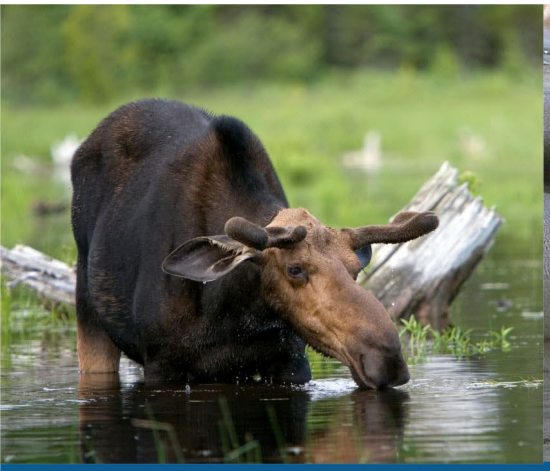
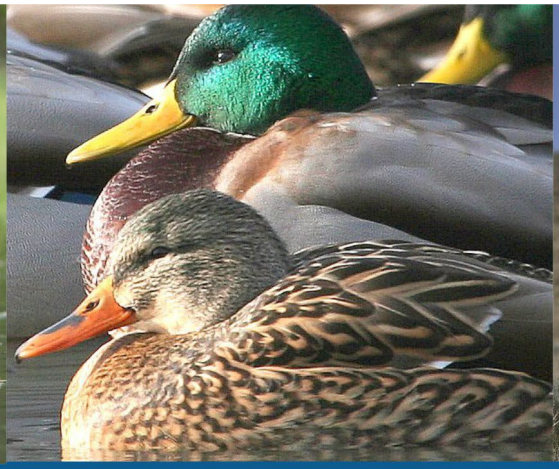


Saskatchewan Wildlife Management Report 2020

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Saskatchewan

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General Information

Introduction to Wildlife Management and Guiding Principles in Saskatchewan

What species are involved?

Saskatchewan offers a diverse and plentiful wildlife community. While the Ministry of Environment is responsible for all provincially managed species in Saskatchewan, this report will focus on those species that are regularly hunted and trapped (Table 1). This list includes a variety of ungulates, other mammals and birds. The work the ministry does on these species will be discussed in detail.

Table 1. Species hunted and trapped in Saskatchewan.

Big Game	Birds	Furbearers	
White-tailed deer	Sharp-tailed grouse	Arctic fox	Muskrat
Mule deer	Ring-necked pheasant	Badger	Otter
Elk	Gray partridge	Bear	Raccoon
Moose	Ruffed grouse	Beaver	Skunk
Pronghorn	Spruce grouse	Bobcat	Squirrel (4 species)
Black bear	Willow ptarmigan	Coyote	Weasel (3 species)
Barren-ground caribou	Sandhill cranes	Fisher	Wolf
	Geese: All species	Fox	Wolverine
	Ducks: All species	Lynx	
	American coot	Marten	
	Wilson's snipe	Mink	

History of Wildlife Management Zones

Saskatchewan is divided into Wildlife Management Zones (WMZs) that group similar geographic features and follow ecological boundaries. In 2014, boundary changes were made to follow roads to decrease confusion for hunters on the land. These WMZs allow for the management of wildlife according to regional differences in both wildlife populations and social tolerances, as opposed to making management decisions on a province-wide basis. Wildlife Management Zones have been used to manage game species in Saskatchewan since the early 20th century, although the boundaries of each zone have changed over time. Presently there are 83 WMZs (Figure 1) in the province.

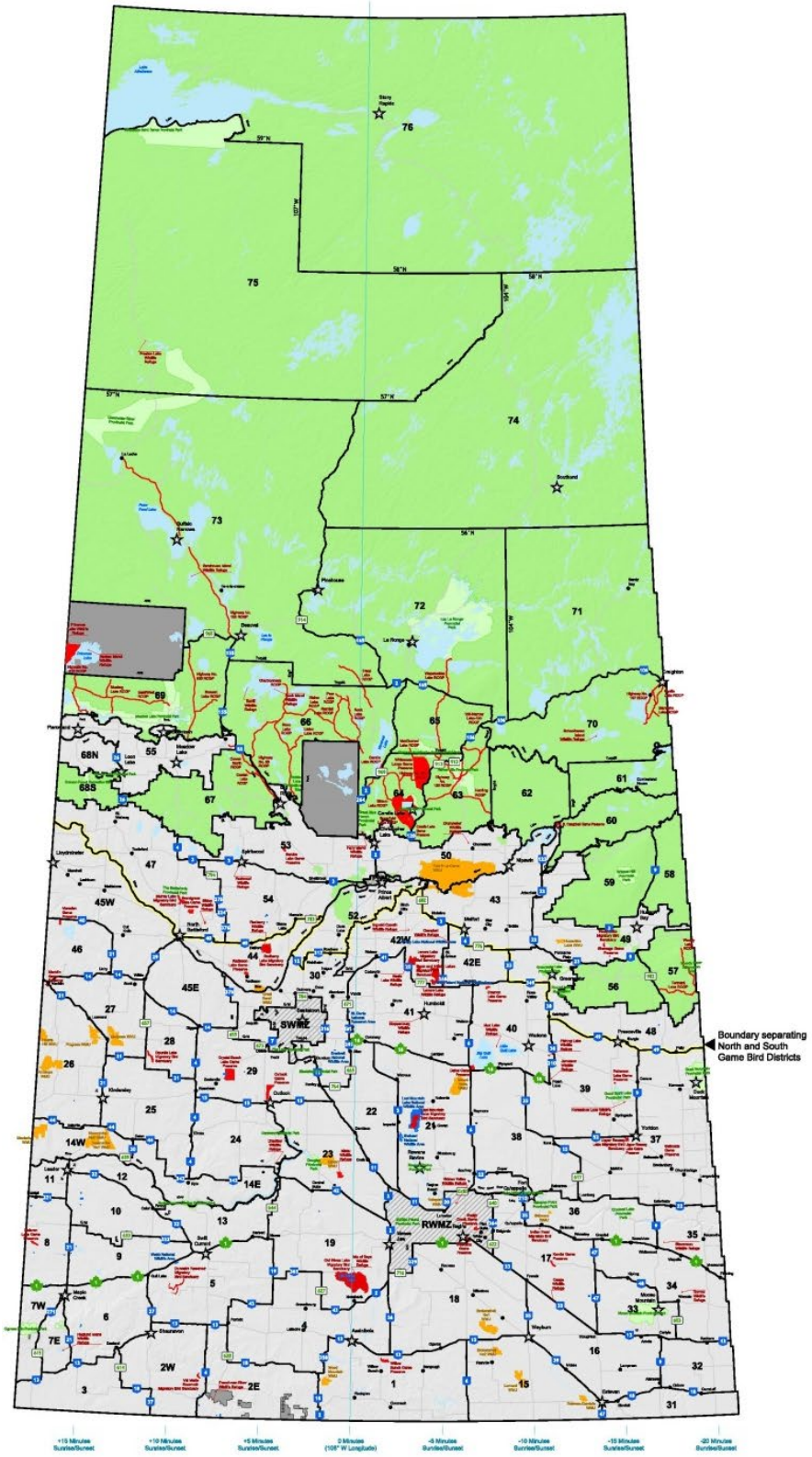

Figure 1. Wildlife Management Zones (WMZ) in Saskatchewan.

Key Considerations Guiding Wildlife Management

Wildlife populations can be affected by a variety of factors. This means that managing wildlife populations can be a complex task and wildlife managers must consider many variables when making decisions. First and foremost, the demographics of the population being managed are considered. Is the population increasing or decreasing? Does the population have the necessary components (e.g. age structure, reproductive capabilities) to achieve the goals that are being set? In addition to the demographics of the population, managers must consider other variables that are impacting the population, such as environmental conditions, infectious disease and habitat availability. Finally, given that wildlife is a public resource and that the public interacts with wildlife in many ways, wildlife managers must also consider the needs and wants of the public and how best to mitigate these interactions for positive outcomes. Each of these considerations will be discussed in further detail below.

Population Demographics

It is a popular misconception that wildlife is managed based on a total population count. In fact, such counts would be cost prohibitive and logistically unfeasible.

Wildlife managers rely on many metrics to assess how wildlife populations are faring. Most used are population size/abundance, density and structure. Population size is often presented as an estimate of abundance and derived from surveys of small areas that are then extrapolated to larger areas. Acquiring true abundance data is time and cost-intensive and the dynamic nature of populations makes the information relevant for only short periods of time. Density, or number of animals per kilometer squared allows wildlife managers to extrapolate the carrying capacity of a habitat type or area. As with abundance, this metric is often an estimate and is extrapolated across larger areas. Finally, population structure, or how a population is made up, is important to know how a population functions. Structure in wildlife management is usually defined as the gender and age components of a population. For example, it is important to know the number of adult (i.e. breeding) females and males to predict how a population may grow or decline over time. It is equally important to know what proportion of the population is young of the year, to assess recruitment into the population over a period of time. All these metrics can be assessed with varying levels of statistical certainty and can be used to evaluate the state of wildlife populations at a variety of spatial scales and over many time periods.

Environmental Conditions – Winter Severity

Environmental conditions during key periods in a species' life cycle can greatly impact population growth or decline. In Saskatchewan, where winter is the dominant season and often the most extreme in nature, winter severity is often a key variable impacting populations. A severe winter can directly impact a species survival by making resources unavailable or can indirectly impact survival by causing individuals to expend desperately needed energy to a point where they enter spring in poor health, which can either result in decreased reproductive capability or subsequent death.
Alternatively, a mild winter can result in a larger cohort of the population surviving the winter and entering spring in good health and a subsequent population increase. Three main factors of winter severity are the temperature, snow depth and length of winter.

Temperature can either be ambient temperature or include the wind chill, which is largely related to shelter availability. However, snow depth is often the more important variable, as it can make resources completely unavailable to grazing wildlife or significantly increase the amount of energy expended to access the resources. Finally, the length of winter can cause animals to enter spring in poor health due to increased depletion of fat reserves if winter extends into the normal spring period.

Winter severity affects populations for more than one year and significant changes in wildlife populations can often be attributed to winter severity in previous years. As such, managers regularly consult records of winter severity (Table 2). Although winter severity measurements have been largely anecdotal to date, the ministry has done preliminary modeling work (A. Schmidt, pers. comm.) to quantify winter severity and found that the average temperature from November to February interacting with the accumulated snowfall between October and February is well correlated to the trend in white-tailed deer populations in the Melville region. Further work is being considered to fine-tune this modeling exercise so that it may be applied more broadly across the province.

Habitat Availability

Habitat availability is quite simply the area and resources available to an individual in a particular location. Driven not only by the physical availability (i.e. habitat is present), but also the functional availability (i.e. habitat can be used by the individual), habitat availability can be a significant driver of population growth and decline both locally and on a larger scale. Historically with settlement and more recently with urban sprawl, natural habitats are becoming fragmented and lost to accommodate other land uses (namely agricultural, industrial and urban development). Even in situations where habitat exists, fragmentation can limit use if individuals cannot move between parcels of habitat and/or an increase in number of individuals using each parcel (and the resources they sustain) can make them functionally unavailable.

The availability of quality wintering habitat is a particularly important factor for Saskatchewan ungulates. The annual carrying capacity of the habitat mosaic in a local area will vary over time such that when environmental conditions are favourable the area may sustain high populations. However, in severe winters in areas with a shortage of quality wintering habitat, populations may decline sharply or come to rely heavily on agricultural food sources leading to increased human conflict. Optimum populations are achieved when management maintains a post-harvest population that is commensurate with what the available wintering habitat can sustain.

Public Input

Wildlife in Saskatchewan is managed as a public resource and residents of Saskatchewan interact with wildlife in a variety of ways. Whether it is a positive interaction (such as viewing wildlife in their natural environment or hunting wildlife for food) or a negative interaction (such as dealing with crop depredation, property damage or vehicle collision with wildlife), how people interact with wildlife is as unique as the individual and changes both with the species of wildlife and the situation under which the interaction occurs. Interactions with wildlife can be multi-faceted and the landowner who enjoys hunting deer for his year's supply of steaks can simultaneously be dealing with flocks of geese which are consuming portions of a pea field and thereby impacting the farm operation's bottom line. The same wildlife can be viewed in several different lights and the deer that one person enjoys watching on their daily walks, can be the same deer that another person is trying to drive away from their crops which can be the same deer that a third person is planning to hunt come fall. These complex interactions require wildlife managers to consider all points of view and strive to achieve a solution that appeases all interested parties. Factor in considering population demographics, environmental conditions and habitat availability, while striving to maintain sustainable wildlife populations and one can begin to understand the complexities of managing wildlife.

Table 2. Winter severity reports (2010-2019).

Year	Description
2010-2011	Mid-October snowfall which melted. Severe winter over most of province especially in the southeast, along the United States border and the Cypress Hills. Milder in the northwest. Major snowfall in late April in the southeast. Delayed green-up.
2011-2012	Relatively mild winter over most of the province with warmer-than-average temperatures and below-average snow depth.
2012-2013	Severe winter across most of the province, including colder-than-average temperatures and above-average snow depth. Winter extended into the spring and delayed green-up.
2013-2014	Moderate to severe winter, with colder-than-average temperatures, that extended into the spring and delayed green-up.
2014-2015	Relatively mild winter over most of the province with warmer-than-average temperatures and below-average snow depth.
2015-2016	Relatively mild winter over most of the province with warmer-than-average temperatures and below-average snow depth. Southeast portion of province experienced heavier snowfall and above average snow crust which resulted in moderate deer mortality.
2016-2017	Relatively mild winter across much of the province. Slightly above average snow depth and average temperature conditions throughout the Parkland and Forest Fringe region.
2017-2018	Relatively average winter across much of the province, despite early snow events in the southwest.
2018-2019	Relatively mild-to-average winter across most the province with warmer-than-average temperatures and below-average snow depth in the south.
2019-2020	Relatively average winter despite bitterly cold February across the majority of the province. Early snow events in the southwest and late snow events across the north and central region of the province.

Data Collection Techniques

The Ministry of Environment uses a variety of data collection techniques to monitor each species of interest. Each survey is designed to maximize the quality and quantity of information collected, while minimizing the disturbance to wildlife, within the logistical and financial resources of the ministry. Often the information collected includes data related to population size, structure and density within a particular region.

