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Agency History

The creation, in 1930, of the North Dakota Game and Fish Department was a continuation of efforts to preserve fish and game species in the state. At its inception, the enforcement of game and fish laws was the Department's primary conservation tool. Over the years, the legislature has increased enforcement authority and assigned regulatory powers to the agency aiding its efforts to preserve fish and wildlife and their habitats.

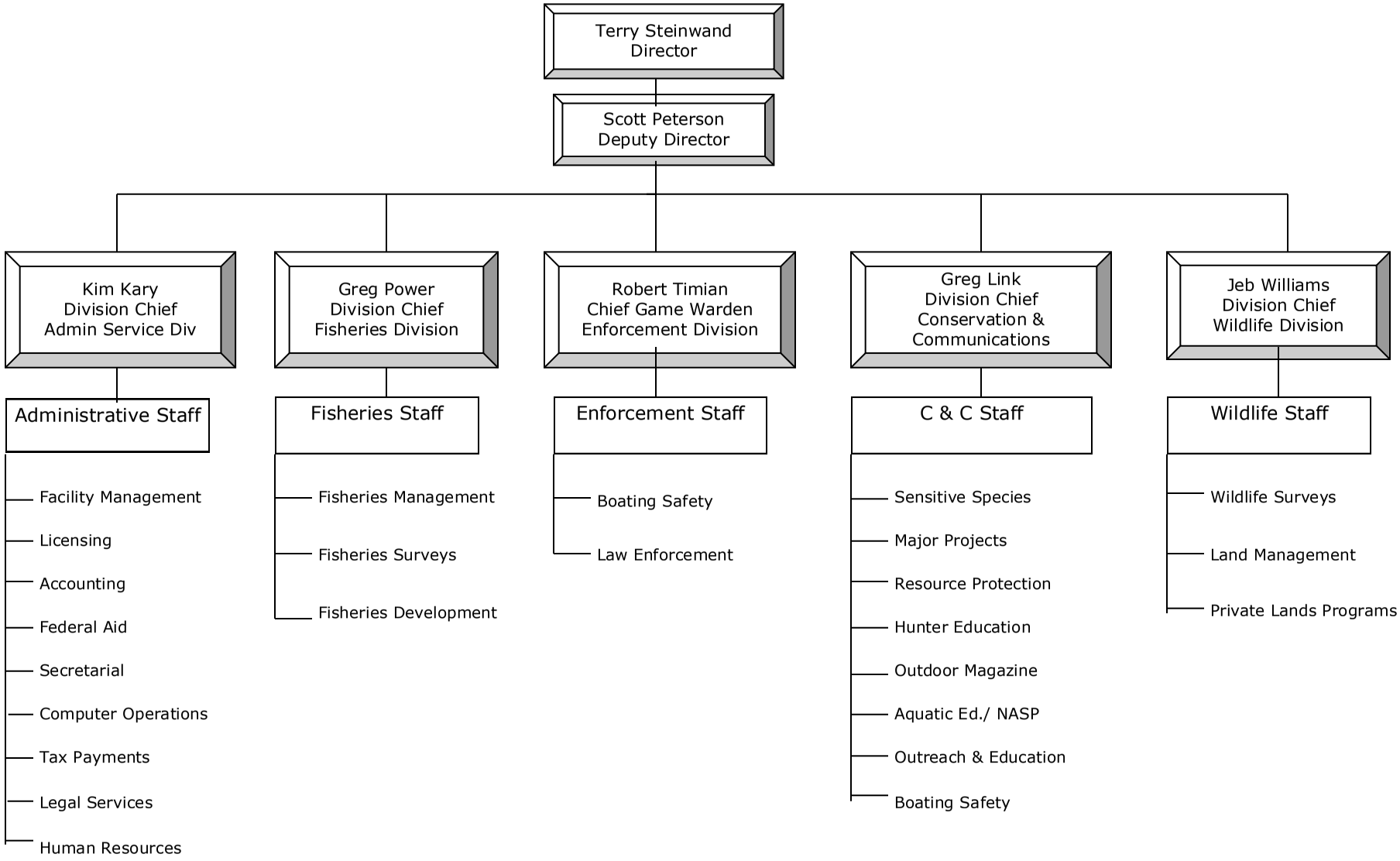
The availability of federal funds for wildlife management programs through the Pittman-Robertson Act (1937) enabled North Dakota and other states to begin scientific management of wildlife resources on a large scale. The Federal Aid in Fish Restoration Act, or the Dingell-Johnson Act (1950,) enabled fisheries restoration. In the 1980's, an amendment to the act expanded the tax to motor boat fuels and imported equipment, making more money available to states.

Since 1983, the Game and Fish Department has had regulatory powers over game, fish, and wildlife resources in North Dakota (S. L. 1983, Ch. 261). Specifically, under the direction of the Commissioner (Director), the Department has authority to promulgate rules and regulations governing management of game and fish resources; collaborate with the USFWS on the two federal hatcheries (Riverdale and Valley City) to produce fish to stock across the state's wildlife management areas; administer the state's habitat improvement program; survey and research fish and wildlife species; issue hunting and fishing licenses; enforce hunting and fishing laws; inform and educate the public on the Department's wildlife management programs; and publish the agency's magazine, North Dakota OUTDOORS (first issue published in 1930), and other informational publications as required by state law.

In 1991, the Commissioner was renamed the Director (S. L. 1991, Ch. 231). The Director was required to submit a proposed wildlife and fish restoration program and project plan and to update segments involving the proposed acquisition of area wetlands, water and land by purchase, lease, easement, or servitude. The Director was given authority to establish a statewide acquisition plan (S. L. 1991, Ch. 42). The Director was charged to appoint a deputy director, a chief state warden, biologists, and technicians all of whom were to enforce the rules and regulations of the Department. Under the supervision of the Director and the advisement of the State Game and Fish Advisory Board, the Department administers regulatory powers over game, fish, and wildlife resources in North Dakota.

The mission of the North Dakota Game and Fish Department is to protect, conserve, and enhance fish and wildlife populations and their habitat for sustained public consumptive and appreciative use. The Department is currently headquartered in Bismarck and consists of five major divisions: Administrative Services, Fisheries, Enforcement, Conservation and Communications, and Wildlife. There are seven district offices: Dickinson, Williston, Riverdale, Devils Lake, Lonetree, Jamestown, and the Bismarck Shop/Lab.

North Dakota
Game And Fish Department



07/2019

165 FTEs

ADMINISTRATIVE SERVICES DIVISION

The Administrative Services Division, through the Director, sets policy for the entire Department. It also provides organizational and administrative support for all other divisions of the Department. It consists of the director, deputy director, administrative staff, an accounting section, a licensing section, information technology section and facility management.

The licensing section handles hundreds of thousands of applications and licenses each year. Effective April 1, 2016, paper license booklets were eliminated and transactions were made electronically through the Department's web based system through a computer or mobile device. The Department phased out paper lottery applications over the next few years and lottery applications became 100% electronic in 2018.

Sales of resident general game licenses increased and resident small game licenses have slightly decreased for 2018. Deer hunting license sales are slowing continuing to increase, there were 40,438 licenses sold in 2017 and 41,068 sold in 2018. The number of pronghorn licenses sold for 2017 and 2018 was 404 and 1,080 respectively. Fishing licenses are starting to have a slight decrease after an all-time high in 2013.

Nonresident small game hunting licenses slightly increased from 19,255 to 19,704 in 2018. Nonresident waterfowl licenses slightly increased from 20,770 to 21,392 in 2018. Nonresident fishing licenses are starting to have a slight decrease after an all-time high in 2015.

Graphs showing license sales data are attached.

The Department made In Lieu of Tax payments of $1,285,357 for 2017-19 for land owned or managed by the Department as required by law.

Legislation:

Key Game and Fish related bills from the 2019 legislative session:

HB 1021 – Included in the Information Technology Department's appropriation, during the 2019-21 interim, a 14 member land access committee (with nine voting members) will study access to public and private lands for hunting, trapping, fishing and related issues, including trespass violations and penalties, and provide recommendations regarding a land access database with capabilities of electronic posting. The study committee may establish a trial electronic posting and hunter access information system in up to three counties prior to Aug. 1, 2020, and report findings and recommendations to the next legislative assembly.

HB 1209 – Allows the use of dogs in the recovery of big game animals.

HB 1246 – Defines the eligibility requirements relating to gratis licenses for hunting big game and to provide a legislative study.

HB 1286 – Amends the century code relating to law enforcement agencies reporting seizures and

forfeitures.

HB 1366 – Allows the use of a telescopic sight on a crossbow with a maximum power of 8x32.

HB 1412 – Allows the use of night vision, thermal vision or infrared light with a power source of not more than six volts while hunting coyote, fox, raccoon or beaver during the open season, and on a predatory animal attacking and attempting to destroy poultry, livestock or other property.

HB 1462 – Changes the seven white-tailed deer licenses to four any-whitetail and three any-antlered deer licenses, that are provided to the outdoor adventure foundation to be used by youth with life-threatening illnesses.

HB 1503 – Requires an individual who enters private property and installs a device for observing, recording or photographing wildlife to either receive written permission from the landowner, or identifies the device with a permanently affixed metal or plastic tag with a registration number issued by the Game and Fish Department, or the individual's name, address and telephone number.

SB 2017 – Appropriates $83,803,632 to the Game and Fish Department for the biennium beginning July 1, 2019 and ending June 30, 2021.

SB 2034 – Defines the terms "firearm" or "weapon" and clarifies who can carry, including a minor under age 15 carrying a muzzleloader under direct supervision.

SB 2055 – Allows Game and Fish to get approval from either the legislative assembly or budget section for each land acquisition of at least 10 acres or $10,000.

SB 2138 – Allows advanced practice registered nurses and physician assistants, in addition to a physician, to verify the physical condition necessary for individuals to qualify for a shoot from a stationary motor vehicle permit.

SB 2239 – Defines open records laws/exemptions of animal tracking data bases for animal health purposes, including state and federal agencies would be able to collect information to assist in animal disease control or tracking an animal disease. Declared an emergency measure.

SB 2293 – Creates an aquatic nuisance species program fund in the state treasury. Effective Jan. 1, 2020, establishes an ANS fee of $15 for each motorized watercraft registered in North Dakota to run concurrent with the three-year watercraft registration period. For motorized watercraft operated on waters in North Dakota but not licensed in North Dakota, an ANS fee of $15 to be paid for each calendar year and to display an ANS sticker on their watercraft. Effective April 1, 2020, establishes a $2 surcharge on each resident fishing license and combination license, with the exception of the resident 65 and older fishing license, permanently or totally disabled fishing license, or a disabled veteran fishing license. In addition, includes a $3 surcharge on each nonresident fishing license and each nonresident waterfowl license.

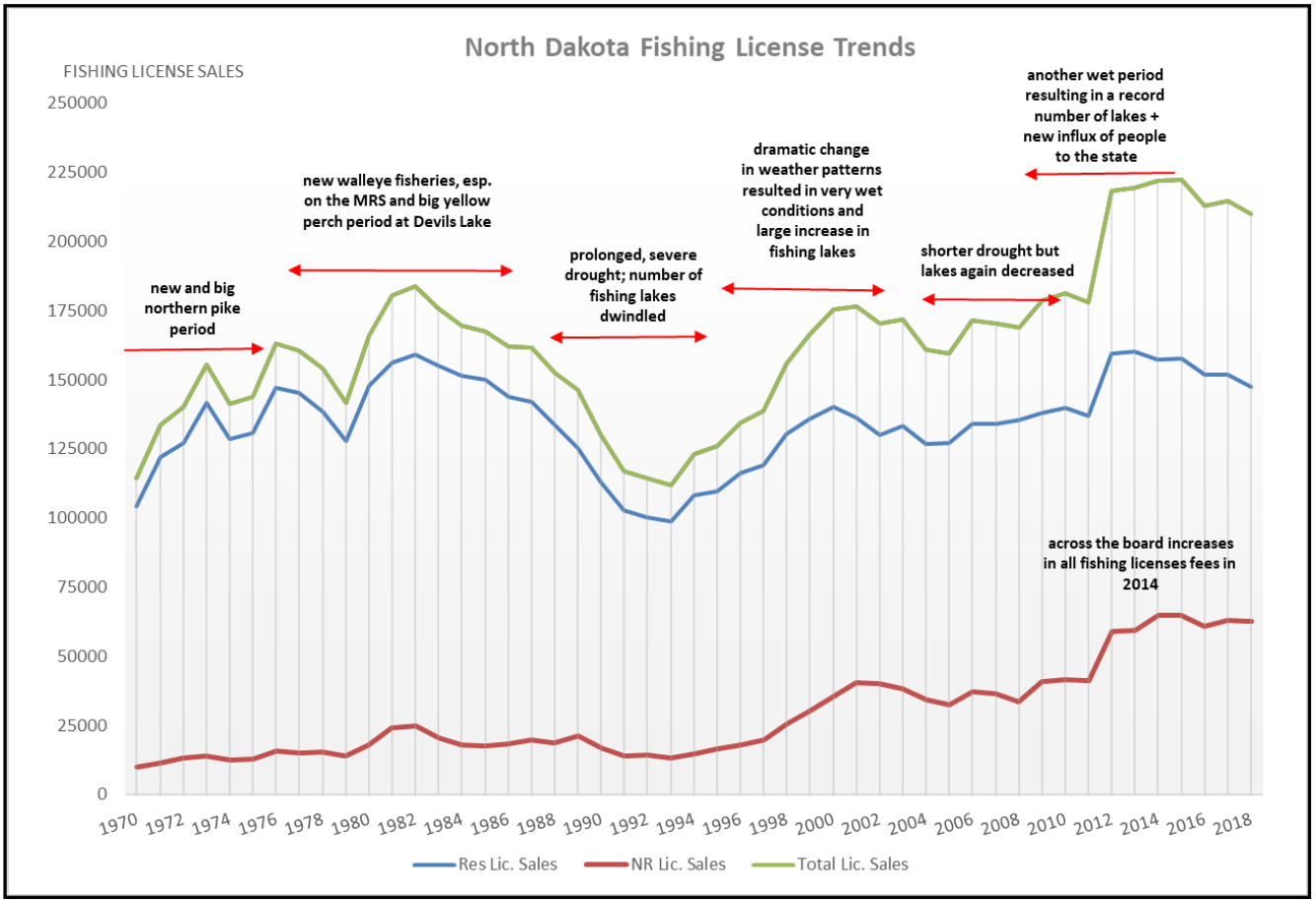
SB 2342 – Any boat operated between the hours of midnight and 5 a.m. may not produce a noise

in excess of 88 decibels for more than 10 minutes.

FISHERIES DIVISION

The Fisheries Division is responsible for managing fish populations in nearly 440 public waters scattered across the state. As such, "The goal of the fisheries program is to manage North Dakota waters in cooperation with other interests to provide the maximum sustainable quality and quantity of fishing opportunities for the enjoyment of the public."

Decades of relatively wet weather has caused a transformation of sloughs into recreational lakes. The more than doubling of fishable waters caused be years of rising water, and an aggressive approach toward fish management in North Dakota have helped produce high fishing license sales. In 2018-19, approximately 210,000 fishing licenses were issued. During this time period, approximately 188,000 anglers fished almost 1.6M days in North Dakota waters.



