effort, it is important to monitor hunter effort trends and factor them into modeled estimates.

For the 2020 firearms season for deer, surveys were sent to a random sample of 10,000 Maine deer hunters. Response rate was ~7.5%, and we are exploring ways to improve this. Data collected include number of days spent hunting, number of hours spent hunting, location of hunts, and number of deer sightings. Additional questions were asked regarding preferred hunting methods and impacts of the COVID-19 pandemic on hunting plans.

Deer Survival Study

Game species management relies on an understanding of how many animals are added to and removed from a population in a year. Populations increase via births and immigration and decrease via deaths and emigration. Managing at broad scales such as WMDs or states, births and deaths are the primary population drivers, and in Maine, severe winter conditions are one of the primary sources of deer mortality. In 2014, MDIFW began a white-tailed deer winter survival project to reevaluate the impacts and our understanding of winter severity on deer in Maine. This project originally included a single study site in WMD 17, but additional study sites in WMDs 1, 5, and 6 were subsequently added to capture a greater variety of winter conditions and other influences such as artificial feeding of deer.

To augment the data collected in the deer study, the Department has also been involved in the Northeast Deer Research Partnership, a collaborative effort between the Maine Cooperative Forestry Research Unit, University of Maine, University of New Brunswick, New Brunswick DNR, Canadian Forest Service, J.D. Irving Corporation and numerous other private landowners. This involvement will allow for coordinated and collaborative research efforts to address multiple

questions including deer survival, use and quality of habitat, effects of feeding on use of habitat, and movements across the landscape. This work is ongoing.

The winter of 2020-2021 is the 7th year of deer capture for this study. Efforts will be focused in the WMD 5 study site, which is the newest study site. To date, the project has collared 257 unique deer with hopes of adding an additional 30-35 deer during the 2020-2021 winter.

Double count/Potvin Aerial Surveys (Population estimate by WMD)
Department biologists conducted aerial (helicopter) surveys for deer in 2011-12. Surveys are predicated on having snow cover less than 10" in December before deer have yarded. No flights were conducted for 2012-13 (post hunt) due to lack of snow at first, and then too much snow which moved deer to coniferous cover. Biologists had planned to continue survey efforts starting in December 2013, but the narrow set of conditions needed to conduct this survey proved restrictive yet again.

After reviewing the effectiveness and ability to conduct the surveys given the narrow operational conditions required by the survey, the Department has decided not to continue this effort, and instead pursue a deer survival/reproductive study as outlined above.

3. Deer Mortality - Data on deer mortality including, but not limited to, predation on deer

- **Illegal Deer Kill**
  Illegal deer kills are a long-standing drain on the deer population. The magnitude of the illegal deer kill directly reduces the allowable harvest to law-abiding hunters. Locally, illegal kill may contribute to deer population declines, or it may impede population recovery. Sources of illegal kill include night hunting, out of season hunting, failure to register deer killed in season, and false registration of deer killed by another hunter. We continue to be deeply concerned about this issue. The Department has worked to increase enforcement of all hunting and fishing rules and laws by offering citizens to report suspected violations through the Operation Game Thief program. This is an anonymous reporting system, via telephone or online and has been successful in prosecuting violators of fish and game laws.

- **Deer Vehicle Collisions (DVC)**
  Deer killed in collisions with motor vehicles also represent an additive loss to Maine's deer population, and hence they reduce allowable harvest. The number of road-kills varies seasonally (peaks in June and November), regionally, and annually. Winter feeding can draw deer near roads where they are susceptible to vehicle collisions. The Maine Department of Transportation reports annual deer mortalities from collisions with motor vehicles have fluctuated between 2,500 and nearly 4,000 deer statewide during the past 10 years. Many deer mortalities due to motor vehicle collisions are

never reported, however. Hence, the figures for deer losses to motor vehicles cited above under-estimate the true magnitude of these losses to the deer population.