Population Survey Techniques

Population survey techniques are unique to the species that is being surveyed. Each survey is designed to maximize detection of individuals during the period of interest to answer the biological questions being asked. Historically, many population surveys were aerial, primarily conducted in the winter months when there is sufficient snow on the ground and deciduous leaf cover is lacking to improve observers' ability to detect animals. However, ground-based survey techniques have gained popularity in recent years in response to both the logistical and financial constraints of aerial surveys and interest in additional research questions. Common survey techniques employed by the ministry include: a) Line Transect Surveys; b) Stratified Random Block Surveys; c) Population Structure Surveys (aerial based); d) co-operative wildlife management surveys; e) Spotlight Surveys; and f) Pronghorn Herd Structure Surveys. Each of these techniques is described in detail below.

a) **Line Transect Survey:** Similar to trend line surveys in that predetermined lines are flown over a designated area, line transect surveys require the placement of animal clusters into distance bands perpendicular to the transect line (i.e. flight line of aircraft). Once survey data is entered, a computer modeling program (Program Distance) creates best-fit mathematical models of the population density estimator. Advantages of this survey method include density estimators being more easily derived (with confidence intervals) and an ability to account for observability biases that increase with distance from the aircraft within the model calculations.

b) **Stratified Random Block Survey:** This aerial survey design stratifies areas into sample units (quadrats or blocks) based on habitat type. Sample units are randomly selected from each stratum. Observers strive to achieve a population density estimate of ±20% within 90 per cent confidence intervals for the survey area. Put plainly, observers want to ensure that they cover enough area to confidently estimate the density across the entire survey area. A more detailed explanation can be found in Stewart (1983).

c) **Population Structure Survey (aerial based):** These surveys, typically conducted in winter when snow cover and lack of foliage make observations easier, are designed to estimate age (i.e. adult vs. young) and sex composition of ungulate populations. Structures are usually presented as adult males or young per adult female. Survey flight paths are chosen to cover habitat types with high probability of detecting animals. Prior to the survey, minimum animal observations to obtain precise estimates within desired confidence intervals are calculated as per Czaplewski et al. (1993) and Scheaffer et al. (1990).

d) **Co-operative Wildlife Management Survey (CWMS):** Formerly the Co-operative Deer Management Survey (CDMS), a citizen-science survey that exclusively collected observations of white-tailed and mule deer. In 2016, the ministry explored the use of a mobile application to boost participation and launched the co-operative wildlife management survey application in October 2017, with the inclusion of moose, elk, sharp-tailed grouse and wild turkey.

e) **Spotlight Survey:** This nocturnal, ground-based survey monitors deer population trends along established routes across the province. Observers travel each route in a truck outfitted with powerful spotlights. As deer are detected, observers record the number of deer observed and the species, age (i.e. juvenile or adult) and sex. A hand-held spotlight is used to improve classification once deer are observed but is not used for detection.

f) **Pronghorn Herd Structure Survey:** This ground-based survey monitors the changes in pronghorn populations over time. Seventy routes (each 80 kilometers long) were established across the pronghorn range in Saskatchewan and staff complete each one annually between July 1 and July 21. Two surveyors record the number, age and sex of all pronghorn observed within 800 meters either side of the road.

Biological Sample Collection

Biological sample collections are the collection of tissue from an animal, such as: teeth, fur, feathers, antlers, brains, and skin. These samples are often used to determine sex, age, health, genetic makeup and (where applicable) antler configuration of game species. Age of harvested animals older than young-of-the-year is often determined using tooth cementum deposition (moose, elk, white-tailed deer and black bear) and/or molar wear (white-tailed deer only). In game birds, feather wear and length can differentiate young-of-the-year from adults. Since 1997, a hunter surveillance program has been in place to collect heads from cervid species to test for chronic wasting disease.

Chronic Wasting Disease

Chronic wasting disease (CWD) is a fatal degenerative disease that affects the nervous system of cervids or members of the deer family, including deer, elk, moose and caribou. CWD belongs to a group of diseases known as transmissible spongiform encephalopathies (TSEs), which are in the same family as BSE (mad cow disease) in cattle and scrapie in sheep. The disease was first detected in a wild mule deer in Saskatchewan in the fall of 2000. The disease has since spread to wild white-tailed deer, mule deer, elk and moose populations within Saskatchewan. The disease has not yet been detected in caribou.

The disease is caused by infectious proteins, called prions, which are persistent in the environment and resistant to environmental degradation. Infectious prions begin to accumulate in the nervous tissue of the animal and eventually cause microscopic lesions to form in the brain. Symptoms, which are not apparent until the last few weeks or months of infection, include weight loss, behavioral change, excessive salivation, exhaustion, increased drinking, poor co-ordination, trembling and drooping of the head and ears. CWD is transmitted directly from animal-to-animal and from sources of environmental contamination including bait piles, mineral licks, grain bags and other environments contaminated with

urine and feces shed by infected animals. Transmission is facilitated in areas where animals congregate. Prions are shed in urine, saliva, feces and blood of infected animals and may be shed up to a year or longer before animals begin to show signs of disease. Contact between animals is not necessary to spread the disease, as it can also be spread by prion-contaminated feed, soils or shared water sources. CWD is a slowly developing disease, taking an average of two years in deer, and up to three years in elk, before animals succumb to infection. However, once infected, CWD is always fatal. Annual declines in populations of mule deer, white-tailed deer and elk have been documented in endemic areas of Wyoming and Colorado, where the disease has been present since the late 1980s (DeVivo et al., 2014, Monello et al. 2014, Edmunds et al. 2016).

Population models and empirical evidence from areas of high prevalence indicate that CWD results in a younger age structure, lower recruitment and lower numbers of deer and elk (Bollinger, pers. com., Miller et al. 2008, Dulberger et al. 2010, Monello et al. 2014, Edmunds et al. 2016). Saskatchewan operated a CWD surveillance program from 1997 through 2012 and again in 2015 through 2020. Samples collected from 2012 to 2014 included only sick or dying deer collected by conservation officers and collar-marked research animals. The Ministry has tested over 53,000 cervids to date. Cervids that tested positive for CWD (2001 to 2020) include: 1572 (of 31,052 tested) mule deer, 441 (of 19,595) white-tailed deer, 28 (of 2,011) elk, and 11 (of 760) moose. In 2020, 2,969 samples were submitted as part of the surveillance program. CWD was identified in five elk, five moose, 335 mule deer and 121 white-tailed deer across the province and one new wildlife management zone. In contrast, the CWD surveillance program from 1997-2003 revealed only 12 positive CWD animals out of 11,209 heads tested. The disease has now been detected in 57 of 83 of Saskatchewan's WMZ, including parts of south central and eastern Saskatchewan and is now considered endemic across much of the of the province south of the boreal forest. For survey results and a map of CWD positives, visit www.saskatchewan.ca/residents/environment-public-health-and-safety/wildlife-issues/fish-and-wildlife-diseases/chronic-wasting-disease.

The ministry established a CWD working group to help in the development of a long-range strategic plan to outline Saskatchewan's response to CWD. The CWD Working Group consists of members from the ministries of Agriculture, Health and Environment as well as representatives from Saskatchewan Association of Rural Municipalities, Agricultural Producers Association of Saskatchewan, Saskatchewan Wildlife Federation, Nature Saskatchewan, Saskatchewan Bowhunters Association, Saskatchewan Cervid Alliance, Federation of Sovereign Indigenous Nations, the Cervid Alliance, Saskatchewan Commission of Professional Outfitters, First Nations Outfitters Association, Regina Fish and Game League and Parks Canada. The working group members share a common interest in seeing the prevalence of CWD contained to levels that will minimize impacts on wildlife, indigenous communities, as well as on agriculture, including game farms and potential contamination of food and feed sources.

Implications of CWD to humans are unknown. Although there have been no documented cases of CWD in humans, the World Health Organization, Health Canada, and the Saskatchewan Ministry of Health recommend that CWD infected meat not be consumed. Hunters are advised to take certain precautions when field dressing, transporting and processing animals and have animals tested prior to consumption.

What Hunters Can Do to Help

- Report any animal acting abnormally to the nearest Ministry of Environment office. Do not shoot, handle or consume any animal that appears sick.
- Avoid long-distance movements of deer carcasses from the area where harvested. If moving your carcass to a taxidermist or processor, please ensure it is double bagged (wrapped in tarp) while in transport.
- Dispose of carcasses at permitted landfill sites or leave in the field at the location where harvested (only bring back necessary parts). For more information, contact the local municipal authority.
- Avoid the use of mineral licks, baiting and feeding. Animals can shed CWD in feces, saliva and urine. Artificial concentration of deer spreads CWD by increasing opportunities for contact between deer and contamination of the environment.
- Wear latex or rubber gloves when field dressing your deer, moose or elk.
- Bone out the meat from your animal. Do not saw through bone and avoid cutting through the brain or backbone of the animal.
- Avoid handling brain and spinal tissues.
- Wash your hands thoroughly after field dressing is completed and clean instruments used in field dressing in a 2:3 bleach solution for at least one hour.
- Have your animal tested. Avoid consumption from animals that have tested positive.
- If you have your deer or elk commercially processed, request that your animal is processed individually, without meat from other animals being added to meat from your animal.

Hunting and Harvest Statistics

Continued monitoring of annual licence sales and harvest from hunting and trapping activities is critical for evaluating the implications of management strategies and ensuring the long-term sustainability of wildlife populations, as well as determining trends in hunter and trapper demographics and behaviour. In order to monitor annual harvest and wildlife populations, the ministry conducts a hunter harvest survey (HHS) and annual status of furbearers surveys (ASFS) through the Hunting, Angling and Trapping Licence (HAL) system. Hunters have the option to complete their surveys by logging in online to their HAL account or over the phone by calling the Aspira inquiry line (1-888-773-8450). The summarized results are provided in advance of the big game draw each year and can be viewed at www.saskatchewan.ca/hunter-harvest-survey.

In 2020, the HHS survey became mandatory, where the ASFS is still voluntary. In 2020, 61,501 surveys were completed (HHS and ASFS combined) (Table 3), which was an increase from the 25,261 completed in 2019. Response rates, or the number of surveys completed compared to the number of surveys available, increased significantly between the two years for almost all surveys, due to the transition to a mandatory HHS. Information about the HHS and ASFS continued to be included in the Hunters and Trappers Guide and on all Wildlife Habitat Certificates. The ministry requiring mandatory responses for the hunter harvest survey has increased response rates, allowing for a more thorough evaluation of management strategies. Outfitter records are used to analyze non-resident harvest and hunting activities for white-tailed deer and black bear, as the HHS does not capture guided harvest of big game animals.

Table 3. Hunter harvest and annual status of furbearers survey response rates in 2020.

	Licence Type	Surveys Available	Surveys Completed	Response Rate
Hunter Harvest Survey	Saskatchewan Resident Game Bird	18368	7605	41%
	Canadian Resident Game Bird	1857	614	33%
	Draw Pronghorn Antelope	555	379	68%
	1st Saskatchewan Resident Black Bear	4915	3094	63%
	Canadian Resident Black Bear	186	79	42%
	2nd Saskatchewan Resident Black Bear	533	361	68%
	1st Saskatchewan Resident White-tailed Deer	41087	20315	49%
	Draw 1st Antlerless Mule Deer	5238	3384	65%
	1st Canadian Resident White-tailed Deer	813	589	72%
	Guided 1st White-tailed Deer	294	224	76%
	1st Saskatchewan Antlerless White-tailed Deer	1449	793	55%
	2nd Saskatchewan Antlerless White-tailed Deer	487	310	63%
	Draw Mule Deer	7150	3379	47%
	Saskatchewan Resident Elk	6111	3385	55%
	Saskatchewan Resident 1st Special Elk	4260	2584	61%
	Saskatchewan Resident Mule Deer Archery	4354	2693	62%
	Saskatchewan Resident Moose	6287	3240	52%
	Draw Moose	4499	2882	64%
	Saskatchewan Resident Youth Game Bird	2185	772	35%
	Saskatchewan Resident Youth White-tailed Deer	5214	2047	39%
	Saskatchewan Resident Wolf	170	54	32%
	Saskatchewan Resident Veteran Game Bird	288	151	52%
	Canadian Resident Veteran Game Bird	67	43	64%
	1st Saskatchewan Resident Veteran Black Bear	120	74	62%
	Canadian Resident Veteran Black Bear	25	13	52%
	2nd Saskatchewan Resident Veteran Black Bear	34	19	56%
	1st Saskatchewan Resident Veteran White-tailed Deer	384	227	59%
	1st Saskatchewan Resident Veteran Antlerless White-tailed Deer	72	46	64%
	2nd Saskatchewan Resident Veteran Antlerless White-tailed Deer	10	7	70%
	Saskatchewan Resident Veteran Elk	101	53	52%
	Saskatchewan Resident Veteran Archery Mule Deer	71	44	62%
	Saskatchewan Resident Veteran Moose	140	80	57%
	Saskatchewan Resident Veteran Wolf	49	22	45%
Annual Status of Furbearers Survey	Northern Fur	1424	105	7%
	Southern Fur	2938	732	25%

Survey History

The surveys conducted in a particular year are directed by many variables. Ministry priorities, information needs, public concern, staff availability and annual budget are just a few of the many variables that come into play when planning where, when and what surveys will be completed in any given year. As these variables change throughout the years, so do the surveys that are conducted. To capture this change, the surveys conducted over the past five years have been summarized in Table 4.

Table 4. Wildlife surveys completed in 2015 through 2020.

Year	Surveys
2015	CDMS, Spotlight Survey, Pronghorn Herd Structure Survey, Saskatchewan Upland Game Bird Survey, HHS (Moose/Elk/Mule Deer/White-tailed Deer/Game Birds/Black Bear – Draw and Regular Licences), Population Structure Survey (Dana Hills & Parkside - Elk)
2016	CDMS, Spotlight Survey, Pronghorn Herd Structure Survey, Saskatchewan Upland Game Bird Survey, HHS (Moose/Elk/Mule Deer/White-tailed Deer/Game Birds/Black Bear – Draw and Regular Licences), Population Structure Survey (Moose Mountain Provincial Park - Elk)
2017	CWMS, Spotlight Survey, Pronghorn Herd Structure Survey, HHS (Moose/Elk/Mule Deer/White-tailed Deer/Game Birds/Black Bear/Caribou – Draw and Regular Licences), ASFS, Population Structure Survey (WMZ 67 – Moose)
2018	CWMS, Spotlight Survey, Pronghorn Herd Structure Survey, HHS (all licences), ASFS, Population Structure Survey (WMZs 6, 7E – Elk), Line Transect Survey (WMZs 2W, 9, 10, 14E – multi-species)
2019	CWMS, Spotlight Survey, Pronghorn Herd Structure Survey, HHS (all licences), ASFS, Line Transect Survey (WMZ 37 – Multi-species),
2020	CWMS, Spotlight Survey, HHS (all licences), ASFS

Outfitting in Saskatchewan

Outfitters and guides employed by outfitters offer both residents and visitors to the province access to a wide variety of hunting and angling experiences. Although anyone can access the services outfitters supply, over 90 per cent of hunters using these services are non-residents, in part because some licences require the use of an outfitter, such as guided white-tailed deer licences. The number of outfitters in Saskatchewan has remained quite stable throughout the years, with anywhere between 620 and 630 licensed outfitters in any given year. Each outfitter has an assigned outfitting area (AOA), except for game bird outfitters and bear and moose outfitters in the north (WMZs 70 to 72 and 74 to 76) have full WMZ's. Their licence includes a list of species for which they are endorsed to provide outfitting services. For big game AOAs, each area has an assigned allocation by species. Approximately 180 outfitters have white-tailed deer allocations, 300 have bear allocations, 230 have bird allocations (both migratory birds and upland birds) and 72 have moose allocations. At present, no new allocations are available and the only way to obtain an allocation is for an existing outfitter to surrender it and a new outfitter to then apply for it. This often occurs when outfitting businesses are sold.

Outfitting provides significant revenue for the province, with an estimated $40 million generated by outfitted hunting in Saskatchewan in 2006 (Derek Murray Consulting Agencies 2006). This includes payments to outfitters, tourism expenditures other than those paid to outfitters and licensing costs.