The Fisheries Division of the North Dakota Game and Fish Department includes several sections that protect, regulate, and enhance fishing opportunities throughout the state. These sections include administration, fisheries management, production (stocking, etc.), development (access, infrastructure), habitat and aquatic nuisance species. These different sections work together to ensure good fishing. In addition, the Fisheries Division has established strong working relationships with other Department divisions as well as various public and private entities, resulting in the creation and maintenance of some of the finest fishing that can be found anywhere. Specific section results can be found in the following narratives:

FISHERIES ADMINISTRATION

The number of wholesale and retail bait vendors continue to slowly grow as the public demand continues to be strong. In 2017 there were approximately 345 bait vendors. However, an administrative rule change effective in 2018 resulted in an expected decrease in bait vendors (297). The number of licensed private fish hatcheries remain few (5). With the increase in fishing lakes statewide, the number of fishing tournaments has also slowly trended upward with a record number of 165 permitted in 2018. Group home fishing licenses have remained relatively stable with about 150 homes receiving approximately 1350 individual licenses.

Cormorant predation on desirable fish stocks continues to be a problem in some waters across the state with a long-term solution remaining elusive. Intensive take in select waters by fisheries staff has been limited recently by the USFWS. There was one administrative rule change during the 2015-17 biennium dealing with aquatic nuisance species (ANS). Fishing proclamation changes were few and minor. Lastly, during the 2019 legislative session a new statute was passed/approved that earmarks Department funding for additional ANS work.

FISHERIES MANAGEMENT SECTION

Most of the state's lakes experienced increases in water levels over the last decade. However, lower annual precipitation decreased during the 2017-2019 period, and even though the number of lakes remains at or near a record high, many of our lakes experienced lower water levels during the period. Annually from 2017-2019, Fisheries Division personnel conducted 243 standard adult population surveys, 152 reproduction surveys, 30 miscellaneous surveys, 19 trap and transport operations, one undesirable fish removal surveys, four spawning operations, and four tagging operations. In addition, other activities such as creel surveys, water quality monitoring, and fish kill investigations are conducted as needed. Staff investigated 35 fish kills during 2017-2018, with 16 of those being classified as significant or total kills. Unfortunately, heavy snow cover blanketed most of the state in 2018-2019, and staff investigated 70 fish kills, with 56 of those being significant or total kills. It appears that the high-water years have peaked and may be declining. But abundant moisture early in 2019 may prolong the life of many of our shallow fishing lakes.

FISHERIES PRODUCTION SECTION

A strong demand for hatchery production with all the new fishing waters across the state continues to push for maximum production output. During the 2017-2019 biennium, over 21 million 1.5" fish, representing 15 species, were stocked into nearly 330 North Dakota waters. Most of the stockings were walleye and most of the brood fish needed for spawning originated from Lake Sakakawea and Lake Oahe. In addition, approximately 832,000 adult fish (generally panfish) were trapped from one water body where surplus existed and transported/stocked into a water body in need. A total of 54,000 pounds of fish were stocked into new water bodies. The lighting in the salmonid rearing building at the Garrison Dam National Fish Hatchery (GDNFH) was upgraded to a modern and efficient LED system. This replaced the original florescent system that was in place since the original construction in the late 1980s. At both GDNFH and

the Valley City National Fish Hatchery, spot graveling was completed to keep roadway surfaces safe for travel during wet weather.

FISHERIES DEVELOPMENT SECTION

Precipitation and water levels throughout the state varied greatly in the 2017-2019 biennium. While some lakes reached record high levels, others saw a decrease in water levels of 2-5 feet. The Missouri River System experienced high levels and flows which made for excellent boating access. Where water experienced a decline, boat ramps required extension work, repairs or total relocation. The primary focal areas were to upgrade, replace and modernize many of the states existing boat ramps, docks, toilets and fish stations that have deteriorated and have outlived their useful life. There is a continued focus to work with landowners to obtain easements and develop access to many new walleye fisheries lakes that have been established with the high precipitation and water levels in recent decades. More than 80 new development projects were completed during this time period along with 400+ individual maintenance activities. Eighteen boat ramps were constructed or upgraded during this period and around 38 new courtesy docks were built and installed. Ten new vault toilets were installed, and two road/parking area projects were undertaken and completed. Three shoreline stabilization or riprap projects were carried out and twelve fish cleaning stations were upgraded by replacing the old table/grinder units with new, larger tables and grinders.

FISHERIES HABITAT PROJECTS

The Department's "Save Our Lakes Program" (SOL) was created to address aquatic habitat issues (e.g. water quality) facing all the state's fishing water bodies. During the 2017-19 biennium, 5 in-lake projects and 11 long term agreements were completed/signed protecting approximately 2,461 riparian acres (generally rotational (cell/paddock) grazing systems) and 10,580 feet of riparian habitat. A total of 175 long term easement checks were conducted. There was 128,606 feet of riparian fencing completed. Two alternate water sources were installed, one well, one active low level pump repaired, one spawning bed installed, one drain below a dam created, 16 water tanks installed, and two earthen piers were created. Additionally, 30,300 feet of waterline was installed to allow livestock access to high quality water while protecting and improving water quality in North Dakota's rivers, streams, lakes and reservoirs. Two grants were applied for and received. A total of $600,000 was received from the Natural Resources Conservation Service and State Wildlife Grants Program to provide match to the Save Our Lakes Program. These expenditures went toward various projects within the riparian corridors of the state to improve water quality and thus the fisheries of North Dakota.

AQUATIC NUISANCE SPECIES PROGRAM

One of the biggest threats to North Dakota's aquatic ecosystems is the establishment of aquatic nuisance species (ANS). In the 2017-2019 biennium, 248 North Dakota waters were inspected for ANS, many of them annually. Over 2,000 watercraft inspections took place in 2018-19, with no ANS found on watercraft. However, bighead carp were found in North Dakota (James River) for the first time during this biennium, as well as a new(er) population of zebra mussels in Lake

Ashtabula. Targeted zebra mussel sampling was expanded to include over 100 waters (instead of the annual 30 waters) in response to the zebra mussel findings in Lake Ashtabula (and presumably the Sheyenne River), which also impacted Valley City National Fish Hatchery. New initiatives/activities during this biennium included engaging North Dakota trappers and educators for the first time, contracting with a new outreach vendor to target messaging regionally, improving boater surveys and inspections, and approved legislation that created a dedicated ANS funding mechanism and Department authority to hire two new FTEs (one warden and one ANS biologist).

CONSERVATION AND COMMUNICATIONS DIVISION

The Conservation and Communications Division is comprised of three sections; communications, conservation, and education. The Communications Section functions as the Department's liaison to the general public, providing the most up-to-date, department-wide information through all media formats. The Conservation Section reviews development related projects and offers recommendations to both private and government for minimizing impacts to our state's wildlife and their habitats. This Section's focus also includes management of nongame wildlife and species-of-conservation-priority. The Education Section is responsible for all facets of educating the public, e.g. hunter education, fishing, archery, fur harvester education, boating and water safety, etc., offering state-wide, hands-on conservation and skills learning opportunities for outdoor enthusiasts of all ages.

COMMUNICATIONS SECTION

The Communications Section includes production of North Dakota OUTDOORS magazine, weekly television broadcast news feature, weekly online webcast and other video products, weekly news release, website (internet), internal website (intranet), social media, including Facebook and Instagram, Game and Fish Department hunting and fishing regulations guides, the annual PLOTS guide and other publication development, handling of phone and email inquiries from the public, media relations and public information projects.

Telephone and Written Correspondence

The Communications Section is responsible for handling telephone information calls, answering and/or distributing emails that come into the Department's main email account, and responding to written inquiries. Section staff handle several hundred calls per week, depending on the season, and thousands of emails, letters, and requests annually. The section also maintains fisheries Whopper and Catch and Release files, and compiles and distributes bi-weekly news clippings to staff.

Publications

The Game and Fish Department produces a four-color magazine, North Dakota OUTDOORS, published 10 times per year and ranging from 24 – 40 pages. OUTDOORS had a mailing list of about 27,000 in August 2019. About 19,000 subscriptions were paid, generating approximately $287,000 during the biennium.

Media/Public Information

The Communications Section is responsible for weekly and special news releases distributed to about 170 media outlets, and another 14,000-plus individuals and organizations signed up to receive regular and news alerts; an online legislative newsletter compiled and updated daily during the 2019 legislative session; and a seasonal spring snow goose hunting information hotline. Section staff answer hundreds of phone calls and emails weekly, and are also responsible for developing the various hunting and fishing regulation guides.

Photography
Section personnel take thousands of photographs each biennium for illustrating articles in North Dakota OUTDOORS, and for use on the agency website, social media channels and use by all staff for slide shows, power point presentations, newspapers, media and other private and public publications.

Videography
North Dakota OUTDOORS, a weekly television news feature, maintained its appearance on major North Dakota stations with a weekly audience of approximately 100,000 viewers. The weekly online news webcast, OUTDOORS Online, also has consistent broadcasts on cable access channels in most major cities. The webcast attracts several thousand viewers per week. These programs are also valuable content shared on agency social media platforms on a consistent basis.

Game and Fish Website
The website includes most of the basic Game and Fish Department information such as season regulations, lake and species information, the Department's magazine and video features, and a variety of other topics. It attracts between 5,000 and 10,000 individual visits per day, and also handles a great majority of license sales in the state. Game and Fish's website editor also manages an internal intranet website for staff.

Social Media
Section staff manage and contribute to the agency's social media presence on Facebook and Instagram. The Facebook page has about 17,600 followers and 5,400 Instagram fans.

Outreach Biologists
In June 2014, Game and Fish administration reassigned the outreach biologists, stationed in Fargo, Grand Forks, Minot, and Bismarck, from the Education Section to the Communications Section to promote more coordination within the division. The outreach biologists are vital, local experts for interacting with wildlife clubs, local leaders, local media, and assisting other Department divisions with local issues.

The outreach biologists all have weekly radio programs on major local stations, produce a weekly agency audio news release, and a weekly newspaper column that is widely distributed and used.

CONSERVATION SECTION

Coordination, Technical Assistance, and Special Projects:

Conservation section staff continued their primary task of reviewing development related projects and offering recommendations intended to lessen the severity of such projects on fish and wildlife resources. During the 2017 – 19 biennium, staff reviewed and commented on approximately 600 proposed development-related projects. These projects range from construction of roads, oil wells, wind turbines and transmission lines, to drainage projects, dams,

and changes in land use practices. In addition to written requests, staff receive and respond to numerous informal inquiries via phone, email and walk-in traffic.

A continued area of emphasis this past biennium has been the review of proposed 'wind farms' around the state. As wind projects become more and more numerous, the Department decided to take a more active stance in reviewing and assessing their impacts on fish and wildlife resources. This includes consultation with companies proposing wind projects, the general public, environmental groups and permitting authorities. Over the course of the past biennium several projects have generated considerable interest and requests for information about wind-related impacts on the environment. The Department has striven to provide an unbiased assessment of their impact on fish and wildlife resources. It's hoped that the recommendations provided by the Department will continue to minimize impacts to the environmental and where necessary result in voluntary incentives that maintain and protect native fish and wildlife habitats.

A second major area of emphasis for staff has been the effort to quell the spread of aquatic nuisance species. As several new species have been documented in the state, staff work with project sponsors and regulatory agencies to minimize the opportunity for aquatic nuisance species to spread to non-infested waters. As highway maintenance projects use water from rivers, lakes and ponds for dust control, the Department provides recommendations on source water and techniques to minimize the spread of invasive species via water tankers. Additionally, fishery and conservation section staff inspect equipment coming into the state to assure they are free of aquatic nuisance species.

Staff spent a considerable amount of time this past biennium dealing with issues impacting public lands in North Dakota. The majority of the efforts involved lands administered by the US Forest Service (USFS) and the US Bureau of Land Management, which total about 1.3 million acres. These lands are located primarily in western North Dakota. The primary purpose of the Department's involvement is to ensure adequate consideration of natural resources and the interests of state sportsmen and women in public land management policies and actions. Examples of conservation section involvement includes the review of oil well placement, road and pipeline alignments, wildlife transplants such as bighorn sheep, land trades and divestitures, grazing issues, unique or rare species, access and natural resource protection. During the past biennium, staff also continued to provide input on issues related to the Forest Plan for USFS managed lands. This includes review and comment on various pasture allotments throughout the grasslands.

Flooding and water management has been a major issue during the past biennium. Department personnel have worked diligently with the Corps of Engineers and communities of Fargo and West Fargo on the Fargo Moorhead Diversion Project. The diversion has numerous environmental challenges including the crossing of five tributaries, loss of river channel and riparian forest, construction of two in-channel control structures and numerous fish by-pass structures. Additional efforts have and will be expended working on Missouri and Souris river flood related projects (i.e. high-water diversion channels, stabilization measures). A byproduct of the flood control measures are voluntary buyouts of chronically flood prone properties. Audubon Dakota has agreed to manage these properties for nature trails, limited hunting opportunities and other suitable recreational pursuits. The Department has partnered with Audubon Dakota by providing cost-share to reestablish native woodlands and prairies in select areas of the buyouts.

Considerable staff time was also spent on integrating 'wildlife crossings' in the design of various highway projects across the state. Although new to our state, incorporating passageways that allow wildlife the opportunity to cross major highways (e.g. Highway 85) have been used in other states for quite some time. Staff provided valuable technical assistance in the development of proposed sites to place wildlife crossings and the type of design.

The Department has continued its efforts to ensure that mitigation commitments associated with development projects are carried forth and maintained. These efforts have focused on three major areas: roadside mitigation along major highways for Department of Transportation commitments, mitigation for Corps of Engineers Section 404 permits and State Engineer Sovereign Land permits.

Nongame and Species of Conservation Priority:

In North Dakota, nongame wildlife represents more than 80 percent of the state's vertebrate fauna, with more than 300 bird species, roughly 80 mammal species, 75 fish species, 15 reptile species and 11 amphibian species. Freshwater mussels, insects and many other small organisms are also considered nongame. Oftentimes, they are the rarer and/or less studied species. Many of these species serve as biological indicators, reflecting the general health of our environment.

In order to focus its management of nongame species, the Department developed a strategic planning document called the Wildlife Action Plan in 2005. North Dakota's Wildlife Action Plan focuses on those species of fish and wildlife considered to be species of conservation priority or the most at risk in terms of extirpation from the state. The plan includes information relating to the distribution, abundance, habitat requirements, threats, conservation actions, and monitoring techniques for species of conservation priority. Section staff completed a 2-year revision process of the Plan and submitted a copy of it to the US Fish and Wildlife Service's regional office in July of 2015.

Prior to 2001, funding to manage nongame species was limited. Since that time, however, federal funding has been made available to states with approved Wildlife Action Plans through the State Wildlife Grant (SWG) program. The SWG program is a matching grants program, meaning all federal dollars awarded must be matched with nonfederal dollars. All projects require at least 35 percent nonfederal match. The Department receives an annual federal apportionment of approximately $500,000. The knowledge gained from projects funded with SWG has proved invaluable in revising the State Wildlife Action Plan.

Currently 11 species of animals are listed as federally threatened or endangered in North Dakota with an additional 11 species being 'petitioned' for listing. In order to help reduce the likelihood of species being federally listed, a great deal of the emphasis of the SWG program has been gathering baseline information on species of conservation priority (those species that are rare and/or are in decline) to get a better understanding of their status, distribution and relative abundance and problems contributing to their decline. During the past decade, studies have been initiated on grassland nesting passerines, prairie dogs, fringe mammals, bats, raptors, snapping turtles and leopard frogs. Considerable effort has also been made to implement projects to conserve or enhance habitat. Some SWG projects focus on determining the effectiveness of a

conservation action, such as monitoring grassland bird use of prairie restoration sites funded through SWG.

Staff spent considerable time attending meetings, networking with conservation and regulatory interests to provide information and feedback on federal listing actions that may affect North Dakota. Recent examples include Monarch butterfly, northwestern moose, Black-tailed prairie dog and Black-footed ferret.

Section staff also spend considerable time handling phone calls, emails and walk-ins from the public regarding nongame and/or rare wildlife. Staff conduct field surveys such as monitoring bald eagle nests, shorebird counts, studying grassland bird use of PLOTS, and monitoring key habitat.