- **Fawn Mortality**
During early summer, coyotes join a long list of predators which compete for newborn fawns: black bears, red fox, bobcats, fisher, and domestic dogs all contribute to fawn mortality. The degree of predation varies across the landscape with bears accounting for 20% - 60% of fawn mortality.

- **Winter Severity Index and Winter Mortality Rates**
From December to April, department biologists visit winter severity monitoring stations across the state from York to the Little Black River to measure snow depth and deer sinking depths. In addition, temperature data loggers are deployed at these 26 sites throughout the winter to measure daily ambient temperatures. This data provides the Department with an annual measure of winter severity which in turn is used to estimate annual winter mortality rates. Information for the 2020-2021 winter is currently being collected.

- **Chronic Wasting Disease Monitoring**
Monitoring and surveillance of diseases that affect wild cervids (deer and moose) is critical to the health and conservation of Maine's deer and moose. Department biologists annually examine deer and extract tissue samples to test for Chronic Wasting Disease to monitor for its presence. To date Maine remains free of this lethal brain disease and the Department continues to take steps in prevention. Annually, biologists collect ~500 samples from deer (and some moose) as part of a statewide monitoring and surveillance program.

  In 2018, CWD was documented in farmed red deer in the Province of Quebec. Under emergency rulemaking, the Department worked to prohibit transportation of deer carcasses from Canada into Maine in an effort to prevent CWD introduction into the state from hunter harvested animals. In addition, the Department has implemented an increased sampling effort in townships adjacent to the Quebec border and nearby towns where deer feeding congregates high numbers of deer.

  The Department has also begun planning to develop a CWD response plan, working the Maine Department of Agriculture, Conservation and Forestry to address issues relating to both farmed and wild cervids. This would allow a rapid response to a known CWD outbreak in Maine.

4. Efforts - An assessment of the efforts of animal depredation control agents

During the winter of 2009/2010, the Department began assessing coyote predation on wintering deer in DWAs with the goal of directing hunter effort to those areas. As predation events were observed, staff successfully directed volunteer effort to some areas. In some

cases the areas were too remote and we could not find a volunteer. In these cases we reached out to other organizations who share our concerns for assistance in covering these areas.

During the winter of 2010/2011, the Department continued the same effort. In March of that year, the Department identified funding that could be used to compensate hunters accessing the more remote DWAs. There were two factors limiting the success of the spring effort: 1, after announcing the effort, there was short lead-time to identify and deploy hunters, and 2, because the effort was reactive, coyotes were removed after predation had occurred.

Section 10 of LD 1569 directed IFW to organize an advisory group of professional guides and trappers to help develop and implement a program for managing predation on deer. In October of 2011, the Department implemented the program. The objective is to annually reduce coyote density in high-priority areas between early-autumn and early-winter, and then monitor coyote presence and manage predation events as needed through winter.

With limited funding the Department then chose 9 DWAs where we could sustain a continued effort through the winter. Conditions that winter were great for deer survival but very poor for hunting coyotes. With little to no snow cover much of the winter, food availability for coyotes remains high and deer were not heavily concentrated resulting in low coyote response to calling and bait piles. The effort was winter hunting only with the following results:

- 9 Priority DWAs
- 12 paid hunters and houndsmen plus volunteers
- 119 Coyotes harvested
- Expense: $15,156

In 2012-13 the continued objective of this program was to proactively reduce coyote density in these Designated Areas between early-autumn and early-winter that may be present during winter periods of vulnerability. Subsequent to that, the Department followed this up with reactive winter efforts to monitor coyote presence and manage predation events as needed through winter. The effort had the following results:

- 37 Priority DWAs
- 27 paid trappers
- 44 paid hunters and houndsmen
- 21 volunteers
- 541 Coyotes harvested
- Expense: $63,668

The program was continued through the winter of 2013-2014. During this timeframe the Department increased the number of priority DWAs in which paid and volunteer participants were placed. The effort yielded the following results:

- 52 Priority DWAs
- 25 paid trappers
- 42 paid hunters and houndsmen
- 20 volunteers
- 385 coyotes harvested
- Expense: $68,346