STATUS OF SPECIES IN SASKATCHEWAN

White-tailed Deer (*Odocoileus virginianus dakotensis*)

White-tailed deer are the official mammal of Saskatchewan and are a highly valued game species in the province. White-tailed deer are the most abundant cervid in Saskatchewan, ranging from the U.S. border to the southern extent of the Boreal Shield ecoregion. Saskatchewan is part of the northern-most extent of the white-tailed deer's North American range, where natural mortality is largely influenced by winter severity and predators.

Population Status

The status of white-tailed deer populations in the province is monitored using data collected from aerial surveys, annual spotlight surveys, hunter harvest surveys, trends in winter severity and cooperative wildlife management surveys. Field reports from landowners, stakeholder groups, the general public and ministry staff provide additional information regarding white-tailed deer population trends in Saskatchewan. In 2020, a spring deer (both white-tailed deer and mule deer) recruitment survey was piloted in select regions of Saskatchewan with the intent of evaluating trends in deer recruitment (i.e., the number of young entering the population into adulthood) over time. The results of these surveys will be reported in future years as successive years' data is compiled. White-tailed deer population abundance fluctuates considerably through time in Saskatchewan and varies geographically within the province (Table 5).

Survey Data

In 2019, a multi-species aerial survey was conducted in WMZ 37 that resulted in a population estimate of 16,281 ± 18.0% (1.41 deer / km^2) white-tailed deer in the zone. Aerial survey results collected since 2000 are presented in Table 5.

Table 5. White-tailed deer population and density data collected intermittently in select WMZs by aerial survey 2000-2019).

Survey Area	Year	Population Estimate	Density (km^2)
WMZ 2W	2018-2019	4,958 ± 26.9%	1.01
WMZ 9 & 10	2018-2019	3,299 ± 23.7%	0.45
WMZ 14E	2018-2019	1,966 ± 28.9%	0.61
WMZ 29	2007-2008	5,818 ± 17.5%	1.07
	2008-2009	5,317 ± 16.0%	0.99
WMZ 32	2000-2001	1,302 ± 17.3%	0.87
WMZ 34	2008-2009	1,929 ± 19.4%	1.84
WMZ 37	2019-2020	16,281 ± 18.0%	1.41
WMZ 45	2008-2009	3,743 ± 16.5%	0.81
WMZ 46	2000-2001	2,702 ± 14.7%	1.00
	2008-2009	5,179 ± 19.1%	1.84

WMZ 50 (Herd Reduction Area)	2006-2007	2,351 ± 8.9%	1.37
(Portion of) WMZ 50	2007-2008	407 ± 20.8%	0.33
WMZ 56	2003-2004	19,500 ± 20.8%	3.00
	2007-2008	8,716 ± 18.8%	1.47
WMZ 63, 64 and 65	2004-2005	949 ± 25.5%	0.11
	2007-2008	688 ± 29.6%	0.08
WMZ 67	2003-2004	17,813 ± 18.4%	2.85
	2007-2008	13,145 ± 17.9%	2.20

Trends in white-tailed deer populations have been monitored annually using ground based, nocturnal spotlight surveys in Saskatchewan since 2001. In 2020, a review of the spotlight survey methodology was conducted to evaluate the efficacy of the survey to estimate broad scale trends in white-tailed deer populations in Saskatchewan. Major findings from the review suggest: 1) The survey can reasonably detect broad scale population trends (e.g., > 25%), particularly when combined with other data sources (Messmer et al. 2020); 2) Survey error is reduced when data is pooled at broad spatial scales and over several years (e.g., looking at population trends from multiple survey routes within similar regions); 3) Sampling effort needed to be realigned within the province to better reflect regional population trends; and 4) Efforts should be made to reduce any potential for survey error (e.g., variability in light sources, observers, consistent routes). Based on these findings, the following changes were made to the spotlight survey program: 1) Significant changes in populations are only assumed to occur when population trends differ by greater than 25% when compared to a long term average; 2) Routes have been assigned into white-tailed deer management units with data pooled at the DMU scale and over a 2-year time frame to reduce survey error; 3) Three new survey routes were added in WMZs 26, 48 and 55 and three routes removed (WMZ 11, 14E, 25) to better reflect region-level population trends; and 4) The spotlight survey protocol was updated to limit potential sources of survey error. Recent trends in white-tailed deer populations are presented in Table 6 and described in detail below.

White-tailed deer populations are generally increasing across the province. Spotlight surveys from the Grassland region (e.g., WMZs 1-16, 18-29) of the province have indicated generally stable populations, while the Parkland (WMZs 34, 37 39, 54) and Boreal Fringe (e.g., WMZs 43, 47-55) regions have indicated increasing populations, with 2 out of 6 routes showing increasing trends in the Parkland and 3 out 4 routes (with comparative data) increasing in the Boreal Forest Fringe over the past two years when compared to the previous 5-year average.

Table 6. Spotlight survey population trends for white-tailed deer presented as the average deer per linear kilometer observed in 2019 and 2020 combined compared to the previous five-year average (2015-2019). Results deemed to be significantly different (e.g., > 25% difference) from the 5-year average are indicated in red, which are also summarized as either increasing, decreasing or stable compared to the five-year average *Denotes new route added in 2019 or 2020 with no comparative 5-year data.

Route (WMZ)	Deer Management Unit	5-Yr Deer/km	2019, 2020 Average Deer/km	Population Trend
WMZ 1	Grassland	0.31	0.39	Stable
WMZ 6	Grassland	0.79	0.98	Stable
WMZ 10	Grassland	0.34	0.36	Stable
WMZ 13	Grassland	NA	0.36	NA*
WMZ 21	Grassland	1.23	1.13	Stable
WMZ 23	Grassland	0.61	0.64	Stable
WMZ 26	Grassland	NA	NA	NA*
WMZ 29	Grassland	1.07	0.87	Stable
Grassland Summary		**0.73**	**0.68**	**Stable**
WMZ 32	Parkland	0.63	0.74	Stable
WMZ 34	Parkland	0.47	0.41	Stable
WMZ 37	Parkland	0.71	1.27	Increasing
WMZ 39	Parkland	0.39	0.63	Increasing
WMZ 42W	Parkland	0.41	0.42	Stable
WMZ 46	Parkland	0.36	0.28	Stable
Parkland Summary		**0.50**	**0.63**	**Increasing**
WMZ 47	Boreal Fringe	0.53	0.78	Increasing
WMZ 48	Boreal Fringe	NA	NA	NA*
WMZ 49	Boreal Fringe	0.81	1.04	Increasing
WMZ 50	Boreal Fringe	1.15	1.23	Stable
WMZ 54	Boreal Fringe	0.35	0.54	Increasing
WMZ 55	Boreal Fringe	NA	NA	NA*
Boreal Fringe Summary		0.71	0.9	**Increasing**

Biological Sample Collections

In 2020, hunters were encouraged to voluntarily submit the heads of harvested animals for CWD testing to estimate CWD prevalence and distribution in Saskatchewan. In 2020, 121 of 1,205 testable white-tailed deer heads tested positive for CWD (~10% CWD prevalence rate). For more information, please refer to the chronic wasting disease section.

General Overview

In the last twenty years, provincial white-tailed deer populations were estimated to be highest between 2004 and 2006 and have since declined due to winter mortality events associated with severe winter

conditions during the winters of 2005-06, 2010-11, 2012-13 and 2013-14. Severe winters are characterized by prolonged periods of frigid temperatures (less than -20C) and high snow depths (greater than 45 cm). This series of winter mortality events weakened reproductive age classes and the lasting effects are still somewhat evident in parts of the province (Figure 2). Since this time period, white-tailed deer populations have generally increased across all regions of the province and are considered within historic population averages.

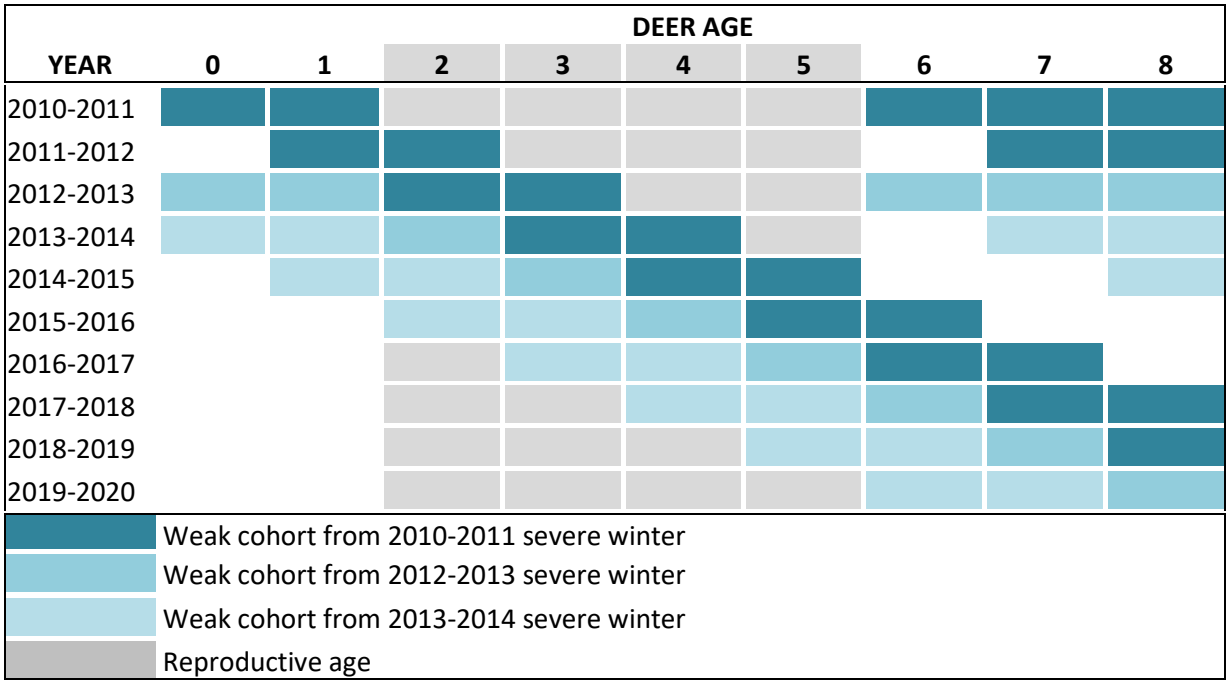

Figure 2. Schematic of the effect of severe winter conditions on deer cohorts through time.

Hunting Season Review

In 2020, white-tailed deer hunting opportunities for Saskatchewan residents included regular (i.e., over the counter) either-sex, regular antlerless in urban WMZs, and quota-limited antlerless white-tailed deer in WMZs 2E, 2W, 5, 6, 7E, 7W, 14W, 33, 34 and 55. Canadian residents were able to apply to hunt either-sex white-tailed deer through a quota-limited draw. Non-resident hunters were able to hunt either-sex white-tailed deer with a licensed outfitter. Each licence type had a bag limit of one deer. A summary of white-tailed deer harvest is presented in Table 7 below.

The COVID-19 pandemic is expected to have an influence on 2020 white-tailed deer hunting licence sales, with a general increase in licence sales purchased by Saskatchewan residents and a marked decrease in licences purchased by Canadian residents and guided licence types which were influenced by travel restrictions. In 2020, 41,540 Saskatchewan resident white-tailed deer regular licences were purchased, an increase from 38,721 purchased in 2019 and slightly above the 10-year average of 38,667. A total of 1,532 regular 1st antlerless licences were sold in 2020, a slight increase from 1,241 purchased in 2019. A total of 501 limited (2nd) antlerless white-tailed deer licences were purchased in 2020, an increase from 448 purchased in 2019. There were 813 draw Canadian resident white-tailed deer licences

purchased, slightly down from 928 licences purchased in 2019. A total of 311 non-resident (guided) deer licences were purchased in 2020, significantly down from the 10-year average of 2,331.

Trends in hunter harvest success rates and total harvest data gathered from the annual Saskatchewan Hunter Harvest Survey are used as an index to monitor trends in white-tailed deer populations and help inform management decisions. In 2020, the hunter harvest survey became mandatory in Saskatchewan. Though 2020 was considered a grace period, response rate for the resident, either-sex white-tailed deer licence was 49%, which was a 27% increase compared to the previous 5-years of reporting (e.g., 22% average response rate). A similar increase in response rate was observed for all white-tailed deer hunting licence types. The province-wide average hunter success rate for the resident, regular either-sex white-tailed deer licence was 63% in 2020, which was higher than the previous 5-year (2015-2019) average of 57%. Estimated total harvest of white-tailed deer in Saskatchewan was 26,595 white-tailed deer (all licence types), with bucks making up an estimated 83% of the total harvest. In 2020, Saskatchewan residents harvested an estimated total of 4,377 females and 541 fawn white-tailed deer between all three licence types where antlerless hunting was permitted. Canadian residents harvested a total of 525 white-tailed deer, with bucks making up 94% of the harvest in 2020. There was a considerable decline in the number of white-tailed deer harvested under the guided white-tailed deer licence in 2020, with 245 white-tailed deer harvested as compared to 1,409 deer harvested on average by non-resident (guided) hunters between 2015 – 2019.

Table 7. Estimated white-tailed deer harvested by Saskatchewan, Canadian resident and non-resident hunters in Saskatchewan for years when data was collected using online surveys (2014-2020).

Licence Type	Hunt Year	Harvest Success	Males	Females	Young	Total
Saskatchewan Resident 1st Either-Sex	2014	40%	10,103	2,632	554	13,290
	2015	52%	15,722	3,259	444	19,424
	2016	53%	17,253	3,695	520	21,468
	2017	59%	19,781	3,649	471	23,901
	2018	59%	20,011	2,975	364	23,350
	2019	62%	20,280	2403	215	22,899
	2020	63%	21,368	2783	326	24,477
Saskatchewan Resident 1st Antlerless	2018	49%	0	1,486	165	1,652
	2019	40%	0	1,060	83	1,143
	2020	50%	0	1,332	181	1,513
Saskatchewan Resident 2nd (Limited) Antlerless	2018	76%	0	101	10	111
	2019	74%	0	225	34	259
	2020	74%	0	262	34	296
Canadian Resident	2016	45%	483	49	2	534
	2017	48%	608	47	4	659
	2018	51%	593	52	0	645

	2019	60%	597	30	2	629
	2020	75%	494	24	7	525
Guided	2014		---	---	---	---
	2015		1,389	1	0	1,399
	2016		1,399	3	0	1,445
	2017		---	---	---	---
	2018		1,138	0	0	1,138
	2019		1,654	1	1	1,656
	2020	86%	244	1	0	245

Research Initiatives

A study monitoring white-tailed habitat use and movement was initiated in WMZ 50 and WMZ 63 (along the provincial forest boundary north of Love, SK) to evaluate the potential risk of chronic wasting disease movement from white-tailed into boreal caribou. A total of 39 white-tailed deer (*n* = 14 bucks, 25 does), were captured and fitted with GPS collars as part of the study with the intent of following their movements for a one-year period (e.g., track until January 2022). A summary of key findings from the research will be reported during the next SWMR update.

Management Objectives and Strategies

Long-term Management Objectives

- Improve our understanding of the population status of white-tailed deer in each deer management unit using advanced population analysis and data from annual spotlight surveys, hunter harvest success and fall recruitment estimates from the CWMS.
- Enhance our understanding of white-tailed deer winter habitat across the province and support initiatives that improve the availability and connectivity of this habitat in deer management units.