EDUCATION SECTION

Conservation and Outdoor Skills Park (State Fair Area)

For nearly 20 years, the Game and Fish Department has partnered with the North Dakota State Fair (NDSF) to showcase the outdoor opportunities and skills training during the nine days of the fair. Activities include fishing, hunting, trapping, archery and a chance to visit with Department staff. During the nine-day event, the Department has roughly 30 staff members on hand, and nearly 50 volunteers who assist with this effort. The Conservation and Outdoor Skills Park averages 18,000 visitors.

In addition to the areas use during the fair, it is also a big hit locally from April to October as an urban fishery with local school groups and also the general angling public. The area has become a great spot for youth and women's pre-hunt meetings. Many of the local wildlife clubs and Boy Scouts use the area for meetings and other outdoor activities. The area is approximately 5 acres, which includes a fishing pond, several cabins, a large meeting area, and plenty of grass and trees. Following the 2011 flood, fair officials offered the Department more land and an additional building that was refurbished, which the Department heats and cools. It is a very popular site for wildlife club meetings and various other outdoor events year-round.

Hunter Education

State law requires those born after December 31, 1961 to successfully complete an approved hunter education course before buying a North Dakota hunting license. Approximately 12,000 youth and adults took hunter education during the biennium. The course is offered through a network of more than 715 volunteer instructors in both the traditional and online courses. The home-study (online) course, once only offered as an adult-only course, in now being offered for any student 13-year of age and above. The home-study course is increasing in popularity and the Department sees this as a proactive means to address increasing demand and the growing bottleneck of limited courses in specific locations and at certain time of the year. The Department strongly maintains that the final exam continues to include a "hands-on" practical. To date, more than 215,000 North Dakotan's have become Hunter Education certified.

A free online hunter education study guide continues to be offered through a link on the Department's website, which offers students and adults the opportunity to study and refresh their hunter education knowledge.

During the biennium, the Department held three Hunter Education Academies, certifying approximately 130 instructors. The Academy is now the standard to fully complete the instructor certification process. All new instructors must complete the Academy within three years of starting the instructor application process.

In 2017-18, the Department continued to host mentored youth deer hunts. eighteen youth and twenty mentors attended these events. The intent behind the mentored youth hunts is twofold. We are providing opportunity for youth that do not have a mentor to experience deer hunting, and we are training instructors to host their own youth deer hunts throughout the state.

Shooting Ranges

The department issues $220,000 in shooting range grants every biennium. In addition, the department started a plan to build all inclusive shooting sports venues in locations through out the state. The first one was built outside of Velva, ND in conjunction with the Velva Sportsmen's Club. This facility has a meeting room, an indoor archery building, a 100-yard rifle and pistol range, 3 trap fields, and an indoor archery building. Work was also started on a similar project in Watford City with the McKenzie County Sportsmen's group. All dirt work for the rifle and pistol ranges were completed this biennium.

Boating and Water Safety

In 1985, a state law was passed that required individuals between 12-15 years of age who would like to operate watercraft with a motor greater than 10 horsepower to complete a state-approved boater education course. The Department provides an in-classroom, online and home study option for students to take the Department's boater education course. Since the North Dakota boater education was developed, over 20,000 students have successfully completed the course with roughly 1,000-1,200 annually. North Dakota is at an all-time high with over 67,000 boats registered in the state.

Department staff annually holds the Missouri River SPLASH (safety, prevention, learning, and summertime happenings) campaign to promote boating safety, lifejacket usage, and navigation rules.

The Department's partnership with the United States Army Corps of Engineers (USACE) to provide life jacket loaner stations around Lake Sakakawea continues to expand. In addition to the USACE the Department worked with the United States Fish and Wildlife Service and North Dakota State Parks to provide life jackets to boaters at boat ramps who do not meet the legal number of life jackets. Individuals are able to borrow the life jackets for the day and return to the stations when their day on the water is complete. To date, there are 30 life jacket loaner stations around the state.

Several radio advertisements, news interviews and web casts were developed to promote and remind boaters of the navigation rules and safety issues. Staff continue to work with the Department's Communication Section to promote safe boating messages statewide.

In addition to providing the recreational boating educational programs, the Department provides $40,000 a year in grants to county entities to provide additional recreational boating education programs and enforcement efforts.

Recruitment, Retention, and Reactivation (R3) Efforts

In October of 2017, the Game and Fish Department discontinued the Becoming an Outdoors Woman program, choosing instead to assist with the hunting, trapping, and angling components of ND Parks and Recreation Department's Wild Outdoor Women (WOW) event at Metigoshe State Park

The Department began ramping up its efforts to evaluate and strategize ways to recruitment, retain and reactivate all potential hunters, anglers and trappers of all age, gender, race, and persona.

Two R^3 workshops led by Matt Dunfee of the *Wildlife Management Institute* were hosted by the Department, one for internal staff and another for partner agencies and organizations across the state to inform them of the need for a more focused R^3 effort. Several partnerships were developed and efforts are gaining traction, as a result.

We increased the number of adult-only hunter education classes and provided participants a chance to attend follow-up instructional shooting clinics. These shooting clinics focus on teaching skills and building confidence of adult onset hunters.

The Department worked with the University of North Dakota and Valley City State University to development programs for their wildlife majors who do not come from hunting backgrounds. These programs focus on teaching students the role hunters play in wildlife conservation through a modified hunter education course, instructional shooting clinics and a mentored hunt.

Our Department is continuously looking for ways to expand both our Department's efforts while looking for ways to incorporate partnerships with NGO's to reach a wider demographic with our programs. Our efforts will focus on North Dakota's needs while maintaining the goals of the national R^3 plan.

North Dakota Hooked on Fishing

Department instructors teach about the basics of fishing including bait and tackle, fish biology, aquatic habitats, and where to find a variety of North Dakota fish species. Classes are often taught near a body of water for hands-on opportunities. 4,000 – 5,000 hours are donated annually by aquatic volunteer instructors who participate in a wide variety of fishing events around the

state to include small community events sponsored by groups such as Lure Em' For Life, and the North Dakota State Fair.

In addition to dozens of smaller community fishing events, four major fishing events were conducted throughout the state utilizing a variety of partnerships. Three kids fish camps; one in the spring, conducted in partnership with the ND National Guard specifically for the kids of our soldiers, and two open enrollment camps, one in the spring and one in the summer were conducted. The Department supported the fourth event called Warriors on the Water, an annual event where active and retired military members are taken fishing.

Family Fishing Days program was continued this biennium. This project's intent is to encourage residents of Bismarck and surrounding communities to participate in fishing by providing equipment and expertise in an accessible location. To accomplish this, from June through August the Department's OWLS pond is staffed with instructors every Wednesday and Saturday to assist anglers. Fishing equipment, bait, and tackle are also provided at no cost. By having both equipment and assistance available at regular intervals throughout the fishing season, we are able to target both new and seasoned anglers who don't participate regularly. This program's popularity increases each year. Several libraries in the state have a rod check out program.

During the 2017-2019 biennium a pilot program was initiated called Trout in the Classroom. The program is run nationally by Trout Unlimited but delivered and coordinated locally by state natural resource agencies and local chapters of Trout Unlimited. As the name implies trout are raised from eggs to fingerling size in the classroom, then in the spring stocked into approved waters. Kids learn about watersheds, water quality, aquatic nuisance species and of course fish ecology. Career opportunities in fisheries management, fish production and aquaculture may also be incorporated. During school year 2017-2018 one Bismarck classroom and one tank at Game and Fish headquarters were operated to determine logistics of the program. During the 2018-2019 school year, 5 additional schools were added which also included a wider geographical area including 4 counties to further test the logistics of egg delivery and stocking efforts. Equipment and eggs were provided by the Department and the US Fish and Wildlife Service. Volunteers from local Trout Unlimited chapters are often relied upon to help with egg delivery and to be present for the stocking efforts. Unfortunately, there are no Trout Unlimited chapters in North Dakota, which will limit full expansion of the program. The program will be expanded by up to 6 additional classrooms in the 2019-2021 biennium.

Fur Harvester Education

Game and Fish furbearer hunting and trapping instructors teach the history of furbearer hunting and trapping and their role in future wildlife management, ethical hunting and trapping, use of trapping equipment, techniques of hunting and trapping, and proper preparation and marketing of furs.

During the 2017 – 2019 reporting period, 20 volunteer instructors taught 6 courses to 101 students for a total of 528 volunteer hours. This represents all fur harvester classes and presentations including the full 16-hour certification workshop. Students who successfully complete the course are certified in trapper education and receive a unique number. This number

is recognized by all states that require completion of a trapper education course before trapping, using certain types of equipment or trapping certain species. North Dakota does not require this certification to trap, snare or hunt furbearers. The demand for the certification course varies widely depending on fur prices.

National Archery in the Schools

NASP is a widely popular, in-school archery program operating in 47 states, Australia, Canada, Mexico and Africa. NASP is a two-week introductory archery program designed to be taught by physical education teachers in grades 4–12, coordinated on a state level in most cases by state wildlife conservation agencies.

In 2008, the Department became the coordinating agency for NASP in North Dakota. To date, one staff member is trained as an Archery Instructor Trainer Specialist, five staff members have been trained as Basic Archery Instructor Trainers and 10 staff members are certified as Basic Archery Instructors.

The program has been implemented in about 190 schools North Dakota. In 2017, NASP implemented a mandatory on-line reporting tool where instructors enter their archery instructional activity throughout the school year. The report showed nearly 8,000 kids participated during the school day and 2500 participated after school. With a goal of implementing the project in 50 percent of North Dakota schools, the grant program continued with nearly $80,000 available to schools and other archery organizations purchase equipment and expand the program during the 2017-2019 biennium.

The state tournament series continues to grow in popularity with 700 kids now participating. Each year around 100 youth from several North Dakota schools travel to Kentucky to represent North Dakota in the national tournament, an event that now attracts more than 16,000 students from 37 states. Several regional tournaments have continued to grow in popularity with a local tournament somewhere in North Dakota nearly every weekend from Mid-January through Mid-March.

During 2015-2017 biennium, a non-profit organization called the North Dakota Youth Archery Advisory Council formed. Its mission is to assist the Department with the growth of the NASP program in North Dakota. Its board members consist of teachers, school administrators, and community members all certified as NASP instructors and active in a school program. Over 1,000 volunteer hours were reported from the members of this organization for the reporting period. Since their inception, they have raised over $60,000 in college scholarships which are awarded to the top five boys and girls at the state tournament.

In 2019 the Department was the first state to pilot a project called Varsity Archery. This program was conceived here in North Dakota but caught the attention of 2 nationwide archery organizations. These organizations helped design the program, train instructors, helped operate the first ever tournament and provided $11,000 in grants to place equipment in the first 11 schools. The program was designed to dovetail seamlessly into the NASP program, the intent of which is to keep the older students, those in high school interested and engaged in their school

archery program by offering them more advanced equipment and shooting techniques. The program has now spread into 6 other states, with Ohio being so impressed with the concept they are hoping to get 50 schools into the program during the 2019-2020 school year.

Habitats of North Dakota

The Habitats of North Dakota program continues to be an important component in the fourth-grade studies curriculum and life science curriculum for kindergarten through 12th grade. The program that was initiated in 2008 has grown to encompass topics such as habitats, wildlife of North Dakota, elementary science resources provided by the Department, preschool methods of teaching life science, integration of the visual arts into life science curriculum, and graduate credit courses offered through the University of North Dakota (UND). A partnership has also been formed presenting the Habitats program, Project WET and Project Learning Tree to teach environmental education to teachers of the State. This partnership was well received by area educators.

Habitats of North Dakota workshops are provided at the University of Mary, Valley City State University, Jamestown University, Minot State University, North Dakota State University, Dickinson State University (both Bismarck and Dickinson campuses), Mayville State University and the University of North Dakota for all pre-service elementary education majors. Additional graduate credit workshops are offered for licensed teachers in Minot, Bismarck, Valley City, Devils Lake, Bottineau, Williston, and Dickinson.

Continuing education in-service workshops are offered statewide, and presentations are made at the North Dakota Science Teachers Conference each year. Approximately 140 teachers received graduate credit for completing in Habitats of North Dakota related workshops. Additionally, approximately 300 more receive information through shorter training opportunities.

Habitat presentation requests throughout the state continue for classrooms, scout groups, and pre-service teachers. Classroom presentations reach 844 students throughout the State. Habitats of North Dakota is presented at the Gateway to Science Environmental Festival in Bismarck, serving students from the region. Approximately 240 students are reached at this event. Habitats of North Dakota is also part of the annual Earth Day celebration in April, reaching approximately 150 students. The Rough Rider Institute, a summer field biology class through Williston High School and offered at Buffalo Gap Campground near Medora also has a Habitats component. Students study the five habitats of the State that are located in the immediate area using field biology methods.

Urban Pollinator Program (UPP) has been launched and educator workshops and classroom presentations have been launched. The UPP has been well received. Teachers are readily signing up for professional development using the UPP curriculum guide as well as requests for classroom visits. So far, graduate level workshops for the UPP have been offered in Bottineau, Bismarck, Dickinson, Grand Forks and Valley City.

Additional duties of the Education Section include judging local and regional science fairs, curriculum development, and working with the Hunter Safety Education program to ensure the

Academy presentations are educationally sound, which includes how to effectively teach to your audience at the Hunter Education Academy.

WILDLIFE DIVISION

The Wildlife Division functions within three sections. The Game Management Section is responsible for all surveys, research, and developing regulations for North Dakota's game species. The completed surveys consist of ground and aerial observations, and harvest surveys completed by hunters. The Wildlife Resource Management Section is responsible for the management of approximately 210,000 acres of wildlife management areas for wildlife production and public hunting opportunities. These areas offer a wide variety of public hunting opportunity across North Dakota. The Private Lands Section is responsible for the Private Lands Open to Sportsmen program where the Department works directly with private landowners who are willing to open their property to public walk-in hunting. The landowner is compensated in return for the access provided along with the habitat associated with his/her property.

GAME MANAGEMENT SECTION

The Game Management Section is responsible for managing populations of wildlife species that are hunted and trapped in the state. The overall goal of the section is to provide maximum quality hunting and trapping opportunities while minimizing human/wildlife conflicts. This work is accomplished through a series of surveys, censuses, and inventories to monitor the population status and the harvest of these important resources. Research studies provide new information to help better understand the biology and ecology of the species and their habitats. The information and knowledge gained from these activities are used to guide management decisions, to make hunting and trapping season recommendations to the Director and the Governor, and to provide information to the public and other agencies and organizations.

The section staff of 13 includes 4 big game biologists, 2 upland game biologists, 2 migratory game bird biologists, a furbearer biologist (which also serves as the section leader), a wildlife veterinarian, a survey and data coordinator, a pilot, and a game management technician. Throughout the year, a number of temporary/seasonal employees assist with a significant portion of the section's workload. Because of this minimal staffing, section staff work cooperatively on many surveys and projects, and other Department personnel often provide assistance.

During the 2017-2019 biennium, we saw good and bad effects of weather, habitat, and disease on various game species. Winter weather did not severely impact deer, pronghorn, pheasants, grouse, and turkeys. However, drought conditions in 2017 did significantly lower upland game bird reproduction and populations are still recovering. Ducks and geese continue to benefit from good water conditions. But, reductions in the acreage of CRP across the state continued to negatively impact grassland dependent species such as deer, pheasants, grouse, and ducks. Sage-grouse numbers remained low and our efforts to boost the population via translocations from Wyoming are still being evaluated. Moose and elk provided special "once in a lifetime" hunts for hundreds of hunters each year and the number of licenses available have increased in recent years. On the other hand, Chronic Wasting Disease in deer and pneumonia in bighorn sheep continued to be a major concern. Also, special seasons (spring light geese and resident Canada

geese) continued to be used to increase harvest and bring populations back down to management objectives.