Efforts under the Predator Management Program for 2014-2015 yielded the following results:

- 73 Priority DWAs
- 24 paid trappers
- 46 paid hunters and houndsmen
- 21 volunteers
- 303 coyotes harvested
- Expense: $41,034

The Predator Management Program resulted in the following accomplishments for 2015-2016:

- 52 Priority DWAs
- 25 paid trappers
- 37 paid hunters and houndsmen
- 17 volunteers
- 281 coyotes harvested
- Expense: $46,501

The Predator Management Program resulted in the following accomplishments for 2016-2017:

- 52 Priority DWAs
- 25 paid trappers
- 37 paid hunters and houndsmen
- 17 volunteers
- 286 coyotes harvested
- Expense: $58,580

The Predator Management Program resulted in the following accomplishments for 2017-2018:

- 54 Priority DWAs
- 25 paid trappers
- 43 paid hunters and houndsmen
- 9 volunteers
- 218 coyotes harvested
- Expense: $40,721

After the 2017-2018 season, a review of the effectiveness of program participants, their ability to report accurately and timely and the locations and effort in priority DWAs. As result of that effort, some contractors were removed from the program and additional capacity was identified by the Regional Wildlife Biologists and District Game Wardens.

The Predator Management Program resulted in the following accomplishments for 2018-2019:

- 54 Priority DWAs
- 23 paid trappers
- 33 paid hunters and houndsmen
- 388 coyotes harvested
- Expense: $69,670

The Predator Management Program resulted in the following accomplishments for 2019-2020:

- 54 Priority DWAs
- 23 paid trappers
- 27 paid hunters and houndsmen
- 310 coyotes harvested
- Expense: $52,927

The Predator Management Program continues this year 2020-2021, and at the time of this report the following results have been realized (this is effectively the trapping component of the program, as hunting begins late December):

- 47 Priority DWAs
- 21 paid trappers
- 20 paid hunters and houndsmen
- 85 coyotes harvested
- Expense: $23,243

It is important to consider that this effort was designed to bring about predator control efforts in the more remote areas of the state that have valuable active deer wintering areas

but lacked the attention from recreational trappers and hunters.   Success of these efforts depends upon the presence of coyotes, weather, and the effort of participants of the program.

5. Annual Flights - The number of flights made annually by agents of the department to assess the deer population

Winter DWA aerial and ground surveys are a high priority of Wildlife Division biologists. Biologists and game wardens have been documenting the location of deer wintering areas since the 1950's. In *Maine's Game Plan for Deer,* the Department stated it would intensify efforts and resources to document areas of active winter deer use.

A number of variables impact the amount of aerial surveys staff can complete in any given winter including funding, aircraft availability, staff availability, snow depth, time since last snowfall, light conditions, wind, and equipment failure among others.

The winter of 2019-20 was moderate, although for much of the winter deer were not restricted to deer wintering areas. As such, survey efforts were curtailed to ensure appropriate survey conditions. During the winter yarding period of 2019-2020, one aerial flight was conducted to assess deer use of wintering habitat covering 7,543 acres. In addition, ground survey efforts to assess deer use was conducted on 600 acres. Thirty-one P-FW Plan Agreements were developed working cooperatively with landowners on timber harvesting within deer wintering areas, covering 5,450 acres.

6. Work with Others - The department's efforts to work with interest groups regarding predator control

Since 2011, the Department has had a well-structured and organized predation management program. As a result, when hunters wish to participate in a coordinated effort or be directed to a DWA where they can have a positive impact, they are often referred to IFW. We do our best to direct those recreational efforts when possible and, in some cases, have utilized their effort in our predation management program.

The Department's effort is strategic and focused on designated priority areas where mortality can be reduced during winter. Additionally, The Sportsman Alliance of Maine has been working to promote coyote hunting in Maine to increase the overall annual take of coyotes. There are also numerous clubs and organizations promoting coyote hunting contests across the State. Thanks to the efforts of the Department and other groups, there has been an increase in the numbers of guided coyote hunts throughout the state.