Short-term Management Strategies

- Quantify annual winter severity in all deer management units using mean weekly snow depth and temperature data.
- Monitor population trend, structure and status in each deer management unit to inform management recommendations.
- Finalize a long-term Management Plan for White-tailed Deer in Saskatchewan.

Additional Information

Most recent provincial species plan: Currently under development.

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Mule Deer (*Odecoileus hemionus*)

Mule deer range from the U.S. border to the northern boreal forest fringe in Saskatchewan, with core mule deer range found in the southwest region of Saskatchewan. Mule deer are generally browsers, meaning they forage primarily on shrubs (i.e., sage, willow), trees (i.e., Aspen) and forbs (i.e., fireweed), though they will also graze on grasses at certain times of the year. Agricultural crops can also make up a large part of mule deer diet. Saskatchewan represents part of the northern-most extent of mule deer range in North America, where population change is largely influenced by winter severity and predation. Chronic wasting disease has become an increasingly important factor affecting mule deer survival in Saskatchewan.

Population Status

Mule deer populations are monitored in Saskatchewan using aerial surveys, annual spotlight surveys, hunter harvest surveys, volunteer cooperative-wildlife management surveys and trends in winter severity. Field reports from landowners, stakeholder groups, the general public and ministry staff provide additional information. In 2020, a spring deer (both white-tailed deer and mule deer) recruitment survey was piloted in select regions of Saskatchewan with the intent of evaluating trends in deer recruitment (i.e., the number of young entering the population into adulthood) over time. The results of these surveys will be reported in future years as successive years' data is compiled.

Mule deer density varies considerably in Saskatchewan, ranging from 0.05 deer / km² in the north eastern part of their range to more than 2.0 deer / km² in the southwest portion of the province (Table 8). Mule deer populations are primarily influenced by severe winter weather, with disease, predation and hunting being other important sources of mortality. Following a series of severe winters from 2011 to 2013, mule deer populations have generally been increasing across Saskatchewan in recent years, with particularly strong population growth occurring at the fringes of their range.

Survey Data

Multi-species aerial surveys were conducted in WMZ 37 in 2019, that indicated an estimated 541 (+/- 41.51 %) mule deer in the wildlife management zone. Aerial mule deer survey results collected since 2000 are presented in Table 8.

Table 8. Mule deer population and density data collected by aerial survey (2000-2019).

Survey Area	Year	Population Estimate	Density (km^2)
WMZ 2	2007-2008	13,343 ± 20.0%	1.49
WMZ 2W	2018-2019	7,673 ± 17.26%	1.56
WMZ 9	2007-2008	3,864 ± 17.7%	1.07
	2018-2019	4,434 ± 27.5%	1.24
WMZ 10	2006-2007	10,170 ± 19.0%	2.72
	2008-2009	7,952 ± 18.3%	2.08
	2018-2019	8,173 ± 22.2%	2.14
(portion of) WMZ 14W	2006-2007	3,984 ± 17.4%	1.02
(portion of) WMZ 14E	2006-2007	4,662 ± 19.9%	0.67
WMZ 14E	2018-2019	3,068 ± 21.9%	0.95
WMZ 29	2007-2008	7,171 ± 17.9%	1.32
	2008-2009	4,035 ± 13.5%	0.75
WMZ 37	2019-2020	541 ± 45.51 %	0.05
WMZ 45	2008-2009	3,347 ± 20.4%	0.72
WMZ 46	2000-2001	2,930 ± 19.1%	1.09
	2008-2009	4,697 ± 19.0%	1.67

Trends in mule deer populations have been monitored annually using ground based, nocturnal spotlight surveys in Saskatchewan since 2001. In 2020, a review of the spotlight survey methodology was conducted to evaluate the efficacy of the survey to estimate broad scale trends in mule deer populations in Saskatchewan, with a summary of findings presented in the white-tailed deer section of this report. Recent trends in mule deer populations are presented in Table 9 and described in detail below.

Mule deer populations were found to be generally increasing or stable over the past several years as compared to the previous 5-year average (2013-2017) across much of the province. In core mule deer range, in the Grassland region of the province (e.g., WMZs 1-16, 18-29), population trends have varied. According to data from spotlight survey routes, some routes have shown significant growth, some have declined and some remained stable over the past two years when compared to the 5-year average. Population growth was found particularly in Parkland regions of the province with four of the seven (WMZs 34, 37 39, 54) Parkland spotlight routes finding significantly more mule deer than the previous 5-year average. Mule deer populations also significantly increased in one of the three survey routes where mule deer have been observed in the Boreal Forest Fringe region (e.g., WMZs 43, 47-55) over the past two years when compared to the 5-year average.

Table 9. Spotlight survey population trends for mule deer presented as the average deer per linear kilometer observed in 2019 and 2020 compared to the previous five-year average (2015-2019) for each spotlight deer survey route where mule deer were observed. Results deemed to be significantly different (e.g., > 25% difference; see above for details) from the 5-year average are indicated in red, which are also summarized as either increasing, decreasing or stable compared to the 5-year average. *Denotes new route added in 2019 or 2020 with no comparative 5-year data.

Route (WMZ)	Deer Management Unit	5-Yr Deer/km	2019, 2020 Average Deer/km	2019-2020 Population Trend
WMZ 1	Grassland	0.41	0.62	Increasing
WMZ 6	Grassland	0.30	0.45	Increasing
WMZ 10	Grassland	0.73	0.47	Decreasing
WMZ 13	Grassland	0.06	0.12	Increasing
WMZ 21	Grassland	0.15	0.12	Stable
WMZ 26	Grassland	NA	0.23	NA*
WMZ 29	Grassland	1.15	1.01	Stable
Grassland Summary		**0.47**	**0.47**	**Stable**
WMZ 32	Parkland	0.03	0.00	Stable
WMZ 34	Parkland	0.04	0.07	Increasing
WMZ 37	Parkland	0.02	0.02	Stable
WMZ 39	Parkland	0.02	0.04	Increasing
WMZ 42W	Parkland	0.05	0.05	Stable
WMZ 46	Parkland	0.51	0.25	Decreasing
Parkland Summary		**0.11**	**0.07**	**Stable**
WMZ 47	Boreal Fringe	0.04	0.06	Stable
WMZ 48	Boreal Fringe	NA	.09	NA*
WMZ 54	Boreal Fringe	0.13	0.28	Increasing
Boreal Forest Fringe		**0.09**	**0.34**	**Increasing**

Biological Sample Collections

In 2020, hunters were encouraged to submit the heads of harvested animals for CWD testing to improve our understanding of CWD prevalence and distribution in Saskatchewan. A total of 1,049 hunter harvested mule deer were tested for chronic wasting disease in 2020 resulting in a 32% CWD prevalence rate (335 positive / 714 negative samples) province wide, which is comparable to hunter surveillance results reported for mule deer in 2019 (33% prevalence rate, *n* = 414 / 1249 testable samples). For more information, please refer to the chronic wasting disease section.

General Overview

In 2020, mule deer populations were considered to be doing well throughout Saskatchewan, though there are some differences in mule deer population trends between different regions of the province. In core mule deer range within the Grassland region of the province (e.g., WMZ 1-16, 18-29) populations were considered stable, though survey and field report data suggest some populations are increasing (e.g., Cypress Hills region) and other populations are decreasing (e.g., Great Sandhills). High prevalence

of chronic wasting disease in this region is a major mortality concern and possibly contributing to population decline in some parts of the Grassland region. In the Parkland (e.g., WMZs 17, 30–42, 44–46) region of the province mule deer populations were considered stable or increasing (particularly in the Eastern portion of the province), though there is some variability in population trends in the Parkland as well (e.g., WMZ 46). Mule deer are generally considered to be increasing across the Boreal Forest Fringe region (e.g., WMZs 43, 47–55) over the past 5-10 years, likely due to a lack of severe weather conditions since 2013.

Hunting Season Review

Saskatchewan resident hunters have an option to apply for an antlerless licence (with a bag limit of one or two animals, depending on the WMZ) and/or an either-sex licence in the big game draw. Archery-only regular either-sex mule deer licences are also available for Saskatchewan residents in certain WMZs. Canadian resident and non-resident hunters do not have the opportunity to hunt mule deer in Saskatchewan.

Trends in hunter harvest success rates and total harvest data gathered from the annual hunter harvest survey are used as an index to monitor trends in mule deer populations and help inform management decisions (Table 10). In 2020, the hunter harvest survey became mandatory in Saskatchewan. Though 2020 was considered a grace period, the response rate for the resident, draw either-sex mule deer licence was 63%, which was a 32% increase compared to the previous 5-years of hunter harvest reporting (e.g., 31% average response rate from 2015-2019). A similar increase was observed for all mule deer hunting licence types. The province-wide average hunter success rate for the resident, draw either-sex mule deer licence was 66% in 2020, which was lower than the previous 5-year (2015-2019) average of 79%. The marked change in hunter harvest success rate is expected to primarily be due to greater accuracy in harvest reporting associated with mandatory survey reporting. This considerable change in harvest success was observed for other hunting licence types with previously low harvest reporting sample size. Estimated total harvest of mule deer for all hunting licence types was 11,015 mule deer, with bucks making up an estimated 46% of the total harvest. In 2020, Saskatchewan residents harvested an estimated total of 5,072 females and 853 fawn mule deer (total of all licence types combined). This was the highest proportion of antlerless mule deer within total harvests observed in North America (WAFWA, unpublished document, 2020). Regular archery mule deer hunters harvested a total of 1,097 mule deer, with 919 bucks, 166 does and 11 fawns harvested in 2020.

Table 10. Mule deer harvested by resident hunters in Saskatchewan (2014-2020). Data not available is indicated by "---".

Licence Type	Hunt Year	Estimated Harvest				
		Harvest Success	Bucks	Does	Fawns	Total
Draw Either-Sex	2014	71%	1,806	136	43	1,985
	2015	79%	2,277	187	25	2,489
	2016	79%	2,515	168	13	2,696
	2017	81%	2,862	199	35	3,095
	2018	77%	4,114	298	30	4,442
	2019	79%	4,559	263	38	4,860
	2020	66%	4,170	311	23	4,504
Draw Antlerless Mule Deer	2017	---	0	2352	323	2675
	2018	---	0	2,610	417	3026
	2019	---	0	3,301	537	3,837
	2020	---	0	4,017	709	4,726
Archery Mule Deer	2014	11%	288	48	12	348
	2015	14%	421	58	7	486
	2016	14%	395	97	0	492
	2017	15%	440	62	0	511
	2018	15%	499	111	10	620
	2019	14%	465	79	4	548
	2020	22%	919	166	11	1097
Youth Antlerless Mule Deer	2020	---	0	577	110	687

Research Initiatives

No research initiatives were conducted during this time period.

Management Objectives and Strategies

Long-term Management Objectives

- Adjust harvest pressure using indicators, such as population structure or hunter harvest success, that align with management thresholds.
- Improve our understanding of the distribution and prevalence of diseases affecting mule deer, particularly chronic wasting disease.
- Enhance our understanding of existing important mule deer winter habitat across the province and support initiatives that improve the availability and connectivity of this habitat deemed capable of supporting viable populations.
- Monitor human-mule deer interactions and enhance our understanding of stakeholder perceptions, values and tolerances of mule deer.
- Continue development of a long-term Management Plan for Mule Deer in Saskatchewan.

Short-term Management Strategies

- Engage Indigenous groups and people, Compliance and Field Services, stakeholders and the general public while developing a long-term mule deer management plan.
- Quantify annual winter severity in all MDMUs across the province using mean weekly snow depth and temperature data.
- Monitor population trend, structure and status in each deer management unit to inform management recommendations.

Additional Information

Most recent provincial species plan: Currently under development.

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Elk (*Cervus elaphus*)

Elk are one of Saskatchewan's largest ungulates. Found throughout the province, elk are known to prefer fringe landscapes that contain a mix of sufficient forest cover and open grassland or cropland. Elk are abundant throughout Saskatchewan's forest fringe with semi-isolated populations of elk also found throughout Parkland and Prairie regions of the province.

Population Status

Elk populations in the province are monitored using a variety of data sources that reflect elk population abundance, including aerial survey data, annual hunter harvest survey results, co-operative wildlife management survey observations, Saskatchewan Crop Insurance Corporation (SCIC) reports, as well as field reports from the public and ministry staff.

Similar to other large ungulates, elk populations are primarily governed by hunting mortality, predation, disease and severe weather events (e.g., significant winter precipitation). As a result, elk populations may fluctuate annually and across different regions of the province. To reflect regional differences in elk populations throughout Saskatchewan, four elk management units (EMUs) have been established to guide monitoring and management: Prairie, Parkland, Island Forest and Boreal (Figure 3).

Survey Data

Aerial elk surveys in Saskatchewan have typically focused on surveying semi-isolated populations of elk where complete coverage of an area (i.e., population census) can be achieved. Elk have also been opportunistically counted while conducting other species-specific aerial surveys where a minimum population count is obtained. The most recent aerial survey, conducted in 2019, was a multi-species aerial survey in WMZ 37 that resulted in an estimated 393 elk. Aerial elk survey results collected since 2000 are presented in Table 11.

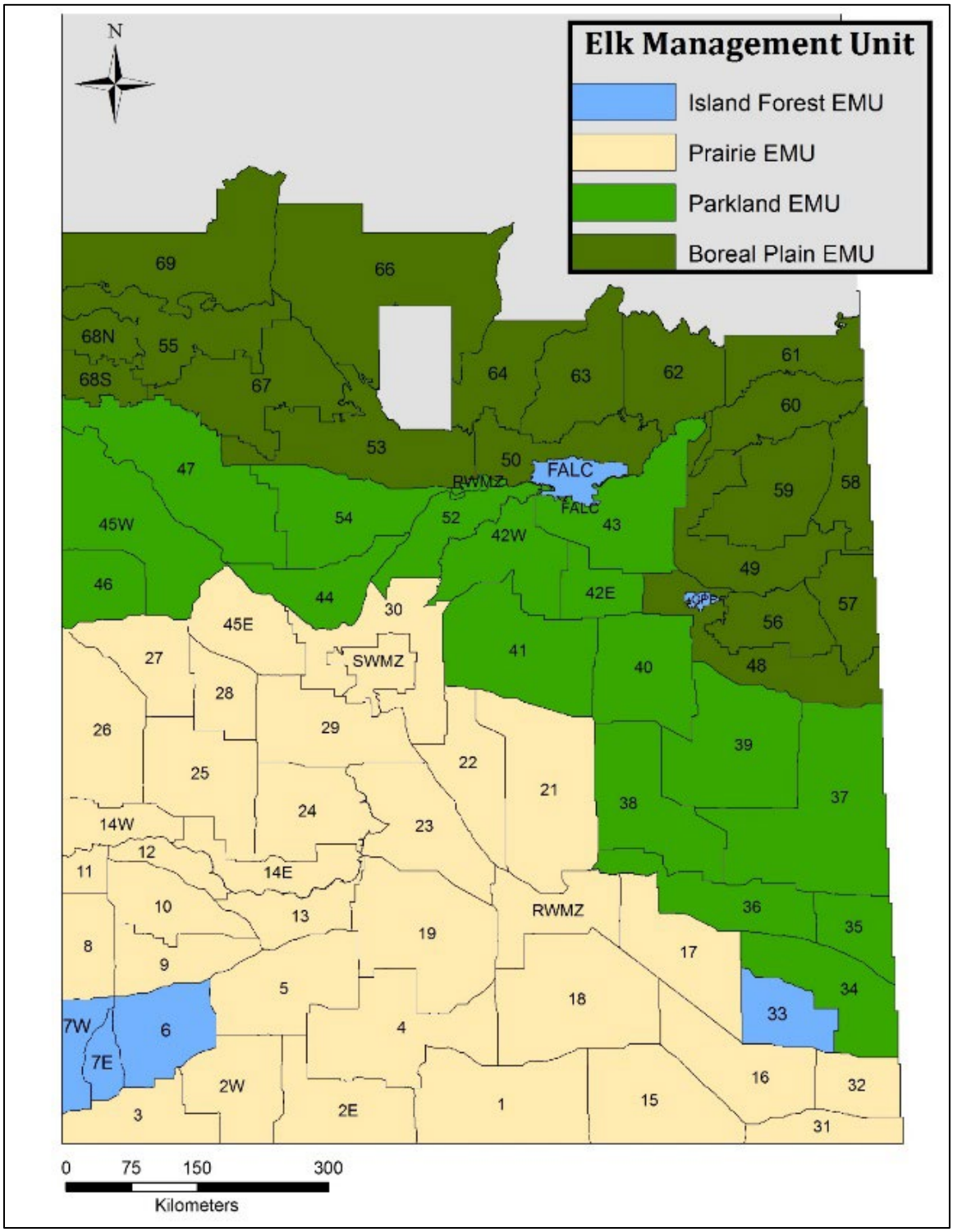

Figure 3. Saskatchewan Elk Management Units. Wildlife Management Zones are included for reference.