Summaries of activities by group follow:

Big Game

The overall goal of big game management in North Dakota is to maximize hunting opportunities, while maintaining populations within landowner tolerance levels, and the carrying capacity of the land. To achieve this goal we have both short-term and long-term objectives. The long-term objective is to develop predictive models for managing each of our big game species through adaptive harvest management techniques (i.e., a process of continually updating and evaluating new survey and harvest data and incorporating the results into updated models). To achieve these long-term goals our short-term goal is to evaluate all historical databases for each of the species. This analysis will allow us to decipher which variables provide the greatest predictive value as to future changes in big game populations.

On a national basis, we have contributed tissue samples for a number of genetic, parasite, and disease research projects. In recent years, we have worked cooperatively on research and management projects with other agencies in Alberta, Georgia, Iowa, Manitoba, Minnesota, Mississippi, Montana, Oregon, South Dakota, and Wyoming. The big game staff has been actively involved with a number of professional regional workshops including the Annual Midwest Deer and Turkey Workshop (hosted 2011), Biennial Pronghorn Workshop (hosted 2004), Biennial Northern Wild Sheep and Goat Symposium, North American Moose Symposium, Elk and Mule Deer Working Group, North Dakota Chapter of The Wildlife Society, Central Mountains and Plains Section of The Wildlife Society (hosted in 2019), International Association of Natural Resource Pilots, and other professional meetings and symposiums as they are available.

During the 2017 – 2019 biennium, we presented professional papers and published articles on big game species found in North Dakota. Peer reviewed papers on the status of bighorn sheep in North Dakota (*Journal of Wildlife Management*, 2017), elk (PLoS ONE 2019), white-tailed deer (PLoS ONE 2018, Human -Wildlife Interactions 2018, Wildlife Research 2018, Prairie Naturalist 2018 and one In Press, Journal of Environmental Management 2019, Science Report 2019, and The Northwest Naturalist In Press), and moose (*Alces*, two articles in 2018) have been published.

The big game staff developed a contact list for landowners wanting deer harvested on their land and continues to work with landowners to focus harvest in areas with high densities of big game on private land. These efforts are intended to focus hunting pressure on areas with chronic depredation problems. We routinely provide big game population and hunting information to the public and media.

White-tailed Deer:

- The regular deer-gun hunter harvest survey monitors the success rates, composition, and distribution of the harvest for each license type, in each hunting unit in the state. In 2005,

we implemented a review of all available data on white-tailed deer. Based upon this review, we set management goals for each hunting unit (see PR Report W-67-R-47: No. A-172). In 2010 and 2015, we reevaluated and modified these goals for each hunting unit. We are currently conducting four research projects. These research projects are as follows: (1) comprehensively evaluating all survey and harvest datasets collected on white-tailed deer (1962-2016) to determine the primary drivers influencing white-tailed deer populations in North Dakota (University of Alberta), (2) develop an Optimal Harvest Model for Deer (University of Alberta), (3) develop a Removal Model for estimating deer populations (University of Idaho), and Statistical Population Reconstruction (University of Montana). Once these three research projects are completed we will evaluate how this information can be used in an adaptive harvest management approach for setting deer harvest rates; we will be reassessing deer management goals for 2020. This process of revisiting management goals for each hunting unit will be reoccurring on five-year intervals. Finally, we are evaluating a mixed mode approach for deer hunter survey questionnaires with the objective of improving response rates and reducing bias (University of North Dakota). Improved response rates and reductions in bias result in more precision around our harvest estimates which is increasingly important as we continue to develop population models (i.e., removal models, SPR) that parameterized chiefly with harvest information.

- In 2018, questionnaires were sent to 18,470 (44%) of the 41,769 regular lottery and 8,144 (62%) of the 13,098 gratis deer-gun licenses issued. We mail questionnaires to hunters immediately after the deer-gun season closes. Note: these questionnaires go out to both white-tailed deer and mule deer hunters.
- We mail questionnaires to archery hunters immediately after the season closes. This survey monitors the success rates, distribution, and composition of the harvest in the state. In 2018, deer-bow questionnaires were sent to a random sample of 5,562 (21%) of the 26,318 resident and 870 (35%) of the 2,506 nonresident bow hunters. In 2013, we implemented a new program where all archery licenses will be issued either at the Bismarck office, Game and Fish website, or by calling (800) 406-6409, or at license vendors, participating in the Department's online licensing system. Nonresident any-deer licenses are only issued from the Department's Bismarck office. Prior to this new system, questionnaires were sent out based on a list of who had purchased a license the previous year.
- The muzzleloader hunter harvest survey monitors the success rates, composition, and distribution for each license type. Each year, every muzzleloader hunter is mailed a questionnaire immediately after the muzzleloader season closes. In 2018, a total of 1,022 muzzleloader licenses were issued.
- The youth hunter harvest survey monitors the success rates, composition, and distribution for each license type. Each year every youth hunter is mailed a questionnaire immediately after the regular deer-gun season closes. In 2018, we mailed a total of 5,537 (99%) questionnaires to 5,544 youth hunters (note: 7 hunters did not have usable addresses or had moved).
- When snow conditions permit, we conduct winter white-tailed deer surveys on a series of established study areas. Historically, this job was based on the aerial coverage of 109 permanent survey areas located within each of the ten major deer management units in North Dakota. These areas include 17 river systems, 81 small block-type study areas, and

11 larger monitoring blocks. After reviewing historical data and considering input from staff that conduct these surveys over the past year, we eliminated a number of the smaller survey areas in favor of larger monitoring blocks. This reduced the number of survey areas to 26 block-type study areas and river system segments within six hunting units. Because of these changes, each of the 32 hunting units outside of the badlands units now has a designated census area. We digitized the boundaries of each survey area into a GIS format. Data are entered directly into the Department website. During the winter of 2018 – 2019, snow conditions permitted aerial surveys within 31 of the 32 hunting units with winter white-tailed deer survey units.

- We are continuing to evaluate the use of hunter observation questionnaires as a means of providing population indices (deer sighted per hour of effort, and buck/doe/fawn ratios). In 2004, we expanded this questionnaire to cover all of North Dakota. This questionnaire serves as a bridge for monitoring deer population trends during years when winter aerial survey data is not available. Additionally, this questionnaire monitors observation rates of elk, moose, mountain lions, and feral pigs. In 2018, we received a total of 1,279 useable hunter observation questionnaires. From these questionnaires, hunters classified a total of 28,888 white-tailed deer and 14,055 mule deer.
- In May 2005, a research project was completed on movements, survival rates, mortality factors, and habitat use of white-tailed deer in central North Dakota on Lonetree Wildlife Management Area. Results of this research were published in the The Journal of Wildlife Management in 2007. We have summarized all historical radio-collar data collected for white-tailed deer in North Dakota. In 2009, we implemented a white-tailed deer research project in hunting unit 2J1 near Wing, North Dakota. We received the final report in May 2013. A similar research project got underway in hunting unit 2C in January 2012. We received the final report in November 2015. A new project, with similar methodology, began in January 2014 with studies in hunting units 3D1 and 3F2 in North Dakota and Perkins County South Dakota. We received the final reports in winter of 2018. We are currently collaborating with South Dakota State University and the Minnesota Department of Natural Resources to evaluate home range, habitat use, dispersal movements, and survival rates on a regional landscape scale (i.e., western Minnesota and eastern North Dakota and South Dakota). This dataset will evaluate the home ranges of more than 800 adult females and 380 neonate white-tailed deer across a three-state area. To date this collaborative effort has produced five publications with another five in review or preparation.
- We annually tabulate historical weather data (1948 to present) to evaluate and derive a winter severity index across the state using established methodology (Brinkman et al. 2005. Movement of female white-tailed deer: effects of climate and intensive row-crop agriculture. Journal of Wildlife Management 69(3):1099-1111).
- The 2019 North Dakota deer-gun hunting season will include 65, 500 licenses, 10,350 more than 2018.

Mule Deer:

- Mule deer populations are monitored in the western badlands by annually conducting a fall production survey and spring population index.
- Twenty-four study areas covering 306.3 square miles are flown during the fall production survey and the spring population index. Mule deer numbers have increased from low

level in 2012 following the three severe winters of 2008 – 2010. The number of antlered hunting licenses has been gradually increasing since 2013, and a conservative number of antlerless mule deer licenses were issued in 2018 and 2019. The 2019 spring index was 20% lower than 2017, but 14% above the long-term average.

- Mule deer fawn production continues to increase toward long-term average level following record low fawn-to-doe ratios in 2009 – 2012. The 2018 fawn/doe ratio was 84 fawns per 100 does which was higher than 2017 (0.76:1.0), but below the long-term average of 89 fawns per 100 does. The 2018 buck/doe ratio was 43 bucks per 100 does, which was higher than 2017 ratio and same as long-term average (0.43:1.0).

Pronghorn:

- Pronghorn abundance, distribution, reproduction, and sex ratios are determined by aerially surveying selected survey units (from a total of 51 survey units) covering 30,142 square miles of pronghorn habitat. The annual aerial survey consists of approximately 25 survey units covering 15,000 square miles.
- Pronghorn numbers dramatically declined due to the severe winters of 2008 – 2010, but have gradually increased since 2013. The July 2019 statewide pronghorn survey indicated a population of 9,843, with a buck-to-doe ratio of 38 bucks per 100 does and a fawn-to-doe ratio 61 fawns per 100 does.
- A pronghorn hunting season has occurred since 2014 following season closures during 2010-2013. Hunting units 1A (110 ANY), 1D (115 ANY), 2A (90 ANY), 2B (60 ANY), 3A (20 ANY), 3B (115 ANY), 4A (325 ANY and 100 Doe/Fawn)), 4C (50 ANY), 5A (70 ANY), 6A (160 ANY), 7A (75 ANY), and 10A (40 ANY) were open during the 2019 season. All license holders are mailed a questionnaire to determine harvest statistics.

Moose:

The North Dakota moose population is stable to increasing in the northwest portion of the state in units M9, M10 and M11. Numbers continue to remain low in what was once considered traditional habitat in the Pembina Hills, Turtle Mountains, and Red River Valley region. Moose hunting units M1C (Pembina Hills) and hunting unit M4 (Turtle Mountains) remain closed due to low observed numbers. The number of hunting licenses issued statewide has increased every year since 2014 due to the addition of both any and antlerless licenses primarily in hunting units M9, M10 and M11.

- Annual aerial surveys are conducted on 400 square miles of primary moose range as well as 2,700 square miles of secondary moose range when snow conditions are adequate.
- All moose license holders are contacted after the annual hunting season for harvest statistics.
- A total of 330 moose licenses were available in 2018, and 475 are available in 2019 via lottery application.

Elk:
North Dakota elk populations are being managed at stable to decreasing numbers because of depredation concerns and low landowner tolerance.

- Annual aerial surveys are conducted on 500 square miles of primary elk range as weather conditions permit.
- All elk license holders are contacted annually for harvest success.
- Mobile check stations are conducted annually on opening weekends of the elk seasons. A total of 404 licenses were made available in 2018, and 474 were available in 2019 via lottery application.
- The elk population in units E1W, E1E and E2 continue to remain stable. Elk numbers in unit E3 and E4 appear to be stable to increasing as herds expand outside Teddy Roosevelt National Park. The elk population in elk unit E6 appears to be stable.

Bighorn Sheep:
The North Dakota Game & Fish Department has been active in the management of the state's population of bighorn sheep since the inception of its management partnership with the Wild Sheep Foundation – Midwest Chapter (WSF – Midwest) in 1999.

Recent projects have included:

- An all-age pneumonia-related die-off occurred during summer 2014 and has persisted through 2019, albeit to a lesser degree. Approximately 15 percent of the state's adult population was lost during 2014 – 2015; however, the rate of mortality has declined substantially since 2014 and most northern herds are showing signs of recovery. The virulent pathogens have now spread to all sub-populations in the state. The Department continues to document and assess the impacts of the die-off.
- The hunting season was closed in 2015 due to the loss of a significant number of mature rams but was re-opened in 2016.
- Five adult rams were harvested in 2017 (100% success) and three in 2018 (100% success). Five licenses were issued in 2019. All rams were horn-plugged and biological samples and measurements were collected.

The Department has continued to collect and analyze telemetry data from radio-collared bighorn sheep to gather data pertaining to home range, lambing areas, adult survivability, and providing empirical data to land management agencies.

One bighorn sheep license is auctioned annually by the WSF – Midwest, with $104,000 raised in 2017, $87,000 in 2018, and $69,00 in 2019. All proceeds are directed to bighorn sheep management projects in North Dakota. 13,214 applications were submitted for bighorn hunting licenses in 2017, 14,617 in 2018, and 15,518 in 2019. All were a record number of applicants.

Upland Game

The upland game section is responsible for maintaining population trend data for 16 species of upland and small game. Population trend data are gathered through use of long-term established surveys conducted in winter, spring and summer and hunter-submitted samples in fall. These surveys form the basis of population trend estimates that are used to establish annual hunting seasons and provide hunter forecasts. Upland game hunters are one of the largest contingents of hunters in North Dakota. Resident license sales rebounded from a low of 57,912 in 1989 to a high of 105,820 in 2008, an increase of over 80 percent. During the period 2017-2018, resident small game license sales were roughly 71,000 each year. Non-resident sales increased nearly 500 percent from 7,441 in 1989 to a high of 46,508 in 2002. Non-resident small game license sales peaked in 2008 at 36,370. From 2017 to 2018, nonresident license sales were over 19,000 annually. A substantial portion of Department income is received from small game license sales.

Ring-necked pheasant:
Ring-necked pheasant numbers in North Dakota are down from 2015. The combination of a harsh winter and drought conditions in spring of 2017 has resulted in lower numbers of pheasants over much of the primary pheasant range in North Dakota. Recent short-term declines are normal due to climactic conditions. However, changes in land-use due to high commodity prices and removal of grassland acres from the Conservation Reserve Program (CRP) continues to occur, so without habitat programs to replenish vanishing CRP, we expect to see deeper troughs and higher peaks in the long-term pheasant population trend. Additionally, new research suggests that increased application of agricultural insecticides can negatively affect upland game bird survival and may compound negative influences on long-term population trends. The number of pheasant hunters (both resident and non-resident) decreased from 2015 to 2018 (Table 1.). Most of the decrease in numbers of small game hunters can be attributed to lower pheasant numbers during the 2017 and 2018 seasons. This decline can be attributed to poor nesting conditions in 2016 and severe drought conditions in 2017. During 2018, 278 late-summer roadside counts for pheasants were conducted on a total of 101 census routes in North Dakota. Statewide, there was a 1.9% decrease in total number of pheasants observed per 100 miles, the number of pheasant broods observed per 100 miles was unchanged, and an increase of 27% in average brood size from 2017.

Table 1. Statewide results of the late summer roadside counts from 2010-2019.
STATEWIDE

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	% Change 2018-2019	10 Year Average
Number of runs made	266	242	259	252	259	276	288	288	290	275	-5.2%	
Broods per 100 miles	11.2	6.9	11.4	8.1	10.7	13.3	12.0	4.3	4.1	4.8	17.1%	8.7
Birds per 100 miles	91.5	62.1	98.9	65.8	84.9	108.9	93.9	36.1	34.4	37.9	10.2%	71.6
Average Brood Size	5.71	6.11	6.47	5.81	5.54	5.98	5.45	4.41	5.61	5.34	-4.8%	5.6

Hunter harvest questionnaires are mailed out annually to estimate number of hunters, hunting trips, and harvest. Pheasant harvest for the 2018 hunting season showed 58,235 hunters (a decrease of 0.2% from 2017) harvested 327,007 roosters (an increase of 5.7% from 2017). Youth

harvest in 2018 was estimated at 97 roosters, compared to 109 in 2017. The number of hunting trips over the same period has slowly decreased while pheasants harvested per hunter has slowly decreased. But as pheasant numbers declined, so did hunting activity. As the number of non-resident hunters increased during the mid-2000's, the Department began sampling those hunters on an annual basis, rather than every 3-5 years. Presently, Conservation Reserve Program acres are about one-third what they were in the mid-2000's. This will continue to suppress our pheasant population in North Dakota below former peaks.

Ruffed Grouse:
Twelve drumming routes are run annually in two districts to determine the breeding population of ruffed grouse in North Dakota (routes are no longer run in McHenry County because ruffed grouse have not been seen in that county since 2006). The ruffed grouse population in North Dakota is cyclical with a peak approximately every 10 years. Over the past 40 years, the peaks and troughs have become lower. For example, we dropped below an average of 0.5 drums heard per stop for the first time ever in 2013. During the 20-year period from 1980 to 2000 our average drums heard per stop was ≥ 1.5 for 11 years. In the past 20 years, we've only recorded ≥ 1.5 drums per stop in 1999. The average statewide drumming counts increased from 2016 through 2018 (0.3 to 0.7 drums per stop) and dropped slightly in 2019 (0.5 drums per stop).

Wing envelopes are sent to approximately 100 ruffed grouse hunters and we receive additional samples from wing barrel collection sites placed near frequent ruffed grouse hunting areas. We use wing and tail feathers to estimate age and sex of hunter harvested birds, and additional data recorded on the envelopes helps us to judge harvest per unit of effort. Harvest data are also collected from electronic and mailed questionnaires, the same surveys used for other upland game bird species. Ruffed grouse harvest was estimated at 193 birds (probably an all-time low) in 2002, jumped to 2,163 birds in 2008 (a recent high) and has remained around 1,000 birds through 2016 (exception was 2015 when only 306 birds were harvested).

Ruffed grouse habitat (mixed-aged aspen forests) continues to decline in the three areas in the state where we have ruffed grouse. Aspen are cleared for residential, recreational and agricultural development. Further, fire and floods are more controlled in the remaining aspen stands, resulting in older, even-aged stands that do not provide the diversity of mixed-age stands. More recently, studies in Minnesota have revealed that ruffed grouse populations are susceptible to West Nile virus.

Tree Squirrels (gray, fox, red):
The rural mail carrier survey is used to determine population trends for tree squirrels. Rural mail carriers record population data for squirrels four times throughout the year (April, July, September, and January). Cooperators and mileage are similar during each survey period. Cooperators observed 21% more tree squirrels in 2018-19 as compared to 2016-17.

The small game harvest questionnaire used to estimate hunter activity for grouse, partridge and pheasant is also used to estimate tree squirrel harvest. In addition, known squirrel hunters are sent a harvest survey card at the end of the hunting season which asks about their squirrel hunting activity, success and harvest by species. Tree squirrel harvest ranged between 7,426 and 7,541 for the period 2017 – 2018 (Table 2).

Table 2. Statewide tree squirrel harvest estimates from the 2018 North Dakota small game questionnaire with comparative data from 2015, 2016 and 2017.

	2015			2016			2017			2018			% Change
	Resident	Non-Resident	Total	Resident	Non-Resident	Total	Resident	Non-Resident	Total	Resident	Non-Resident	Total	2017 -2018
Useable questionnaires	3,415	1,568	4,983	3,513	1,476	4,989	3,247	1,472	4,719	3,314	1,343	4,657	-1.3%
Contacts that hunted squirrels	79	2	81	85	2	87	86	4	90	63	1	64	-28.9%
Percent that hunted squirrels	2.3%	0.1%	1.6%	2.4%	0.2%	1.9%	2.6%	0.1%	1.9%	1.9%	0.1%	1.4%	-26.3%
Total hunters	2,147	40	2,187	2,231	54	2,285	2,251	52	2,303	1,625	15	1,640	-28.8%
Kill per hunter	4.14	0.00	4.06	5.76	14.50	5.97	3.35	0.00	3.27	4.57	0.00	4.53	38.3%
Total harvest	8,889	0	8,889	12,851	783	13,634	7,541	0	7,541	7,426	0	7,426	-1.5%
Ave. number of trips per hunter	6.19	2.50	6.12	7.49	4.00	7.41	4.16	6.25	4.21	6.32	8.00	6.34	50.6%
Total hunting trips	13,290	100	13,390	16,710	216	16,926	9,364	325	9,689	10,270	120	10,390	7.2%
Mean kill per trip	0.67	0.00	0.66	0.77	3.63	0.81	0.81	0.00	0.78	0.72	0.00	0.71	-8.2%

Rabbits and Hares (snowshoe, cottontail, and jackrabbit):
Population surveys to determine trends of cottontail rabbits are similar to those used for tree squirrels. Rural mail carriers census cottontails during four periods of the year (January, April, July, and September). Cooperators observed 16% more cottontails in 2018-19 as compared to 2016-17. Harvest is calculated from information received from the small game survey (Table 3).

Table 3. Statewide cottontail harvest estimates from the 2018 North Dakota small game questionnaire with comparative data from 2015, 2016 and 2017.

	2015			2016			2017			2018			% Change
	Resident	Non-resident	Total	Resident	Non-Resident	Total	Resident	Non-Resident	Total	Resident	Non-Resident	Total	2017-2018
Useable questionnaires	3,415	1,568	4,983	3,513	1,476	4,989	3,247	1,472	4,719	3,314	1,343	4,657	-1.3%
Contacts that hunted cottontails	116	4	120	177	38	215	89	7	96	86	7	93	-3.1%
Percent that hunted cottontails	3.4%	0.3%	2.4%	5.0%	2.6%	4.3%	2.7%	0.5%	2.0%	2.6%	0.5%	2.0%	-1.8%
Total hunters	3,154	80	3,234	4,647	1,022	5,669	2,329	92	2,421	2,219	102	2,321	-4.1%
Kill per hunter	4.49	1	4.40	6.75	0.92	5.70	2.84	0.57	2.75	3.33	0.57	3.21	16.5%
Total harvest	14,161	80	14,241	31,367	940	32,307	6,614	52	6,667	7,389	58	7,447	11.7%
Ave. number of trips per hunter	5.77	4.0	5.73	7.03	7.03	7.03	5.78	5.29	5.76	6.02	19	6.59	14.4%
Total hunting trips	18,199	320	18,519	32,668	7,185	39,853	13,462	487	13,948	13,358	1,938	15,296	9.7%
Mean kill per trip	0.78	0.25	0.77	0.96	0.13	0.81	0.49	0.11	0.48	0.55	0.03	0.49	1.9%

Wild Turkeys (Merriam's, Eastern, and Rio Grande):
Three subspecies of wild turkeys have been introduced into North Dakota and are managed as a single species. Season recommendations are based upon population trend data gathered on summer brood surveys and a questionnaire distributed to approximately 1,000 landowners in March. The questionnaire asks for the number of wild turkeys that wintered on their land. The winter landowner survey was discontinued in 2016 due to declining response. Two hunting seasons are held each year; a spring 'gobbler only' season and a fall season where any turkey is legal. Prior to the fall 2005 turkey season, only North Dakota residents were eligible to apply for licenses for both hunting seasons. The 2005 Legislature amended the N.D. Century Code, and it now allows nonresident licenses to be available after the resident lottery is held. In 2015, the Legislature allotted up to two turkey licenses for the Outdoor Adventure Foundation for youth diagnosed with cancer or a life-threatening illness. In 2017, the Legislature passed a bill making

available a total of four additional spring wild turkey licenses to the qualified nonprofit organizations for raffle or auction.

Hunter harvest questionnaires are sent to a sample of hunters after the close of each season to estimate hunter activity and harvest. Turkey numbers steadily increased from 1993 to 2007 but starting in the spring of 2008 and continuing through the summer of 2017, turkey numbers have declined in most areas of the state. This is the result of several long, snowy winters and poor production, which has resulted in fewer young birds being added to the fall population. During the 2018 fall hunting season, a total of 3,710 regular season licenses were available; an increase of 205 licenses compared to 2017. Gratis licenses were not included in the regular season license allocation. A total of 3,345 licenses were issued for the fall 2017 hunting season. This included 173 gratis licenses to landowners and 3,172 regular licenses. There was a total of 2,339 active wild turkey hunters; 2,217 active hunters holding regular season licenses (95%) and 122 active hunters with a gratis license (5%). Combined, they harvested a total of 966 birds (27 more than in 2017) for a hunter success of 41%.

During the 2019 spring gobbler hunting season, a total of 6,025 regular season licenses were available; an increase of 430 licenses compared to 2018. Gratis and youth licenses were not included in the regular season license allocation. A total of 6,489 licenses were issued. The licenses issued included 409 gratis licenses, 294 youth licenses, and 5,786 regular licenses. There were 4,755 active wild turkey hunters. A total of 4,326 active hunters had regular season licenses and 409 active hunters had a gratis license. Combined, hunters harvested 1,876 wild turkey gobblers for a hunter success of 40%, which included 69 gobblers taken by youth hunters and another 52 taken by gratis hunters.

Prairie Chicken:
We conduct annual counts at over 200 historic and active leks in the prairie chicken range in North Dakota. Both prairie chicken booming grounds and sharp-tail dancing grounds are included in the survey, and some breeding grounds include both species. The two main populations are on the Sheyenne National Grasslands and a smaller re-introduced population west of Grand Forks.

From 1992 through 1998, the Wildlife Division invested in a prairie chicken restoration project in Grand Forks County. We translocated 414 wild-trapped prairie chickens to this area. Initially these transplants helped the population increase to a level capable of supporting a hunting season (opened in 2004). This was the first hunting season on prairie chickens in North Dakota since 1945. However, severe winters and wet springs have resulted in a dramatic decline in North Dakota's prairie chicken population since 2006 (particularly during the winters of 2009-2011). We closed the hunting season in 2010.

In 2018, there were 92 prairie chicken cocks counted on known leks, which would extrapolate to a breeding population of about 184 greater prairie chickens (assuming a 1:1 male-to-female ratio). Unfortunately, the contracted biologist who counted most of these leks passed away in 2018. We started new contracts with the University of North Dakota and a retired Minnesota DNR biologist to complete counts starting in 2019. We are still working on standardizing their counts to ensure our trend data is consistent. This will be a great opportunity to collaborate with

UND because they are located conveniently close to the remaining active prairie chicken leks in Grand Forks county. It will give prospective students experience in the field with wildlife surveys and increase communication between NDGF and UND.

Sharp-tailed Grouse:
Sharp-tailed grouse are the most widely distributed and abundant grouse species in North Dakota. The Wildlife Division uses data from spring lek counts, late summer roadside counts and hunter surveys to evaluate the population trends of sharp-tailed grouse. During spring lek counts, biologists census over 700 square miles to get counts of all males displaying on leks within a census block. Late summer roadside routes (150 routes, 4,700 miles) are run in July and August to count adults and juveniles to gauge annual reproductive success. Hunter questionnaires (sample size 9,000 resident questionnaires; 4,500 non-resident questionnaires) are used to estimate number of hunters, hunting trips, and harvest. We use data on hunter-harvested wing, tail and head feathers to estimate sex ratios, age ratios and peak hatch dates. Envelopes are mailed each year to approximately 1,600 hunters (8,000 envelopes) and hunters can request additional envelopes online or at any NDGF office.

We counted 2,129 and 2,267 sharp-tailed grouse during spring surveys in 2018 and 2019, respectively. These numbers are near the 20-year low and are roughly 40% below the 10-year statewide average. However, the spring of 2019 was the first spring since the drought with abundant nesting cover, and the population trend is beginning to rebound. Also, despite statewide lows, areas east of the Missouri River are above the 10-year average. This occurs because the majority of our sharp-tailed grouse have always been counted in the southwest part of the state, our statistics are more heavily weighted by declines in the southwest. Historically, sharp-tailed grouse populations have rebounded from extreme lows in as little as 3-5 years.

We estimated a hunter harvest of roughly 46,000 sharp-tailed grouse for both 2017 and 2018, which is down from roughly 74,000 average the previous three years. The number of sharp-tailed grouse hunters is also down, approximately 13,000 hunters pursued sharp-tailed grouse in 2017-18 vs. 21,000 during the falls of 2016-17. The correlation between hunters and sharp-tailed grouse density corroborates our rationale for keeping hunting seasons open despite normal, cyclical lows in the population; hunters will self-regulate their effort (and thereby harvest) based on the population.

Sage-Grouse:
Wildlife personnel conduct annual spring counts at all known active and historical sage-grouse strutting grounds (leks) in North Dakota. Active leks are counted at least two separate mornings, and historical grounds are counted at least once each. The record high was recorded in 1980 when biologists counted 380 males on 23 leks, but the trend over the past 50 years has been a slow decline. After a West Nile Virus outbreak in 2007-2008, the population plummeted. Beginning in 2008, we closed the sage-grouse hunting season due to lek counts below management objectives (250 males observed on leks). In 2017, we only counted 6 males from all known leks.

North Dakota is on the fringe of the sage-grouse range in North America, and small changes to our fringe habitat components have had negative effects on sage-grouse. Wildlife managers wrote a sage-grouse management plan in 2005 to identify threats to sage-grouse habitat and revised the plan in 2014. The final draft is available on the NDGF website.

In 2017, research began in North Dakota in attempt to enhance the existing population of sage-grouse in the state via translocations from Wyoming. We have: 1) translocated a minimum of 30-45 female sage-grouse annually 2017, 2018 and 2019, 2) experimented with artificial insemination of females prior to translocation to bolster the probability of successful nesting and fidelity to release sites, and 3) monitored translocated birds via radio-telemetry. We are collaborating with Utah State University and the US Geological Survey to develop an integrated population model from our data that will allow us to assess the contribution of translocations to our population, and ultimately develop a translocation protocol that integrates lessons learned from this study along with those from past and ongoing efforts elsewhere in the species range.

In 2018 and 2019, after 2 years of translocations, we counted 24 and 28 male sage-grouse, respectively, and the majority of the males counted were near our release sites. However, we are still analyzing the data to determine whether increases are primarily due to translocations (based on survival rates from radio-collar data) or natural reproduction and immigration of local birds.

We have not observed sage-grouse displaying on leks in Slope or Golden Valley counties since 2016 and 2006, respectively.

Gray Partridge:
Several surveys are used to determine population trends of gray partridge in North Dakota. In addition to brood surveys (350 routes, 8,800 miles), hunter questionnaires (9,000 resident questionnaires, 4,400 non-resident questionnaires) and a wing survey (8,000 envelopes mailed to 1,600 hunters), the Department also utilizes rural mail carriers to estimate the spring breeding population. Cooperating carriers travel sixty to seventy thousand miles during a three-day survey period in mid-April. These data indicated a statewide increase of 32% from 2016-17 to 2018-19. In 2018, we conducted roadside brood counts on 10,013 miles of roadsides (vs 9,946 in 2017), and we used the roadside survey data to evaluate production. The number of partridges observed per 100 miles decreased 62% from 2016-17 to 2018-19. The number of broods observed per 100 miles decreased 21% from 2016-17 to 2018-19. Partridge numbers are well below the historic levels but can recover if suitable habitat and weather conditions exist.

Migratory Game Birds

Migratory game birds in North Dakota include ducks (18+ species), geese (5 species), tundra swans, coots, sandhill cranes, mourning doves, snipe, and woodcock. Because these game birds are migratory, they are protected by international treaties and their management is shared by the states, provinces, and countries throughout their range. Thus, migratory game bird management activities encompass a great deal of coordination and cooperative work with government and non-government organizations, officials, and biologists throughout North America. In many cases, their harvest and/or population management are guided by multi-jurisdictional management plans. Overall duck harvest management is delivered using adaptive harvest

management and is an exemplary case study of cooperative, sustainable, objective-driven harvest management. In addition, the migratory game bird staff handles all endangered whooping crane coordination because of the close associations between whooping crane management and migratory game bird management.