Table 11. Elk population estimates collected on aerial surveys (2000-2019). Data with asterisks (*) signify minimum population counts of elk collected opportunistically on other species aerial surveys.

Survey Area	Year	Population Estimate
Prairie		
Wood Mountain (WMZ 1)	2007/08	125
WMZ 2W	2018/19	124*
Cypress Hills Centre/East (WMZ 6/7E)	2006/07 2012/13 2018/19	624 320 298
WMZ 9/10	2018/19	80*
Matador (WMZ 14E)	2005/06	359*
Allan Hills (WMZ 22/30)	2000/01	80*
Parkland		
Dana Hills (WMZ 41)	2015/16	330
Thickwood Hills (WMZ 54)	2000/01	172*
Parkside (WMZ 54)	2015/16	139
WMZ 37	2019/20	393*
Island Forest		
Cypress West Block (Alberta and Saskatchewan)	2003/04 2016/17	741 400
Moose Mountain (WMZ 33)	2008/09 2012/13 2016/17	1285 1212 1135
Fort a la Corne WMU	2005/06	620
Boreal Plain		
Bronson-Divide (East of Hwy. 21 - WMZ 68 S)	2016/17	176

Hunter harvest success is used as an indicator of elk population abundance when observed over time (e.g., hunter harvest success is expected to decline with a declining elk population). Elk hunter harvest data has been collected annually through a voluntary hunter harvest survey available to all Saskatchewan resident elk hunters from 2014 to 2019. The hunter harvest survey became mandatory in the 2020 hunting season. In 2020, the provincial average regular elk hunter response rate was 54% and harvest success rate was estimated at 23%. The provincial average draw either-sex elk hunter response rate was 67% and harvest success rate was 67%. The provincial average draw antlerless elk hunter response rate was 60% and harvest success rate was 43%. The average response and harvest success rate over the past five years have been summarized according to EMU in Table 12 below.

Table 12. The annual (2016-2020) average response and harvest success rate summarized according to either-sex/bulls-only and antlerless licence types by Elk Management Unit.

Elk Management Unit	Either-sex/bulls only		Antlerless only	
	Response Rate	Success Rate	Response Rate	Success Rate
Prairie				
2016	43%	90%	31%	23%
2017	43%	86%	33%	42%
2018	29%	80%	34%	40%
2019	37%	67%	66%	39%
2020	64%	67%	66%	39%
Parkland				
2016	32%	78%	26%	41%
2017	35%	67%	33%	42%
2018	29%	80%	34%	40%
2019	28%	54%	25%	39%
2020	57%	72%	69%	43%
Island Forest				
2016	34%	63%	44%	23%
2017	43%	43%	42%	11%
2018	36%	59%	31%	25%
2019	36%	37%	16%	18%
2020	67%	52%	52%	40%
Boreal				
2016	23%	31%	25%	37%
2017	28%	28%	32%	45%
2018	24%	32%	24%	47%
2019	22%	38%	22%	40%
2020	67%	84%	62%	55%

In 2020, there were 263 observations of elk recorded on the CWMS throughout 22 WMZs in the province, totaling 567 elk (78 bulls: 285 cows: 64 calves: 140 unidentified elk). The annual observations of elk recorded with the CWMS mobile application has been summarized Table 13 below.

Biological Sample Collections

In 2020, heads from harvested elk were eligible for voluntary CWD testing. A total of 202 elk heads were submitted for CWD testing, with five testing positive for CWD. For more information on the CWD harvest sampling program please refer to the chronic wasting disease section.

General Overview

In 2020, elk populations province-wide were generally expected to have experienced favorable conditions, although elk population trends and limiting factors vary throughout the province. Elk populations along the boreal forest fringe generally remained stable following consecutive mild winters. Management in core elk range will continue to focus on maintaining stable populations of elk. Elk

populations have increased and, in some cases, expanded throughout Parkland and EMUs over the past several years. Factors contributing to the apparent population increase and expansion are likely due to a combination of mild winters, excess forage, low levels of predation and the mobile and gregarious nature of elk. Liberal management strategies in some areas of the Prairie and Parkland have been implemented to limit elk population growth. In Moose Mountain Provincial Park, elk populations remain above target objectives and a liberal harvest management strategy will continue.

Table 13. Annual elk observations recorded with the Co-operative Wildlife Management Survey mobile application summarized by age and sex according to Elk Management Unit. Observations with unidentified age and/or sex is denoted under "UID".

Elk Management Unit	Bulls	Cows	Calves	UID
Prairie				
2017	178	209	111	40
2018	51	42	19	27
2019	67	85	42	82
2020	30	9	2	0
Parkland				
2017	41	90	55	287
2018	18	35	18	145
2019	29	71	36	99
2020	14	146	36	134
Island Forest				
2017	0	0	0	0
2018	4	6	0	30
2019	20	53	23	81
2020	3	11	5	0
Boreal Plain				
2017	48	93	61	145
2018	9	49	16	53
2019	1	3	0	0
2020	31	119	21	6

Hunting Season Review

Saskatchewan residents have several options for elk hunting in the province. Elk are included in the big game draw and applicants apply for an either-sex or antlerless licence depending on the zone. In 2020, over-the-counter elk licences could be obtained for one either-sex animal or one bull, depending on the zone of interest. Canadian resident and non-resident hunters do not have the opportunity to hunt elk in Saskatchewan.

In 2020, 4,434 draw elk licences were sold, which is above the previous 5-year (2015-2019) average of 3,101 (Appendix A). The number of regular elk licences sold in 2020 was 6,230, which is above the previous 5-year average of 6,169.

The total number of elk harvested during provincial elk seasons in 2020 was 2,352, of which 1,355 elk were estimated harvested during the draw and 997 were estimated to be harvested during the regular elk season (Table 14 below). The total estimated number of bulls killed was 1,180 (506 in draw; 674 in regular), in comparison to 976 cows (721 draw; 255 regular) and 196 calves (128 draw; 68 regular).

Table 14. Estimated elk harvested by resident hunters in Saskatchewan (2011–2020).

Year	Season	Bulls	Cows	Calves	Total
2011*	Draw	259	848	183	1,292
2012*	Draw	357	671	115	1,144
2013	Draw	392	677	153	1,222
	Regular	1,015	714	239	1,968
	Combined	**1,407**	**1,391**	**392**	**3,190**
2014	Draw	371	573	121	1,065
	Regular	1,125	736	242	2,103
	Combined	**1,496**	**1,309**	**363**	**3,168**
2015	Draw	455	420	110	985
	Regular	974	504	193	1,671
	Combined	**1,429**	**924**	**303**	**2,656**
2016	Draw	493	673	139	1,305
	Regular	1,107	556	155	1,818
	Combined	**1,600**	**1,229**	**294**	**3,123**
2017	Draw	513	876	177	1,566
	Regular	1,046	519	138	1,703
	Combined	**1,559**	**1,395**	**315**	**3,271**
2018	Draw	563	762	154	1,479
	Regular	1,181	601	202	1,983
	Combined	**1,744**	**1,336**	**356**	**3,462**
2019	Draw	618	916	148	1,682
	Regular	1,064	410	118	1,592
	Combined	**1,682**	**1,326**	**266**	**3,274**
2020	Draw	506	721	128	1,355
	Regular	674	255	68	997
	Combined	**1,180**	**976**	**196**	**2,352**

*Only draw licence harvest information collected.

Research Initiatives

No research initiatives were conducted during this time period.

Management Objectives and Strategies

Long-term Management Objectives

- Complete the actions outlined in the Management Plan for Elk in Saskatchewan that is currently under development.

- Identify cost-effective and reliable alternative methodologies to supplement elk population monitoring across Saskatchewan.

Short-term Management Strategies

- Maintain stable elk populations within social and ecological carrying capacity throughout the province.
- Support development of a predictive elk habitat suitability index model.

Additional Information

Most recent provincial species plan: currently under development.

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Moose (*Alces alces*)

Moose are the largest member of the deer family which historically inhabited all areas of the province except the mixed grassland ecoregion. Since settlement of the prairies, they have been mostly restricted to boreal regions of the province dominated by spruce, aspen and pine trees but recently, moose have expanded to agricultural landscapes of the province. Cover and browse availability were thought to be the limiting factors to moose distribution from the forest and forest fringe zones. Additionally, it was believed that temperature (particularly heat in the absence of cover) in the south would limit their expansion into more southern regions. The combination of optimal foraging conditions, lack of predators, favourable climatic conditions, decline in the rural population of Saskatchewan, have likely contributed to re-colonization of moose in the forest fringe, parkland and grassland of the province. Moose are a high value species to both sustenance hunters and licensed hunters in Saskatchewan. Moose are an important component of the diet of Indigenous People especially in the forested areas of the province. Sustenance harvest is of significant biological and socioeconomic importance when considering moose management in the province.

Population Status

Moose populations are monitored annually using information gathered from aerial population surveys, the hunter harvest survey, the co-operative wildlife management survey, relevant research conducted by external organizations and field reports from the general public, landowners and ministry staff. Information from science-based research is also considered.

Survey Data

There were no aerial surveys flown in 2020/21 due to COVID-19 restrictions. In 2019, there was a multi-species aerial survey carried out in WMZ 37, that resulted in an estimated 2,119 (+/- 15.09%) moose with a density of 0.18/km^2 in the WMZ (Table 15). A total of 367 moose (164 bulls, 133 cows, 90 calves) were observed in 2020 through the CWMS program which is down from 509 observed in 2019.

Biological Sample Collections

In 2020, heads from harvested moose were eligible for voluntary CWD testing. A total 159 moose were tested for CWD and five moose were positive (4% positive; 4 males, 1 female) in WMZs 12, 14W, 26, 45E, and 47. For more information on the CWD harvest sampling program please refer to the chronic wasting disease section.

Table 15. Moose population, density and herd structure data collected on aerial surveys (2006-2019). Data not available is indicated by "---".

Survey Area	Year	Population Estimate	Density (km^2)	Herd Structure (Bull:Cow:Calf)
WMZ 37	2019-2020	2,119 ± 15.09%	0.18	---
WMZ 56	2006-2007	3,380 ± 19.8%	1.09	52:100:51
	2009-2010	2,490 ± 18.6%	0.82	21:100:53
	2014-2015	2,064 ± 20.1%	0.68	28:100:41
WMZ 57	2006-2007	1,898 ± 19.7%	0.76	34:100:43
	2009-2010	1,529 ± 15.7%	0.56	37:100:42
	2011-2012	1,257 ±18.9%	0.46	47:100:35
	2014-2015	----	---	43:100:40
WMZ 59	2006-2007	2,181 ± 18.8%	0.45	41:100:28
	2009-2010	1,985 ± 20.9%	0.42	42:100:35
WMZ 67	2006-2007	2,021 ± 18.9%	0.32	42:100:55
	2009-2010	1,860 ± 18.4%	0.31	43:100:36
	2017-2018	1,340 ± 19.4%	0.22	59:100:59
FALC	2005-2006	488 ± 0%	0.22	---
MMPP	2008-2009	---	0.50	---
	2012-2013	1,202 ± 0%	0.70	56:100:57

General Overview

Moose populations in the forest continue to decline. The ministry is taking steps to better understand forest moose populations with a moose survey planned for WMZs 56 and 57, which will help inform population trends. Moose populations in the boreal forest transition zone appear to be stable. There are some localized areas in the parkland and grassland where moose numbers have declined.

A provincial moose management plan is under development. The goal of the plan is to sustainably manage moose and their habitats in Saskatchewan. Management of moose within the broader zones will help address regional concerns and maintain sustainable hunting seasons over broader areas.

Hunting Season Review

Moose continue to be an important big game species in Saskatchewan. Residents apply for an opportunity for either-sex or antlerless licences through the big game draw. All hunters can purchase regular "bull only" moose licences, while Canadian and non-resident hunters must purchase a guided moose licence and hunt with an outfitter. In 2020, regular licence sales were up from 5,064 in 2019 to 6,448 (Table 16) and draw licence were 4,736 in 2019 and down to 4,506 in 2020 (Table 17).

In 2018, in response to ongoing population decline in the southern forest zones, the ministry adjusted the regular licence overall season length (from 44 days to 19 days) to reduce harvest and protect moose. Maintaining both an early and late five-day season provides sufficient opportunity for hunters to

experience a forested moose hunt. In northern zones (WMZs 74-76) an either-sex season has been changed to bulls-only to address public concerns of harvesting cow and calf moose and have consistent, regular bull seasons 70-76.

Table 16. Moose regular season harvest (2015-2020).

Year	WMZ	Regular Licences Sold	Hunter Harvest Survey Response Rate	Hunter Harvest Success	Estimated Total Harvest (Bulls)
2015	All zones	7754	21%	15%	1120
2016	All zones	7221	23%	14%	954
2017	All zones	6594	26%	14%	882
2018	All zones	4968	23%	17%	783
2019	All zones	5064	28%	19%	1067
2020	All zones	6448	54%	16%	1199

Table 17. Moose draw season harvest (2016-2020).

Year	WMZ	Quota	Licences Sold	Response Rate	Harvest Success	Estimated Total Harvest	Male Harvest	Female Harvest	Young of the Year Harvest
2016	All zones	5890	5572	33%	78%	4279	1943	1762	574
2017	All zones	5575	5319	36%	78%	4079	1886	1747	451
2018	All zones	5150	4842	34%	78%	3742	1899	1427	417
2019	All zones	5060	4731	33%	84%	3798	1971	1458	369
2020	All zones	4745	4506	63%	79%	3659	1908	1376	375

Research Initiatives

The significance of these moose population declines in the forest has prompted the Ministry to initiate a large-scale moose mortality research project in partnership with the University of Saskatchewan. This moose research project is planned to begin field operations in Winter 2022 for the east-central part of the province where cow moose will be radio-collared. This will enable wildlife managers to determine cause-specific mortality of cow moose and help inform management direction. At present, the factors contributing to moose decline are not fully understood and while hunting has an impact it is likely that multiple factors are contributing to the decline. A number of causes, including predation, hunting, health, habitat change or loss, brainworm and winter ticks, have been shown to contribute to moose population declines elsewhere in North America where other jurisdictions are observing similar rates of decline in the last decade. Jurisdictions have found it challenging to halt moose declines using limited management actions. For example, Manitoba has implemented moose conservation closures that have limited all hunting and enabled other management actions like access management.

Management Objectives and Strategies

Long-term Management Objectives

- Maintain the winter calf: cow ratio >40 calves/100 cows in forest habitat.
- Ensure moose are not adversely affected by land use activities occurring in primary moose habitat.
- Provide hunting opportunities that Saskatchewan licensed hunters will take advantage of on an annual basis.
- Manage moose population numbers in non-forest WMZs that recognize concerns of residents.
- Increase communication of moose biology, ecology and management to the Saskatchewan public.

Short-term Management Strategies

- Continue aerial surveys (population density and herd structure) for moose on a four-year cycle.
- Focus on access control when addressing forest harvesting plans.
- Evaluate harvest strategies to ensure both conservation and sustainable harvest levels are met.
- Continue with seasons to assist with stabilizing moose populations in non-forest WMZs.

Additional Information

Most recent provincial species plan:

Arsenault, A. 2000. Status and management of moose (*Alces alces*) in Saskatchewan. Saskatchewan Environment and Resource Management. Fish and Wildlife Technical Report 2000-01. 84pp.

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Pronghorn (*Antilocapra americana*)

Pronghorn, formerly known as antelope, are neither a deer, nor an antelope, but belong to their own separate family, Antilocapridae. This designation is a result of their unique horns, whose keratin sheath is shed annually and makes pronghorn the only species worldwide to do so. Pronghorn primarily inhabit the southwestern portion of the province. Generally, found in semi-arid prairies, pronghorn prefer ecosystems with a mixture of grasses, forbs and shrubs to provide both forage and bedding cover but will also capitalize on certain agricultural crops (e.g. pulse crops or tame hay) at various times of the year. Given pronghorns' reliance on their excellent eyesight to avoid predators, habitat with low-growing vegetation is optimal for this species. Saskatchewan is the northern extent of the pronghorn range and, as such, pronghorn are susceptible to the extreme environmental conditions at this latitude.

Population Status

Pronghorn populations are monitored annually using information gathered from the pronghorn herd structure survey, hunter harvest survey, Saskatchewan Crop Insurance Corporation (SCIC) data and field reports from the general public, landowners and ministry staff.

Survey Data

No ground-based surveys were conducted in 2020 due to COVID-19. Population estimates from the previous 5-10 years of ground-based surveys indicate pronghorn populations have been increasing across all Pronghorn Management Units (PMU) (Figure 4) since the consecutive hard winters in 2011-2014. Field reports indicated this trend continued into 2020 with increasing populations in the core of their range and stable populations in the fringe.

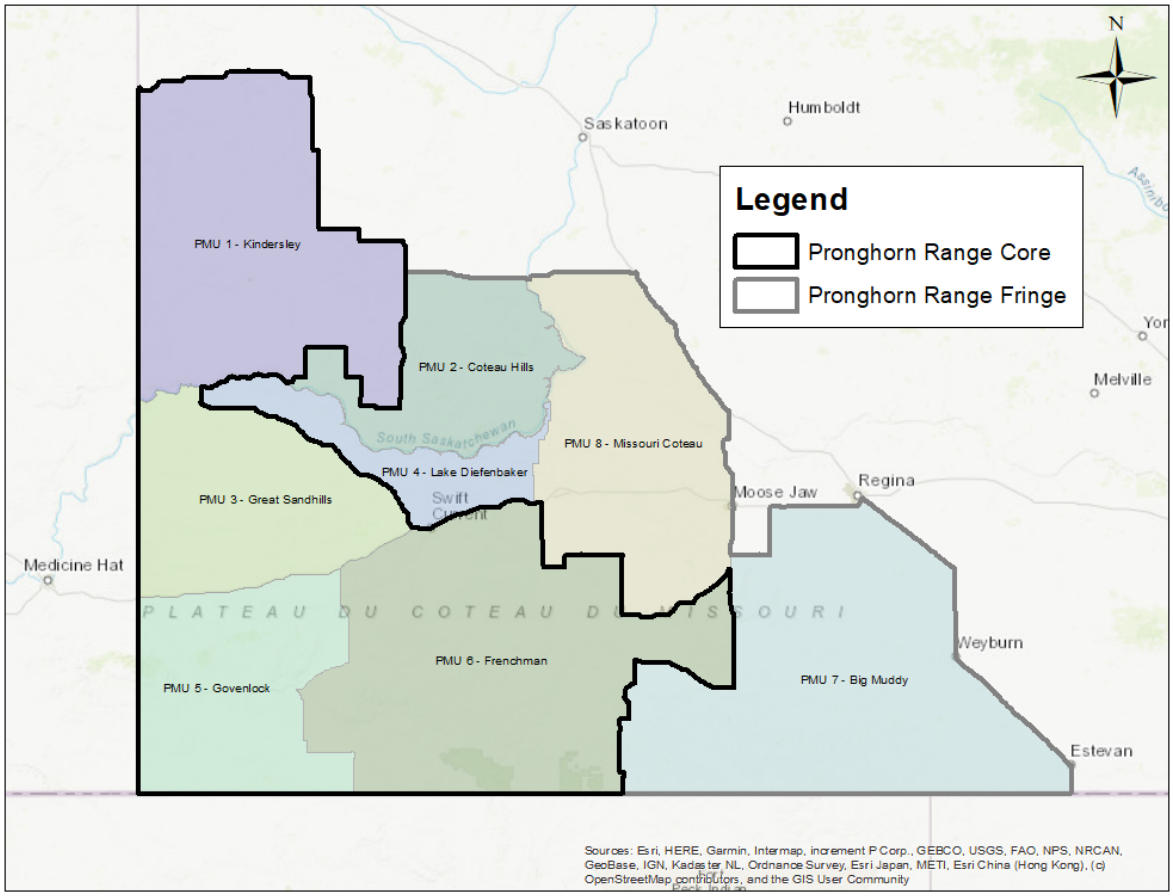

Figure 4. Pronghorn Management Units (PMUs) for Saskatchewan.

Biological Sample Collections

No biological samples were collected in 2020.

General Overview

No ground-based surveys were conducted in 2020 on which population trends could be estimated due to COVID-19 restrictions. However, the previous survey results (Table 18) and field reports indicate populations were increasing in the core of pronghorn range and stable along its fringe.

Table 18. Pronghorn herd structure survey results from 2019.

PMU	WMZs	Bucks	Does	Fawns	n
1	14W, 25-27	39	64	32	135
2	14E, 24	8	19	12	39
3	8-11	105	214	106	425
4	12-13	26	50	18	94
5	3, 6, 7	48	138	97	283
6	2, 4, 5	54	125	88	267
7	1, 15, 18	16	37	11	64
8	19, 23	7	23	15	45
Total		303	670	379	1,352

Hunting Season Review

Pronghorn hunting opportunities are restricted to Saskatchewan residents only. Pronghorn licences are awarded through the draw and successful applicants receive one either-sex tag. Opportunities have been limited in recent years due to low population numbers.

Draw licences numbers remained the same in 2020, with a total of 625 either-sex tags being offered through the big game draw. Hunter participation for 2020 was similar to that of previous years, with 86 per cent of either-sex and 78 per cent of doe licences offered being purchased. Pronghorn harvest on the either-sex licences remains gender-biased, with nearly 100 per cent of the harvest being bucks (Table 19) and harvest success remaining high.

Table 19. Pronghorn harvest (2010-2020). Data not available is indicated by "---".

Year	Bucks	Does	Fawns	Unknown	Total
2010	---	---	---	---	---
2011			CLOSED		
2012			CLOSED		
2013			CLOSED		
2014			CLOSED		
2015			131		
2016	114	6	0	0	120
2017	417	2	0	0	419
2018	523	22	3	0	587
2019	745	20	5	0	771
2020	479	7	0	0	486

Research Initiatives

Initiation of Pronghorn X-ing project in conjunction with Saskatchewan Government Insurance, the Government of Alberta, the Alberta Conservation Association and the Miistakis Institute commenced in 2017. This citizen-science based project allows individuals to download a smartphone app and record observations of pronghorn and other wildlife in proximity to roads. The goal of this project is to verify migratory routes of pronghorn, as well as stretches of roads and highway that pose a significant issue for wildlife. Data collected will be used to develop mitigation strategies to lessen wildlife-vehicle collisions and to focus conservation efforts on these wildlife corridors.

Management Objectives and Strategies

Long-term Management Objectives

- Conduct a 5-year review of the Management Plan for Pronghorn in Saskatchewan to provide continued guidance and structure to management of pronghorn in the future.
- Survey pronghorn populations annually to obtain current data to inform management decisions.

Short-term Management Strategies

- Increase pronghorn populations and harvest opportunities within the confines of social tolerance.

Additional Information

Most recent provincial species plan:
Whiklo, Todd. 2019. Management Plan for Pronghorn (Antilocapra americana americana) in Saskatchewan. Wildlife Unit, Fish, Wildlife and Lands Branch, Saskatchewan Environment. 30 pp

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Black Bear (*Ursus americanus*)

Black bears are a sought-after species by resident and non-resident hunters, alike. Black bears are a generalist and omnivore, living in a variety of habitats, often preferring the densely vegetated valleys and waterways of mixed-wood portions the boreal forest. Requiring significant amounts of food, particularly in the fall when building up fat reserves to survive hibernation, bears will select habitat based on available foods. Black bears will also take advantage of human food sources and can often be found feeding in landfills or occasionally in more settled areas where attractants may be prevalent. The provincial range of black bears extends across northern Saskatchewan southward into the Parkland ecoregion, commonly as far south as the eastern Qu'Appelle River system and uncommonly in suitable habitats across much of central and southern Saskatchewan.

Population Status

Saskatchewan black bear populations are monitored primarily with data from the now-mandatory hunter harvest survey. This data is supplemented by reports from hunters, ministry staff and from crop and bee-yard damage compensation data provided by Saskatchewan Crop Insurance Corporation. A population model based on estimated densities in a variety of habitat types throughout the provincial range is also used as a check to help ensure that licenced harvest remains within sustainable limits.

Survey Data

In 2020 Saskatchewan residents purchased 5,618 bear licences (including 1st and 2nd licences), Canadian residents purchased 212 and non-residents of Canada purchased 33 (the COVID-19 pandemic impacted cross-border travel) for a total of 5,863 licences sold. Hunter harvest survey data is presented in Tables 20 - 23. The hunter harvest survey became mandatory in 2020 and response rates for Saskatchewan resident bear hunters increased dramatically across licence types to an average of 62% in comparison to: 2019 (31%), 2018 (31%), 2017 (33%), 2016 (29%) and 2015 (16%). The hunter response rate for Canadian residents also increased substantially to 47% up from previous years, where response rate ranged from 14% to 27%.

Of the 3,549 licensed resident bear hunters who responded to the Hunter Harvest Survey, 787 (22%) did not hunt bear in 2020, a similar proportion to previous years. Of the 2,762 survey respondents who did hunt bear, 865 harvested an animal indicating an overall harvest rate of 31%, similar to previous years. Harvest rate for non-residents was 80%, typically higher than residents.

Results from the Annual Status of Furbearers Survey (Table 31) continued to indicate particularly high bear populations in the Northern Fur Conservation Area. There was a jump in estimated abundance in the Southern Fur Conservation Area after a long period when estimates indicated relatively low populations. Results from the survey show a slight overall increase in estimates reflecting higher populations.

Biological Sample Collections

Saskatchewan currently has no biological sampling program for black bear.

General Overview

Based on hunter harvest survey data and anecdotal evidence collected during the period bear populations were assessed as generally stable or increasing. Increases were mainly reported along the forest fringe and southern boreal forest. This general population trend is consistent with most jurisdictions across the North American black bear range. Nuisance bear issues and public concern regarding black bears remained high, though these issues are often tied to attractants, habituated bears, and the availability of natural foods.

Hunting Season Review

Black bears in Saskatchewan are hunted under a regular licence during spring (April to June) and fall (August to October) seasons. Under the current harvest regime, each hunter, regardless of residency, may take one bear of either sex, with the exception that it is prohibited to take a female bear that has young-of-the-year cubs at heel. Additionally, Saskatchewan residents are now able to purchase a second black bear licence for use in select WMZs south of the Provincial Forest. This licence was introduced for the 2020 hunting season and its use will be evaluated over the next several years. Non-residents of Canada are required to use the services of a licensed outfitter while hunting bears.

Saskatchewan resident 1st black bear licence sales for 2020 were 5,048, which is a significant increase from 2019, and 570 2nd black bear licences. Interest in bear hunting remains high with licence sales for Saskatchewan residents surpassing the previous high of 4,408 in 2015. Canadian residents purchased 212 licences, similar to 2019, showing a continuing decline that began in 2012 when sales reached 289 licences. The COVID-19 pandemic and subsequent border closures impacted the ability for non-residents to enter Canada for both the spring and fall 2020 black bear seasons, as such any non-resident data from 2020 should not be considered representative.

Table 20. Estimated Saskatchewan Resident 1st Black Bear Licence Harvest 2015 - 2020.

Year	Boars	Sows	Cubs	Unknown	Total
2015	965	251	19	0	1,235
2016	682	117	10	0	809
2017	576	168	12	0	762
2018	553	137	7	0	697
2019	679	186	16	0	881
2020	999	229	11	0	1239

Table 21. Estimated Saskatchewan Resident 2nd Black Bear Licence Harvest 2020.

Year	Boars	Sows	Cubs	Unknown	Total
2020	98	26	3	0	127

Table 22. Estimated Canadian Resident Black Bear Harvest 2015 - 2020.

Year	Boars	Sows	Cubs	Unknown	Total
2015	58	15	0	0	73
2016	51	23	0	0	74
2017	35	0	0	0	35
2018	34	9	0	0	43
2019	26	18	0	0	44
2020	51	12	0	0	63

*The COVID-19 pandemic affected cross border travel.

Table 23. Reported Non-resident Black Bear Harvest, 2010 - 2020.

		Harvest						
Year	Hunters Reporting	Spring	Fall	Total	Boars	Sows	Cubs	M:F
2010	1,439	938	136	1,074	746	328	0	2.27
2011	---	---	---	1,018	741	277	0	2.67
2012	---	---	---	1,030	727	303	0	2.40
2013	---	---	---	900	676	224	0	3.02
2014	---	---	---	---	---	---	---	---
2015	---	---	---	1,187	838	349	0	2.49
2016	---	---	---	1,091	838	253	0	3.31
2017	Data	Entry	Not	Yet	Complete			
2018	1,704	1,063	186	1,249	1,020	229	0	4.45
2019	1,806	1,224	173	1,397	1,146	251	0	4.57
2020*	25	6	14		17	3	0	5.67

*The COVID-19 pandemic affected cross border travel.