The migratory game bird staff conducts 11 regular surveys to measure the population status and harvest of more than 29 species of migratory game birds. These surveys along with other annual monitoring efforts are part of the cooperative continent-wide management of migratory game birds. This year, 2019, marked the 72nd year of our statewide breeding duck survey. To our knowledge, this is the longest running, systematic breeding waterfowl survey in the world.

In addition to these regular surveys and projects, migratory game bird staff work on and contribute to a number of research and management projects including monitoring efforts to justify ultra-liberal hunting regulations for Giant Canada goose population management, the operational Central Flyway preseason duck banding project, a study using GPS transmitter implants to examine post-fledging movements and habitat use by hatch-year mallards, a study examining factors to redhead duck recruitment, Arctic nesting light goose research, Arctic nesting Canada goose research, the national waterfowl parts collection survey, Adaptive Harvest Management and other harvest strategies for waterfowl, sandhill crane surveys, a pilot study to examine methods for collecting age-specific sandhill crane harvest data, outlining alternative methods to collect age-specific goose harvest data, national mourning dove banding program, national mourning dove harvest management strategy, waterfowl rest area establishment, hunting proclamations and guides, informational presentations and work with media, wildlife, university, and school groups and citizens throughout North America, peer review and publication of professional literature and presentations, and work on various other committees and projects within the Department and with other agencies and organizations.

During the past biennium, the migratory game bird section has completed and published, or submitted for publication: a study comparing migration chronology between mallards and lesser scaup, a band wear/loss study on diving ducks, a comprehensive study of effects of oil and gas development on breeding ducks (three separate research papers), and a book (*The Duck Factory: a history of waterfowl in North Dakota*) which provides historical perspectives of waterfowl hunting and management in North Dakota.

A high priority for the migratory bird staff is cooperative work with all governmental and non-governmental agencies and organizations that are stakeholders in the migratory bird resource. We have significant responsibilities in the Central Flyway Council, the Central Flyway Waterfowl Technical Committee (including 15 subcommittees), the Central Flyway Webless Migratory Game Bird Technical Committee (including four subcommittees), the Central Management Unit Dove Technical Committee, the Bird Banding Lab ad-hoc group, the pintail harvest management strategy working group, the Association of Fish and Wildlife Agencies (including the Waterfowl Working Group, the Harvest Management Working Group), and the Prairie Pothole Joint Venture. Work with these entities is vital to the continued successful management of migratory game bird hunting in North Dakota.

During the past 25 years, duck numbers reached record highs in North Dakota due to an abundance of CRP which provided nesting cover, and persistent record high water conditions. However, recent losses of wetland and grassland habitats have resulted in breeding duck numbers in North Dakota dropping to their lowest level in more than two decades. In 2017, breeding duck numbers dropped below 3 million birds for the first time since 1994. Breeding duck numbers were again below 3 million birds in 2018 with 2.8 million ducks settling in the state. Locally breeding Canada goose numbers remain at near-record levels and are well above the population objective.

We now expend considerable effort managing a permit program (landowners are sub-permitted under a U.S. Fish and Wildlife Service Special State Canada Goose Permit that is issued to the Department) that allows agricultural producers and other entities to take adult and gosling Canada geese, and their nests and eggs to manage crop depredations. We also work with the Director's office to issue other permits to address human health and safety issues and nuisance concerns caused by locally breeding Canada geese. Urban Canada goose issues are consuming more time each year with each situation requiring a different set of solutions. Canada goose population control efforts are done in conjunction with ultra-liberal hunting opportunities and regulations that require considerable monitoring efforts to ensure their viability.

Sandhill crane numbers remain stable and mourning dove numbers appear to be slightly declining in the Central Management Unit. Populations of migrant Canada geese, snow geese and Ross's geese are all above objective levels.

In response to high waterfowl populations, numbers of non-resident waterfowl hunters have remained high with significant guiding and outfitting activity and leasing of private land for hunting. Increased demand for places to hunt, coupled with increased posting and the resultant reduced public access to private lands has caused significant difficulties and dissatisfaction by resident hunters. This may be a primary reason that the number of resident waterfowl hunters has declined. In 2018, active resident waterfowl hunters dropped below 18,000 for the first time ever, 52% below the 1975-2017 average.

Furbearer Management

Our overall goal is to monitor the status of all furbearers in the state. Common furbearing species include (but not limited to) badger, bobcat (south and west of the Missouri River), beaver, coyote, mink, muskrat, raccoon, red fox, striped skunk, and weasel. Furbearing species that are less common include American marten, black bear, bobcat (north and east of the Missouri River), grey and swift fox, gray wolf, fisher, mountain lion, river otter, and spotted skunk. More specifically, our annual objectives for furbearers are to estimate species distributions, population trends, numbers of commercially important fur species that are sold, and harvest of furbearers statewide.

In order to meet our annual objectives, we conducted 3 surveys. First, the April rural mail carrier survey was used to obtain population trends by physiographic region. Second, we required fur buyers to turn in their fur buying records in order to be eligible to purchase a fur buying permit the following year. We have been collecting and compiling these annual fur buyers' reports since

1937. And third, we mailed furbearer harvest questionnaires in April of each year to a random sample of hunters and trappers who bought either a furbearer or combination license during the previous harvest season. For those furbearers that are difficult to monitor using the above methods, including bobcats, mountain lions, fishers, and river otters we required mandatory tagging and carcass collection of harvested animals. We then used age and reproductive information from those carcasses to model population trends.

Additionally, we continued to investigate reports of less common furbearer occurrences (e.g. sightings, incidental captures, road kills, etc.) to monitor changes in distribution and abundance. Furbearer carcasses that were collected through mandatory tagging, incidental trapping, automobile collisions, depredation removals, etc. were examined and necropsied to monitor population health and reproduction. We routinely necropsied American marten, bobcats, fishers, mountain lions, river otters, and swift fox, as well as the occasional black bear or gray wolf.

We communicated with many organizations and agencies when gathering and interpreting information on furbearers in North Dakota, including USDA-Wildlife Services, USGS-Northern Prairie Wildlife Research Center, Theodore Roosevelt National Park, Three Affiliated Tribes, Fur Takers of North Dakota, North Dakota Fur Hunters and Trappers, Delta Waterfowl, Midwest Furbearer Workgroup, and Swift Fox Conservation Team.

We sold an average of 13,197 (resident and non-resident) furbearer licenses and 56,051 combination licenses each year during 2017 and 2018. The rural mail carrier survey indicated fluctuating (up and down) trends during the past 2 years for all furbearers, except red fox which trended downward in all regions both years. Fur buyers' reports indicated that during the past 2 years, coyotes were the most commonly bought furbearer. Number of pelts bought during the 2017-2018 season was 24,014. Prices paid per pelt were highest among bobcat and coyote. Coyote pelts were the highest income generator to the state annually. Results from the questionnaires indicated that coyotes, muskrats, and raccoons were the most commonly harvested furbearers. More furbearers were harvested during the 2017-2018 season compared to the 2018-2019 season, due to a higher coyote and muskrat harvest. Bobcat harvest during the past two seasons (78 in 2017-2018, 65 in 2018-2019) was above the long-term average. Fishers and river otters had limited (i.e. short season length and/or small season limits) regulated trapping seasons. Additionally, there was a limited hunting season on mountain lions each year and model trends indicate the population has been relatively stable the past few years.

Wildlife Health Management

This section is responsible for monitoring and managing disease status and trends. Disease related projects and work during 2017 – 2019 concentrated heavily on chronic wasting disease (CWD), bovine tuberculosis (TB), rabies and other disease outbreaks as they occurred. Since 2002, CWD surveillance has been conducted in ND. Two types of CWD surveillance were conducted by the Department. Targeted surveillance was conducted statewide and year-round. It is used for early detection of initial infection and new foci. Targeted animals include free-ranging deer, elk, and moose that show signs consistent with CWD, died of unknown causes, road kills, and free-ranging cervids removed from farmed facilities. Hunter-harvested surveillance is used to estimate prevalence over time and space. Hunter-harvest surveillance is

conducted in selected units. In 2007, the CWD surveillance units were reevaluated and redesigned to allow for increased efficiency and a more appropriate strategy for detecting this disease. There are now six surveillance units comprised of individual deer hunting units that are sampled on a rotating basis with two surveillance units being sampled each year. This rotation allows the entire state and all six units to be sampled every three years. In addition, surveillance of hunter-harvested animals is conducted annually in areas where CWD has previously been detected (Grant and Sioux Counties).

The combined totals of hunter harvested animals sampled and tested for CWD in 2017 and 2018 was 2079 White-tailed deer, 749 mule deer, 62 elk, and 85 moose. The combined totals of targeted animals sampled and tested for CWD in the 2017 – 2019 biennium were 264 white-tailed deer, 24 mule deer, 2 elk, and 43 moose. During this time, CWD was detected in three mule deer and one white-tailed deer harvested in hunting unit 3F2 which encompasses Grant and Sioux counties. It was first detected in this area in 2009 and the overall infection rate continues to be less than 2%. Chronic wasting disease was also detected in a new area of the state. In 2018, it was detected in a mule deer harvested in northwest Divide County. An emaciated deer that died in a suburban area south of Williston (Williams County) in 2019 was also found to be positive for CWD.

Carcass transportation guidelines and baiting bans were updated and signed by Governor's Proclamation. Newly identified units within states and provinces were added to the list of areas with CWD as test results were confirmed.

Investigations of die-offs and numerous necropsies have been performed on various species including waterfowl, upland game birds, nongame birds, big game animals, furbearers, and nongame mammals. Causes of death and illness were identified. Assistance was provided to the Law Enforcement Division to determine the cause of death in potential criminal investigations. Serology has been performed on various species to determine the level of exposure of wildlife to certain disease agents.

The Wildlife Disease Program works with a variety of state and federal wildlife and livestock related agencies. All meetings of the ND Board of Animal Health were attended, and we continue to work with their non-traditional livestock committee on farmed cervid issues and toward the elimination of contact between free-ranging and farmed cervids. We are also a part of the feral swine eradication working group. Updates on wildlife disease in ND were given to various groups, including the Midwest Fish and Wildlife Health Committee.

PRIVATE LANDS INITIATIVE SECTION

The Private Land Initiative (PLI) is the Department's single largest program and has been receiving more attention as the issue of the loss of hunting access and wildlife habitat increases. A total of $11,368,046 (program payments) was spent from the Private Lands Initiative during the 2017-2019 biennium to improve wildlife habitat on private land and to provide hunting access through various Private Land Open To Sportsmen (PLOTS) programs. A significant effort was made this biennium to develop new habitat and enhance existing habitat on private land

enrolled in PLOTS. Another $689,339 was spent to alleviate big game depredation problems on private livestock feed supplies. Some of the accomplishments of these programs during the 2017-2019 biennium were the following:

Depredation: The Department spent $689,339 during the biennium on big game depredation problems. Of this amount, $157,139 was spent to cost-share with landowners for the construction of deer-proof hay yards. Another $232,822 was used on materials for deer-proof hay yards including gates and panels. The balance, $299,378, included, deer repellents, scare devices, and grain for short-stop feeding deer to alleviate depredation. This amount also includes salaries and expenses for Department personnel when working on depredation problems

PLI Programs:

- Habitat Plot Program: In 2018 provided cost-share and annual cash rent payments for 387 agreements for $1,707,500. In 2019 provided cost-share and annual cash rent payments for 478 agreements for $3,276,160. These payments went directly to farmers and ranchers to lease these habitat plots averaging about 70,000 acres each year of the biennium. These areas are open to walking access for hunting.
- Working Lands Program: In 2018 provided annual lease payments for 554 agreements for $1,136,814. In 2019 provided cost-share and annual lease payments for 565 agreements for $1,279,287. These payments went directly to farmers and ranchers to lease these plots averaging about 368,600 acres each year of the biennium. These areas are open to walking access for hunting.
- CRP Access Program: Provided cost-share of $128,216 to landowners for CRP grass planting on 6,066 acres and $2,571,214 paid to landowners in exchange for public access for hunting, fishing and other types of walking outdoor recreation for the life of the CRP contract. The Dept. also spent $6,072 on fees to have these agreements recorded.
- Wetland Reserve Incentive Program: Provided $567,378 to landowners who enrolled their land in the Wetland Reserve Program and provided public access for the term of their WRP contract.
- Provided $72,570 to Pheasants Forever to partially fund a Precision Ag Program in SE and SW North Dakota.
- Provided $76,500 to the ND Association of Soil Conservation District to partially fund joint Farm Bill Biologists stationed around the State.
- Provided $27,304 to ND Conservation District Employees for a NRCS Collaborative Grant.
- Provided $27,600 to landowners for cost-share on tree and shrub plantings.
- Developed and made available two PLOTS Guide publications (60,000/year) to license vendors and resident and non-resident sportsmen.
- The Department received an Outdoor Heritage Grant in 2014 for $1,900,000. Of this amount $400,000 was for Save Our Lakes. The Private Lands Initiative portion of $1,500,000 has been obligated in 6-10 year agreements. A total of $1,219,712 has been spent thru the PLI section with $527,011 being spent this biennium.
- In 2015 the Department received a second grant from the Outdoor Heritage Fund for $3,000,000 to use towards the Pheasant Habitat Initiative. This was in conjunction with the Dept CREP program with the UDSA. During the 2017-2019 biennium $71,405 was spent on projects.

WILDLIFE RESOURCE SECTION

The Wildlife Resource Section's primary responsibility is to manage approximately 217,482.90 acres of habitat contained within 226 of the State Wildlife Management Area (WMA) system. These lands are incredibly diverse in terms of habitat type and provide extensive hunting and other compatible recreational and educational opportunities. WMA's, in unique places such as the Killdeer Mountains, Turtle Mountains, Pembina Hills, Missouri River, and the prairie coteau, offer the public the chance to experience the variety of North Dakota's wildlife habitats. Providing public access, controlling noxious weeds, managing boundaries, and enhancing and maintaining habitat are just a few of the responsibilities associated with the WMA system.

A major challenge continues to be the control of noxious weeds. The Department spends approximately $750,000 per biennium on chemical, biological, and mechanical weed control efforts. The Department is also a member of the North Dakota Weed Control Association and cooperates with private landowners and other state and federal agencies to find innovative and effective methods of controlling noxious weeds.

The Department's management objectives for specific WMA's are met by conducting various management techniques on these WMA's. Management techniques are based on sound biological practices and may include prescribed burning, rotational haying, grazing, and in some cases, wildlife food plots.

Prescribed burning is conducted on grasslands primarily for the purposes of controlling the spread of exotic invasive species, controlling noxious weeds, or removing dead or decadent herbaceous growth to stimulate new and more vigorous growth. Prescribed burns are completed by a qualified contractor or by Department staff. All personnel involved in prescribed burning have met the Department's prescribed fire training needs. Prescribed burning is a great management tool but presents logistical challenges including availability of staff, training requirements, planning, smoke management, fire break preparation, and ability to complete during a small window of time to accomplish habitat management objectives.

Rotational haying is generally conducted on tame grass stands or dense nesting cover plantings on certain WMA's. This practice is done to remove old growth so that these fields can be opened up to stimulate new growth. Haying practices are generally not conducted on the same planting in consecutive years. Haying is conducted on approximately 7,200 acres per year and is usually conducted by a local cooperator. Haying on WMA's has historically commenced beginning July 15th. However, due to concerns of late nesting species and renesting attempts by upland game and waterfowl – the haying date will be moved back a crucial two weeks to August 1 beginning in 2019 and fully implemented statewide by 2020.