Research Initiatives

A portion of the now completed University of Saskatchewan *Population and habitat ecology of boreal caribou and their predators in the Saskatchewan Boreal Shield* report focused on black bears in the boreal shield. Over the course of the study a total of 27 black bears were fitted with GPS satellite collars. 14 of the collared individuals provided useable data for determining home range size (3 sub-adult males, 5 adult males, and 6 females) in Saskatchewan's boreal shield, which was calculated at an average of 316.5 ± 62.1 km^2 for males and 79.8 ± 13.2 km^2 for females (Philip D. McLoughlin, et. al, 2019). In addition, researchers were able to determine preferred habitat types by season and make some inferences about interactions with woodland caribou, the species that was the focus of the research. A copy of the full report can be found at: http://mcloughlinlab.ca/lab/lab-publications/.

New and novel methods of surveying for black bears continue to be reviewed in order to increase understanding of black bears in Saskatchewan. Trail cameras are currently being evaluated as a method to collect trend and/or localized population density data.

Management Objectives and Strategies

Long-term Management Objectives

- Continually define the provincial range of black bears.
- Improve population model inputs especially bear density estimates for key habitat types across the province.
- Use all available methods to annually assess black bear population trend by Bear Management Units.
- Monitor hunter harvest and other related mortality.

Short-term Management Strategies

- Assess population status and trend by monitoring trends in harvest rates from the hunter harvest survey and supporting or encouraging dedicated research on bear populations.
- Compile and map observations of black bears outside of their existing normal range in order to document the extent of range expansion.

Additional Information

Most recent provincial species plan: Currently under development.

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Plains Bison (*Bison bison bison*)

Plains bison are the largest wild land mammal in North America with adult males ranging in weight from 600 to 850 kilograms and standing nearly two metres at the shoulder (Caras 1967). They are distinguished by their large head, rounded shoulder hump, broad snout and short stout black horns that curve upward. The front quarters are heavier than the hind quarters, with the head and front shoulders being covered in a long, heavy wooly pelage. Plains bison are sexually dimorphic with females smaller than males. In Saskatchewan, plains bison are found in two distinct locations (Figure 5), described as the McCusker River population (Figure 6) and the Sturgeon River population (Figure 7).

Population Status

Plains bison were extirpated from Saskatchewan in the late 19th century. In 1969, 50 plains bison (36 females and 14 males) were obtained from Elk Island National Park of Canada and released north of the Thunder Hills near Meyakamew Lake, which is approximately 60 km north of Prince Albert National Park (PANP). These animals did not stay at the original release site. Approximately 10-15 of the bison moved south settling in the southwest region of PANP and became known as the Sturgeon River herd. Another 10-17 animals were re-captured by the Department of Natural Resources and re-located to the Vermette-Upper Cummings Lake region. These animals eventually settled in the McCusker River area within the Primrose Lake Air Weapons Range and became known as the McCusker River herd. The Sturgeon River herd is monitored annually by PANP staff (in the park), the Sturgeon River Plains Bison Stewards (outside the park) and field reports from the general public, landowners and Ministry of Environment staff. The McCusker River herd is not monitored annually.

Survey Data

The Sturgeon River population slowly grew over the past 35 years and in 2007 peaked at 400+ animals. An anthrax outbreak in the population in 2008 along with wolf predation and hunting has resulted in a steady decline in the population since 2008. In 2019, only 41 bison were observed during the aerial survey, which is down from 67 observed in 2018. While the 2019 bison collar location data suggests that some small groups of bison were missed during the survey, there is continued concern about the status of the population (Figure 8). There is limited information about the McCusker River population. Anecdotal estimates suggest the population remains around 150.

Biological Sample Collections

No biological samples were collected during this time period.

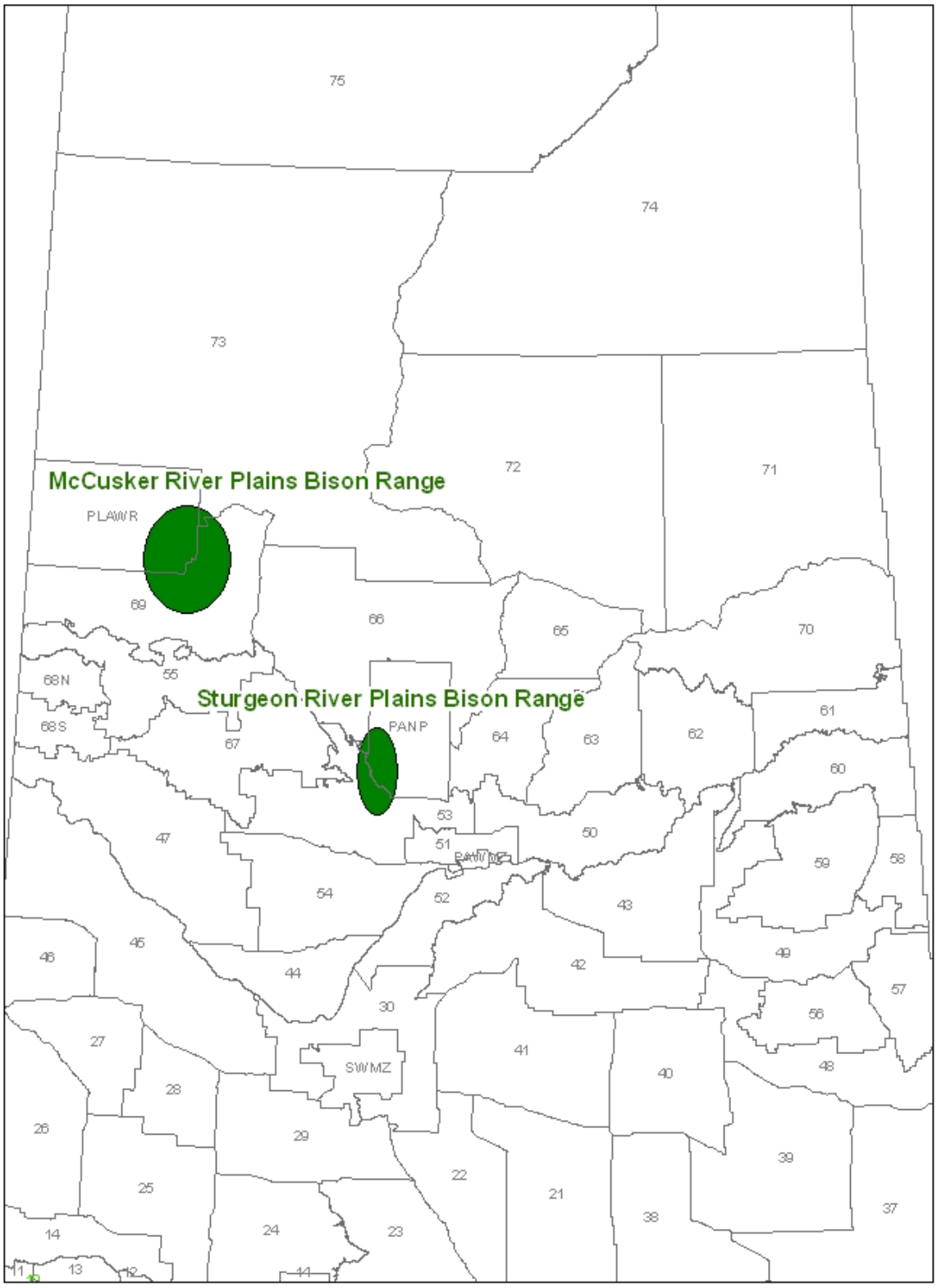

Figure 5. Plains bison range in Saskatchewan.

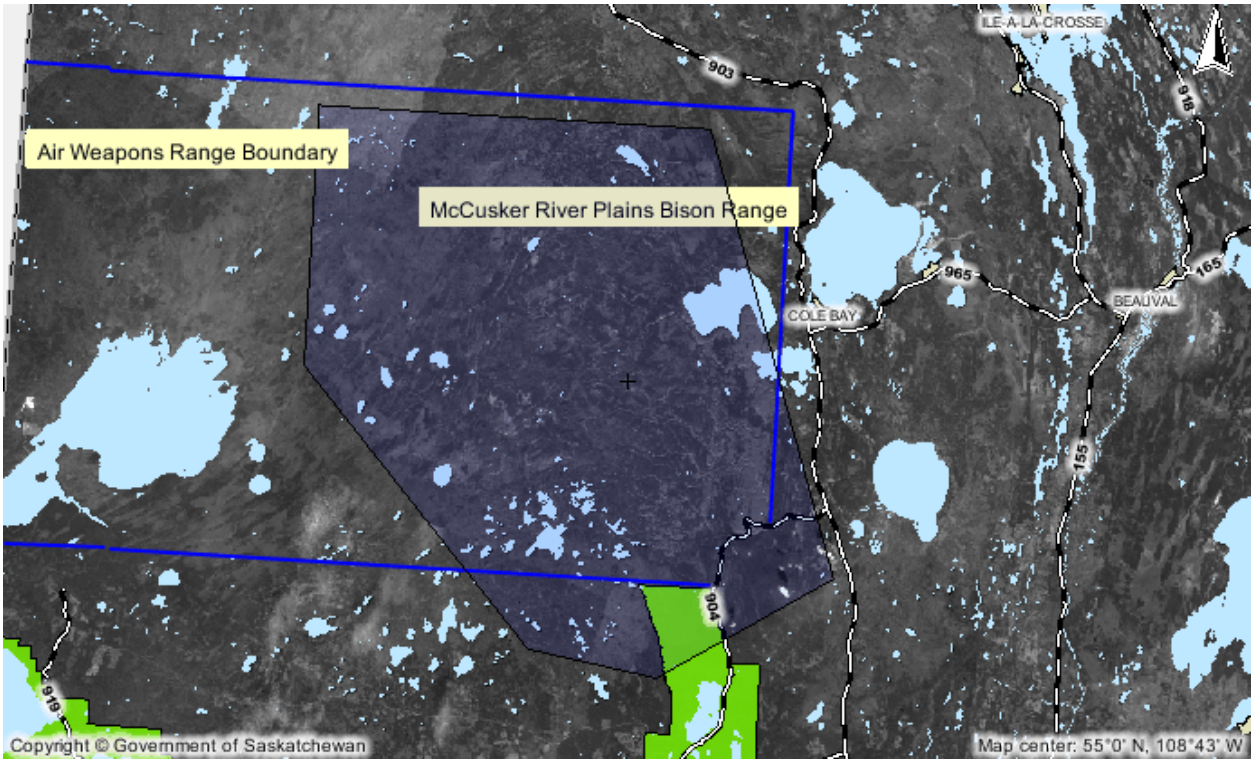

Figure 6. McCusker River Plains Bison Population range in Saskatchewan.

General Overview

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) list plains bison as threatened. This designation was given in 2004. Status reassessment began in November 2013 and COSEWIC has re-confirmed the status designation as threatened. Under the Species at Risk Act (SARA) plains bison are not considered to be at risk. The federal government is presently reviewing the re-assessment. The decision not to list bison under SARA in 2004 was due to the potential economic implications for the Canadian bison industry (SARA, SI/2005- 2/annex 1).

In 2006, a draft management strategy was developed to help guide management actions by the Federal and Provincial governments responsible for the Sturgeon River Plains Bison. Stakeholders were brought together to discuss goals and outcomes for the bison herd. One of the goals was to develop a long-term bison management plan.

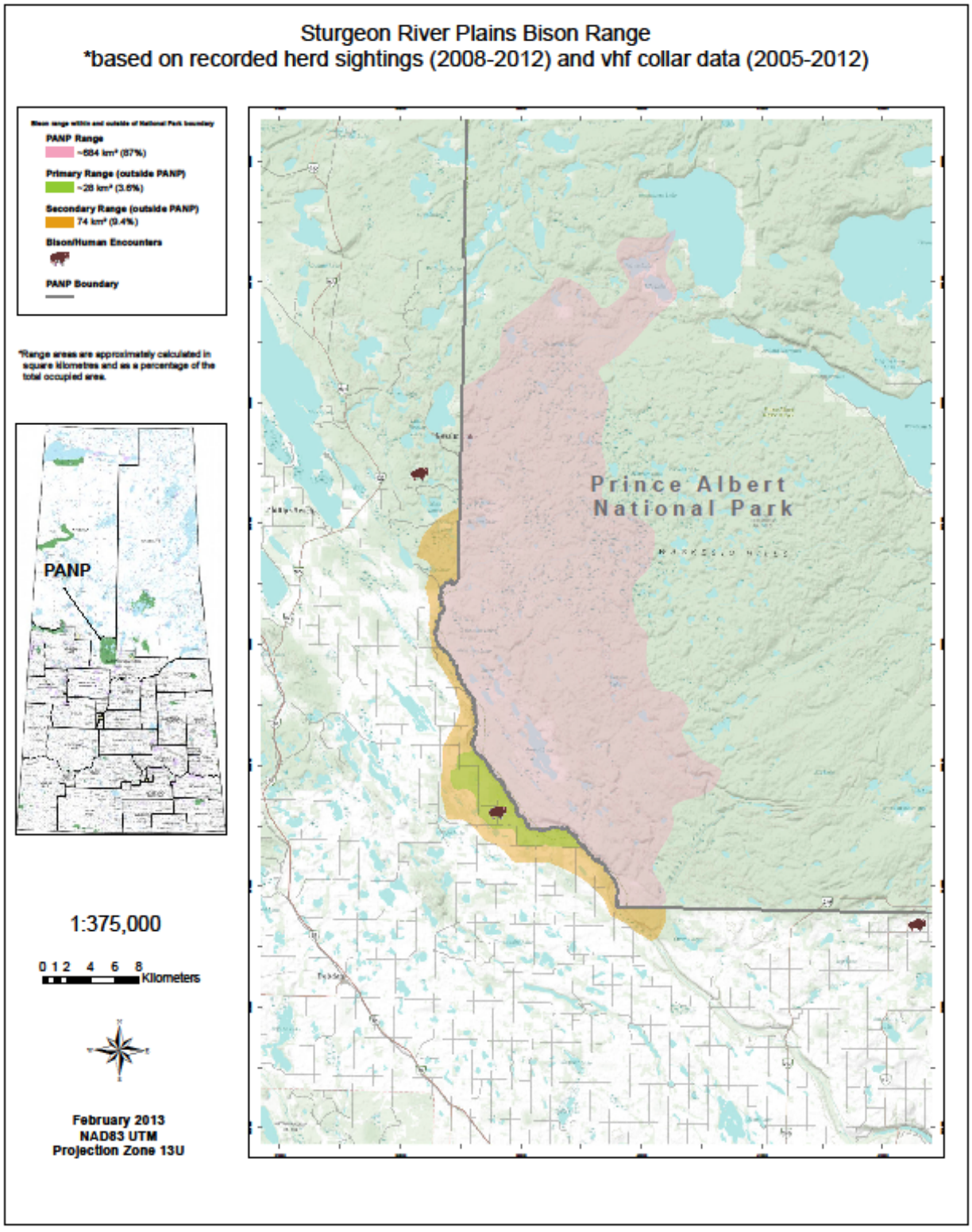

Figure 7. Sturgeon River Plains Bison Population range in Saskatchewan (courtesy of Sturgeon River Plains Bison Stewards).