Grazing is generally conducted on native grass stands to control invasion by exotic (non-native) species, to prevent a build-up of decadent grass, and to remove old growth so that these native stands can be opened up to stimulate new growth of native grasses. Grazing practices are generally not conducted on the same stands in consecutive years and grazing dates, stocking rates and rotations are set up to accomplish habitat management objectives. Grazing prescriptions vary for each WMA depending on soils, existing vegetation, and goals. Grazing is

conducted on approximately 7,300 acres per year and is usually done by a local cooperator. Water availability for livestock has been a limiting factor for grazing on some WMA's, and the Department is addressing this by drilling water wells or accessing water supply lines.
Wildlife food plots are established to help sustain local wildlife populations through the winter months and to help alleviate wildlife depredation problems to adjacent private landowners. Wildlife food plots are established by Department staff, contracted, or through crop share agreements with local cooperators each year. Local cooperators farm on a WMA with a 70:30 cropshare agreement, in which the Department's 30% is generally left standing unharvested as a food plot. Neonicotinoids are a prophylactic seed treatment that provide systemic insect control to the crops. However, research has indicated mortality to critical insects utilized by passerine and upland game birds as well as numerous species of pollinators. Therefore, the Department has begun phasing out the use of seeds treated with neonicotinoids on WMA's.

ENFORCEMENT DIVISION

The Enforcement Division report is printed annually in the North Dakota OUTDOORS magazine. The most recent publication was February 2019. It can be found on our website at: http://gf.nd.gov/publications

ND GAME AND FISH DEPARTMENT
DEPARTMENT REVENUE REPORT
JULY 1, 2017 THRU JUNE 30 2019

ACCOUNT NAME	17-19 NET AMOUNT
Conference Registration Fees	5,238.18
Donations	524,258.26
Easements - Test Holes - Right of Way	1,323.20
Fines-Forfeitures-Escheat	32,738.45
Misc. Unclassifed Revenue	79.98
Game & Fish Collectors Stamp	298.00
Game & Fish-Fishing Licenses	6,657,115.00
Game & Fish-Hunting Licenses	22,172,532.70
Game & Fish-Other Licenses	5,234,340.85
Interest Income	4,379.08
Interest On Investment	221,344.89
Lease-Rental Of Land	184,431.72
Mineral Royalties	237,925.82
Insurance Recoveries	881.05
Misc Refunds	52,335.18
Misc Sales and Service	61,898.00
Motorboat License Fees	386,909.00
Non-Game Contributions	2,017.05
Other Reimb. - Jury Pay, Etc.	9,338.14
PLI Sportsmen Habitat Stamp	2,934,463.00
Postage	664.00
Refund Of Prior Bienn Expen	15,475.51
Reimbursement from Other State	(74,243.32)
Revenue From Fed Government	29,466,008.83
Grant/Contrib From Pol. Sub	20,705.00
Revenue from Counties	4,364.27
Sale Of Agriculture Products	124,217.43
Sale of Confiscated Property	200.00
Sale Of Noncapital Asset-Surpl	7,252.95
Sale Of Publications	236,111.00
Sale Of Salvage & Scrap	1,412.80
Tsfr Fm Highway Tax Dist. Fund	275,102.50
Wildlife Habitat Stamp	2,507,955.00
Void Warrant - Prior Biennium	2,559.63
Revenue Prior Biennium	73.65
Tsfr Fm ND Outdoor Heritage Fund	519,823.51
TOTAL REVENUES	**71,831,530.31**

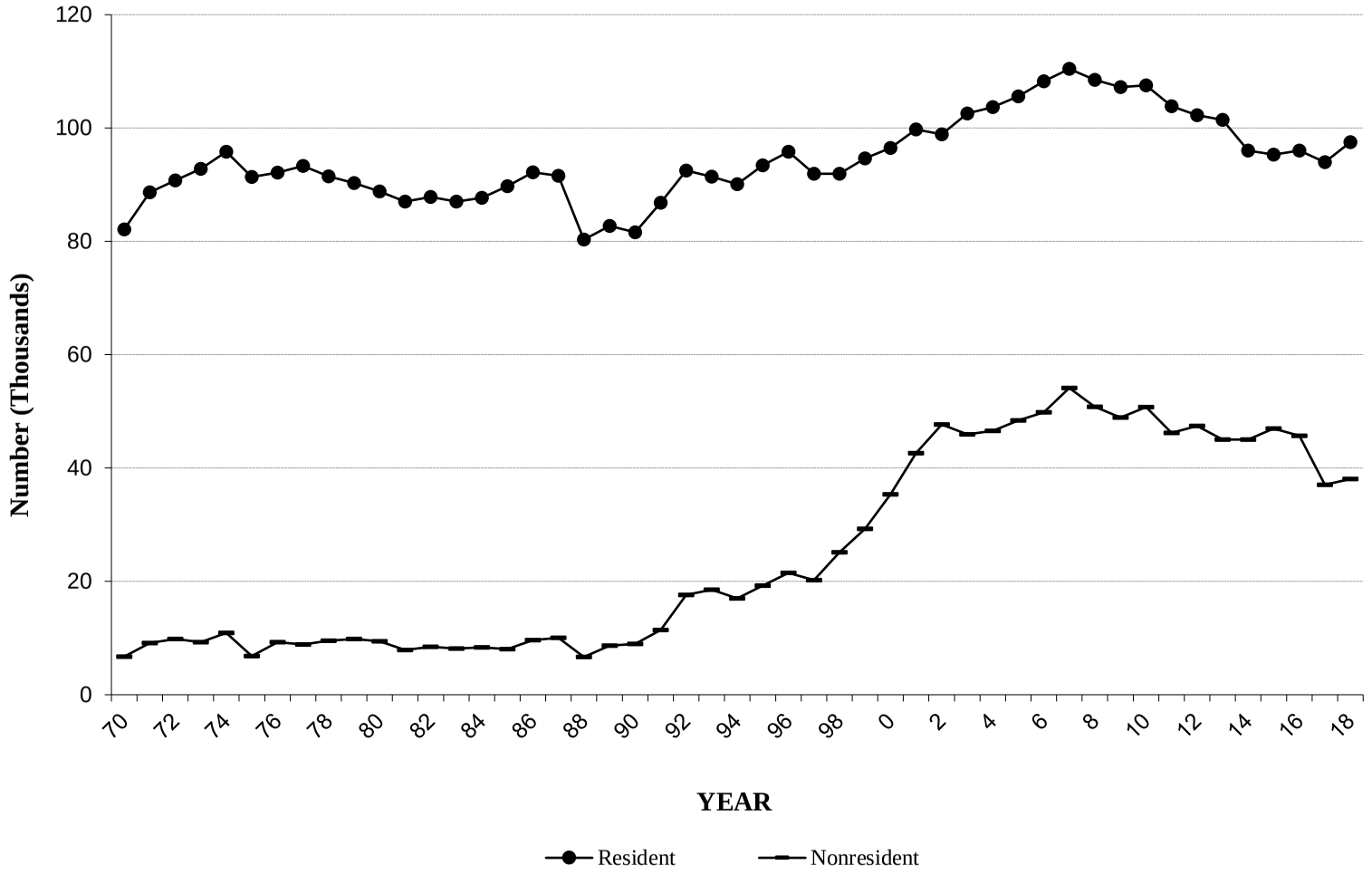
NORTH DAKOTA GAME AND FISH DEPARTMENT
DEPARTMENT APPROPIATION REPORT
JULY 1, 2017 THRU JUNE 30, 2019

	ORIGINAL 2017-19 APPROPIATION	ADJUSTED 2017-19 APPROPIATION	BIENNIUM EXPENDITURES	UNEXPENDED BALANCE
Salaries & Wages	30,076,669.00	30,076,669.00	28,516,967.34	1,559,701.66
Operating Expenses	15,615,059.00	15,615,059.00	12,114,710.33	3,500,348.67
Capital Assets	6,330,956.00	6,330,956.00	3,490,672.54	2,840,283.46
Construction Carryover	0.00	757,024.00	743,016.47	14,007.53
Grants-Game And Fish	9,650,184.00	9,650,184.00	6,943,743.32	2,706,440.68
Shooting Sports Grant Program	250,000.00	250,000.00	247,286.50	2,713.50
Habitat & Deer Depredation	17,824,177.00	18,984,603.00	16,649,786.22	2,334,816.78
Noxious Weed Control	725,000.00	725,000.00	633,703.45	91,296.55
Missouri River Enforcement	283,857.00	283,857.00	283,856.81	0.19
Grant-Gift-Donation	802,201.00	802,201.00	546,594.30	255,606.70
Nongame Wildlife	120,000.00	120,000.00	55,281.27	64,718.73
Aquatic Nuisance Species Prog.	0.00	467,100.00	57,959.61	409,140.39
Lonetree Reservoir	1,798,119.00	1,798,119.00	1,759,665.76	38,453.24
Wildlife Services	500,000.00	500,000.00	500,000.00	0.00
Total Expenditures	**83,976,222.00**	**86,360,772.00**	**72,543,243.92**	**13,817,528.08**

NORTH DAKOTA GAME AND FISH DEPARTMENT
EXPENDITURES BY PROGRAM
JULY 1, 2017 THRU JUNE 30, 2019

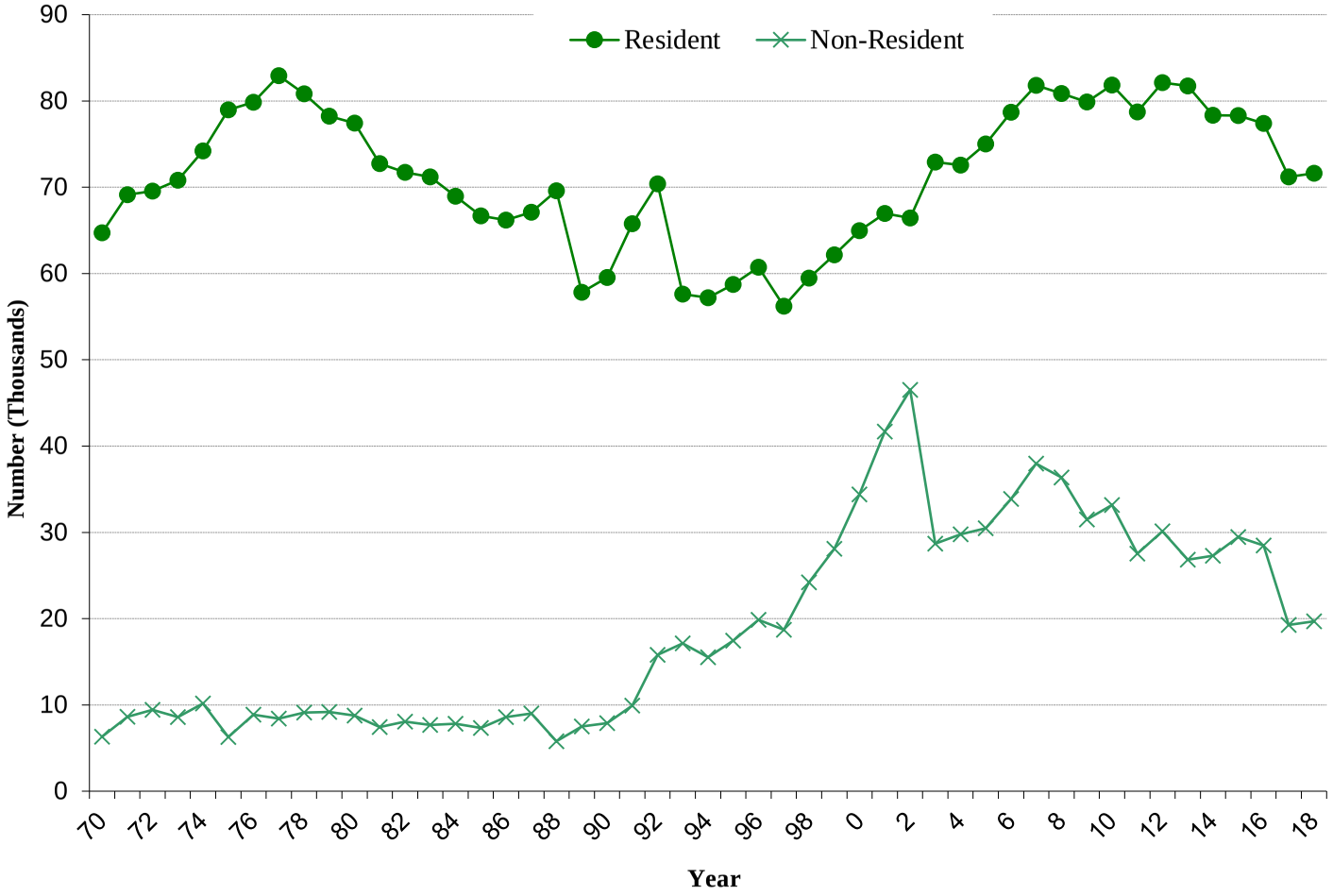
	DEPARTMENT TOTALS	ADMINISTRATION	FISHERIES	ENFORCEMENT	CONSERVATION & COMMUNICATION	WILDLIFE	DIFFERENCE
Salaries & Wages	28,516,967.34	8,895,317.65	4,134,938.63	6,475,370.33	3,837,739.48	5,173,601.25	0.00
Operating Expenses	12,114,710.33	3,759,742.39	2,073,621.39	1,799,690.67	1,572,401.46	2,909,254.42	0.00
Capital Assets	3,490,672.54	1,909,776.14	626,091.94	199,899.00	99,846.99	655,058.47	0.00
Construction Carryover	743,016.47	438,274.47	0.00	0.00	304,742.00	0.00	0.00
Grants-Game And Fish	6,943,743.32	291,675.60	1,608,272.25	8,273.00	2,192,018.96	2,843,503.51	0.00
Shooting Sports Program	247,286.50	0.00	0.00	0.00	247,286.50	0.00	0.00
Habitat & Deer Depredation	16,649,786.22	0.00	936,523.48	0.00	0.00	15,713,262.74	0.00
Noxious Weed Control	633,703.45	0.00	0.00	0.00	0.00	633,703.45	0.00
Missouri River Enforcement	283,856.81	0.00	0.00	283,856.81	0.00	0.00	0.00
Grant-Gift-Donation	546,594.30	361,803.59	0.00	0.00	0.00	184,790.71	0.00
Nongame Wildlife	55,281.27	0.00	0.00	0.00	55,281.27	0.00	0.00
Aquatic Nuisance Species Fund	57,959.61	0.00	57,959.61	0.00	0.00	0.00	0.00
Lonetree Reservoir	1,759,665.76	0.00	0.00	0.00	0.00	1,759,665.76	0.00
Wildlife Services	500,000.00	0.00	0.00	0.00	0.00	500,000.00	0.00
TOTAL	**72,543,243.92**	**15,656,589.84**	**9,437,407.30**	**8,767,089.81**	**8,309,316.66**	**30,372,840.31**	**0.00**

NORTH DAKOTA
GENERAL GAME LICENSE SALES



SMALL GAME LICENSE SALES

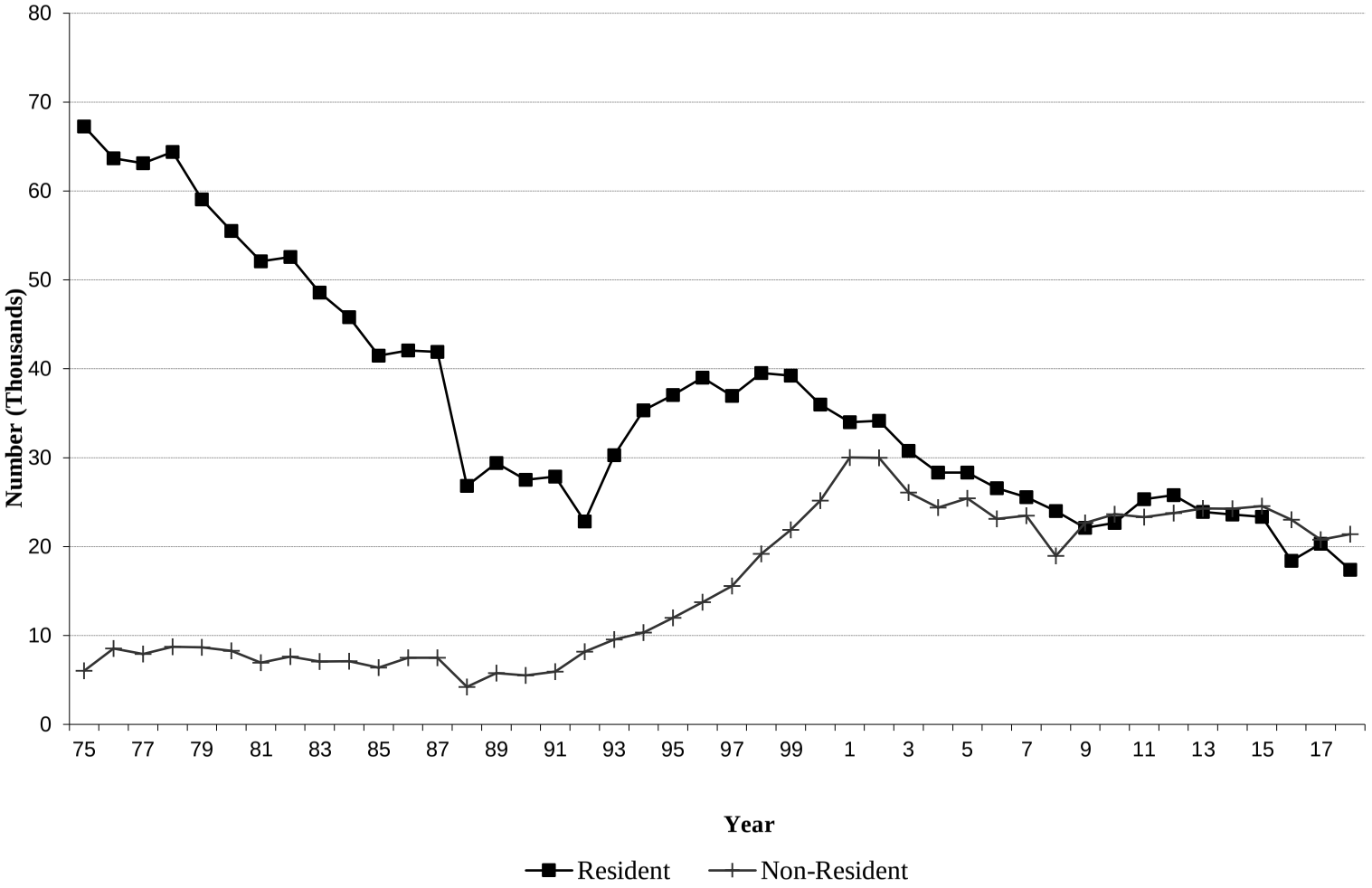
North Dakota



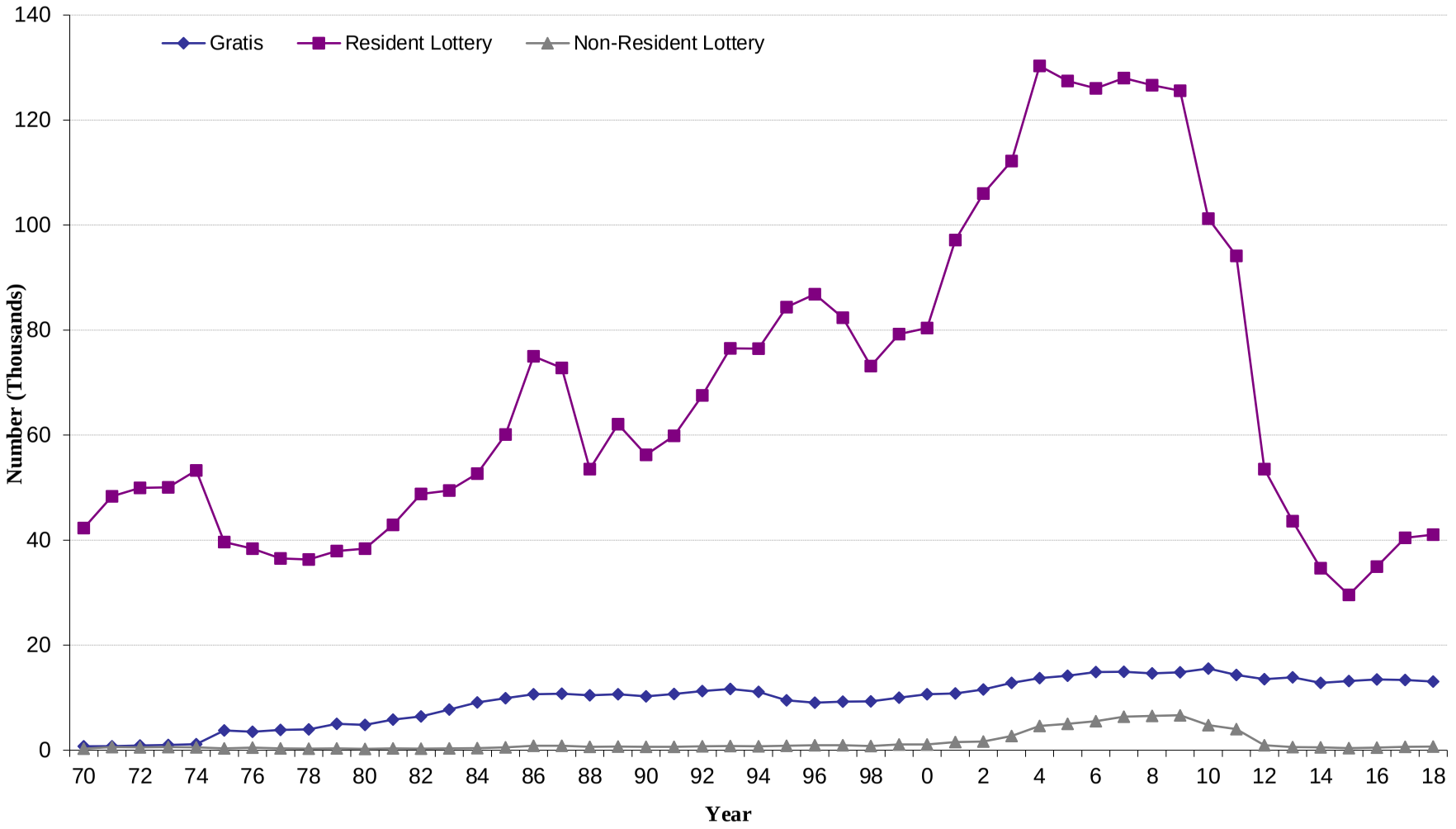
There was a major non-resident license system change in 2003.

Waterfowl Hunters

North Dakota

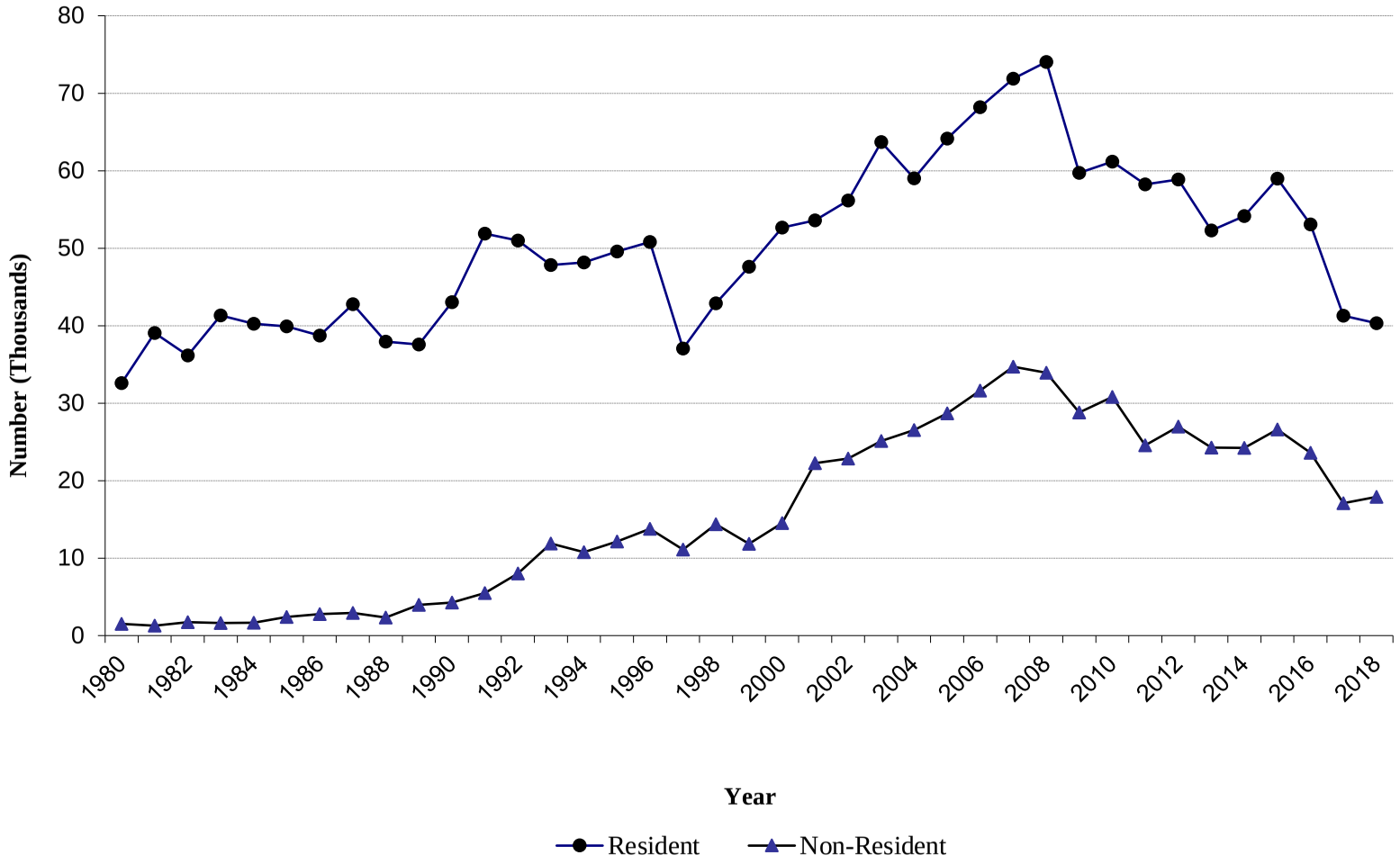


North Dakota
Deer Gun Licenses Issued

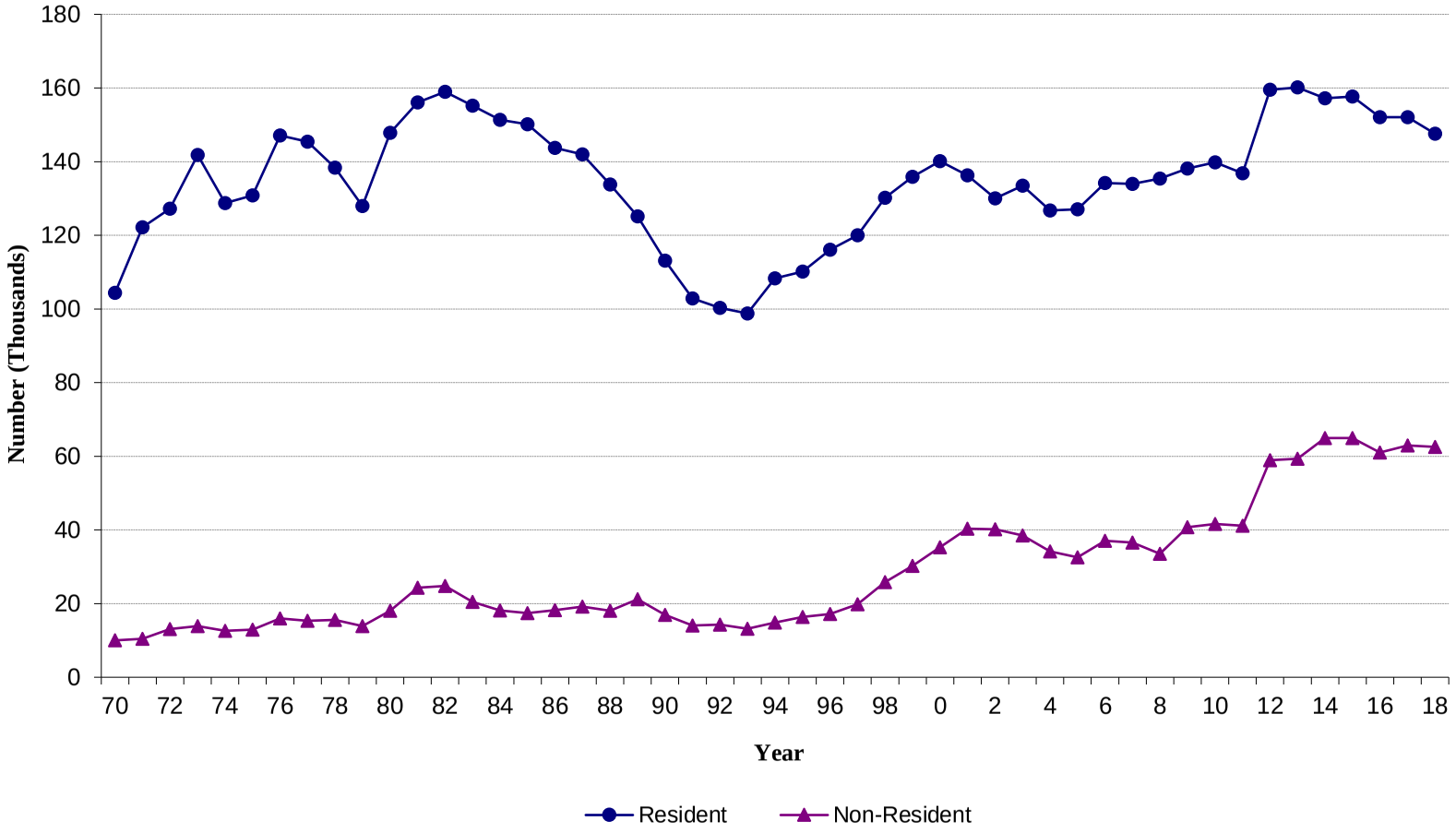


Licensed Pheasant Hunters

North Dakota



North Dakota
Fishing License Sales



RESOURCES AVAILABLE FROM THE DEPARTMENT

Copies of the minutes from meetings conducted by the Department are available at the Game and Fish Department's Bismarck office. Requests should be sent to: Director, North Dakota Game and Fish Department, 100 N. Bismarck Expressway, Bismarck, ND 58501-5095.

Wildlife survey results and fish and wildlife status reports are published annually. Single copies of these reports (Progress or Job Completion) are available at the Bismarck office.

The Department publishes a magazine, North Dakota OUTDOORS, available at the address listed above. Single copies of the magazine are available at $2 per copy. The yearly subscription rate (10 issues) is $10. The three-year subscription rate is $20.

A variety of pamphlets, brochures and booklets pertaining to fish, wildlife, lakes, wildlife habitat, and other topics are available for free distribution at the Bismarck office. The Department's web page is: http://gf.nd.gov. The Department's email address is ndgf@nd.gov.