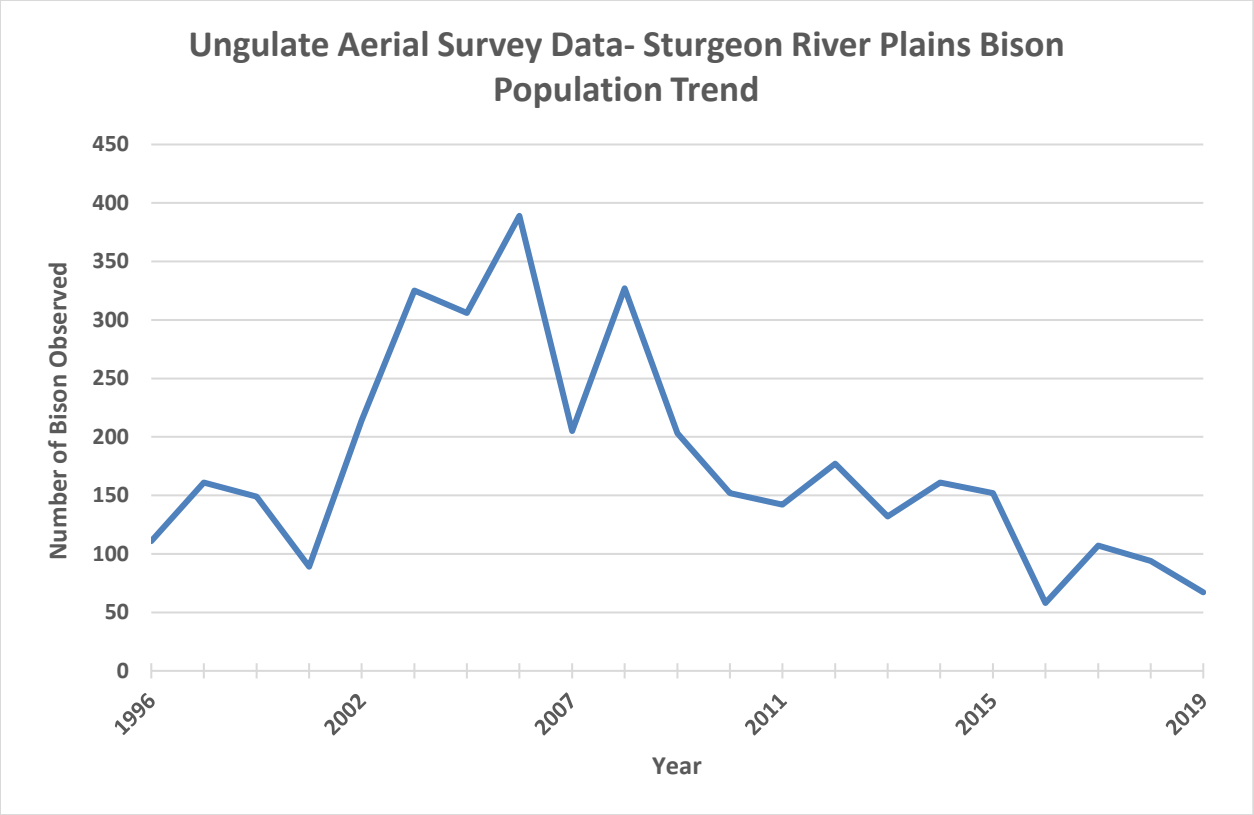

Figure 8. Bison population trend from annual aerial survey conducted by park staff within Prince Albert National Park (Parks Canada. 2020 Prince Albert National Park. Waskesiu Lake, Saskatchewan. Canada. Unpublished files).

In 2010, a coordinating committee was established to initiate the management planning process. Members included representatives from the Sturgeon River Plains Bison Stewards, Prince Albert National Park and the Saskatchewan Ministry of Environment. The overarching goal of the management plan is for the Sturgeon River plains bison population to be managed as a self-sustaining, naturally regulated and free-ranging plains bison population that is genetically diverse and able to persist in perpetuity as a natural part of the regional ecosystem.

The management plan establishes two key population thresholds: a minimum viable population threshold of 250 and a recommended management threshold of 430 to accommodate unforeseen environmental changes and/or disease outbreaks. Management actions are triggered as the population reaches either of the thresholds. The Sturgeon River Plains Bison Management Plan was officially signed in May 2013 by Prince Albert National Park and the Ministry of Environment. Several action items listed in the management plan have been initiated, including: annual aerial surveys; improving best management practices for deterring bison off private land; augmenting bison habitat within PANP with prescribed burning during the spring season; incorporating diversionary fences within PANP; and conducting a jurisdictional scan of compensation programs for damage to agricultural lands caused by wild bison. The management plan will be revisited and updated/adapted regularly as part of the management process.

Hunting Season Review

There is no licensed hunting season for plains bison in Saskatchewan. Sustenance hunting continues.

Research Initiatives

Current research is being conducted through joint projects lead by the University of Laval and Prince Albert National Park. Research initiatives involving the Sturgeon River Plains Bison herd include understanding bison habitat selection, monitoring range expansion inside and outside the national park, tracking movement patterns, bison reaction to diversionary fences and studying predator-prey relationships.

Management Objectives and Strategies

Long-term Management Objectives

- Manage bison population numbers and population structure (age/sex) to allow for a self-sustaining and genetically diverse population while ensuring that the social carrying capacity for wild plains bison is maintained.
- Ensure sufficient habitat is available to maintain a self-sustaining and wild plains bison population in the Sturgeon River area while mitigating negative impacts to local agriculture.
- Minimize conflict between bison and private landowners adjacent to Prince Albert National Park by improving prevention materials and methods and increasing the social carrying capacity of the bison herd (the number of animals tolerated by landowners and the public within the regional geographic area).

Short-term Management Strategies

- Continue to monitor the bison population using aerial survey methods on an annual basis (PANP staff).
- Support ongoing research pertaining to bison food preference and habitat preference throughout the current Sturgeon River plains bison range.
- Increase the use of diversionary fences on private land to steer bison to more preferable locations.
- Maintain a bison anthrax protocol to guide operational procedure for future anthrax outbreaks.
- Implement action items found within the Sturgeon River Plains Bison Management Plan.

Additional Information

Most recent provincial species plan: None available.

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Upland Game Birds

Seven upland game bird species inhabit Saskatchewan, including ring-necked pheasant, sharp-tailed grouse, gray partridge (formerly Hungarian partridge), ruffed grouse, spruce grouse, rock ptarmigan and willow ptarmigan. While some of these species inhabit prairie landscapes and others more forested landscapes, upland birds inhabit all regions of the province (Figure 9). Wild turkeys are also found locally in pockets of the southeast and southwest corners of the province but have not reached populations where a hunting season would be considered for them.

Population Status

In the past, populations of upland game birds were monitored through a series of population surveys, harvest surveys and field reports. Population surveys were discontinued in the late 1990s – early 2000s and since that point, populations have been monitored using information gathered from the hunter harvest survey and field reports from stakeholder groups, the general public, landowners and ministry staff.

Survey Data

There is a general consensus among most jurisdictions in the Great Plains that upland game bird harvest approximates trends in the population. That is, harvest of game birds tends to be self-limiting such that when populations are abundant, hunters are quite successful but when populations are limited, so is the harvest. This theory holds true in Saskatchewan, where population estimates obtained between 1960 and 1980 are well correlated to harvest estimates (Department of Tourism and Renewable Resources 1980). Harvest in Saskatchewan was monitored until 2010, discontinued for several years and reinstated in 2014.

Biological Sample Collections

No biological samples were collected in 2020.

General Overview

Hunter harvest survey data collected in 2020 (Table 24) suggests that generally, populations of sharp-tailed grouse, gray partridge and ring-necked pheasant were similar to last year or increasing. As expected, ruffed grouse and spruce grouse populations remained low after a decline in recent years. This aligns with the normal ~10 year cycling of these species. Population impressions based on harvest data were corroborated by field reports from staff and stakeholders. Field reports of ptarmigan species indicate the populations are stable, although they may have failed to return to some local areas.

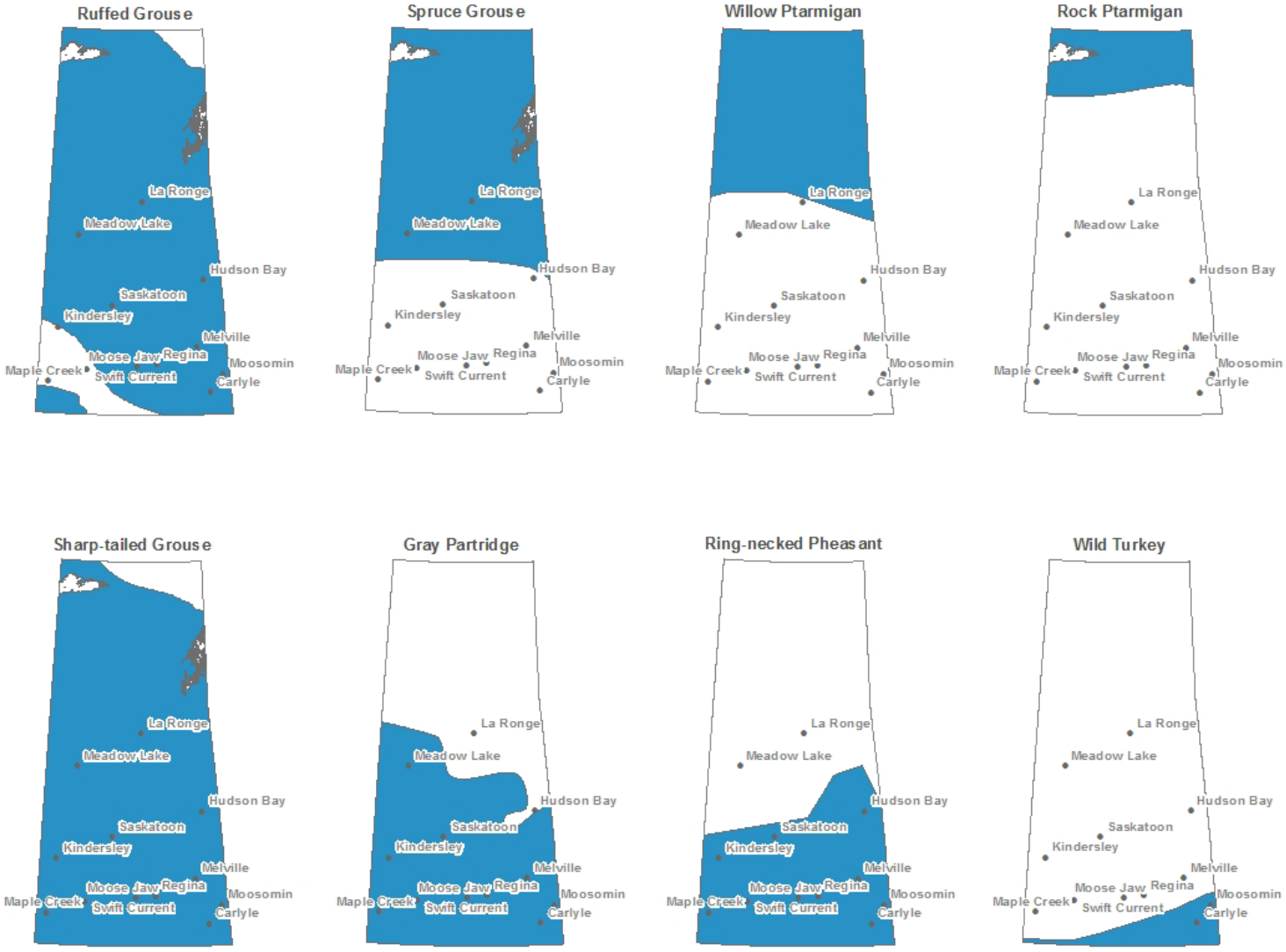

Figure 9. Upland game bird ranges across the province (BirdLife International and Handbook of the Birds of the World 2016). Please note the ring-necked pheasant range is likely artificial north of the South Saskatchewan River and Qu'Appelle River system due to temporary presence of released birds.

Hunting Season Review

With the exception of ring-necked pheasant and ptarmigan, which can only be harvested by residents, all hunters can harvest upland game birds. In 2019, following the release of the Management Plan for Upland Game Birds in Saskatchewan, the province was divided into six Game Bird Management Units (GBMU) for upland game birds and bag limits and season lengths may vary among these GBMU for each species. Bag limits were at their most liberal levels into 2012, but in response to several severe winters, followed by cool, wet springs, in short succession, the ministry made reductions to the bag limits of prairie species. Over the course of several years, some bag limits have been returned to a base/liberal harvest strategy, following the direction provided in the Management Plan for Upland Game Birds in Saskatchewan, daily bag and possession limits for upland game bird species varied between base/liberal and restrictive harvest strategies in 2020.

Saskatchewan resident licence sales increased in 2020 (Appendix A). Canadian resident licence sales remained relatively stable. Non-resident licences sales decreased significantly in 2020, in large part due to the Canada-United States border being closed to non-essential travel as a result of COVID-19. In total, 20,856 resident, 1,929 Canadian and 40 non-resident licences were sold in 2020. New in 2020, the combined youth licence was separated to allow for a game bird youth licence (2,190 sold), separate from the white-tailed deer youth licence (5,218 sold).

In 2014, the hunter harvest survey was made available to hunters of all residencies, rather than just Saskatchewan residents as in past and recent surveys included a question about whether participants hunted waterfowl only, upland game birds only or both waterfowl and upland game birds. Over time, the ministry will be able to use this data to better understand unique trends in game bird hunters. In 2020, the percentage of hunters hunting waterfowl only, upland game birds only or both waterfowl and upland game birds remained similar to previous years for all residencies (Table 25).

Table 24. Estimated upland game bird harvest by Saskatchewan residents.

Year	Sharp-tailed Grouse			Gray Partridge			Ring-necked Pheasant			Ruffed Grouse			Spruce Grouse		
	Hunters	Harvest	Harvest Rate	Hunters	Harvest	Harvest Rate	Hunters	Harvest	Harvest Rate	Hunters	Harvest	Harvest Rate	Hunters	Harvest	Harvest Rate
2015	7,971	13,232	1.66	4,883	11,426	2.34	5,413	24,194	4.47	9,519	39,692	4.17	2,435	7,572	3.11
2016	8,951	18,362	2.05	5,886	16,995	2.89	5,281	23,787	4.5	12,563	74,189	5.91	2,864	11,203	3.91
2017	8,885	17,519	1.97	5,699	16,361	2.87	4,731	14,302	3.02	10,570	44,770	4.24	2,457	8,266	3.36
2018	8,199	16,307	1.99	5,578	17,052	3.06	4,565	15,128	3.31	9,612	40,751	4.24	2,289	8,957	3.91
2019	5,368	11,705	2.18	4,230	15,216	3.60	3,132	13,497	4.31	7,507	27,300	3.64	1,937	7,386	3.81
2020	6,999	18,256	2.61	6,256	34,479	5.51	4,110	18,675	4.54	7,375	18,867	2.56	1,862	4,793	2.57

Table 25. Percentage of hunters of each residency hunting waterfowl exclusively, upland game birds exclusively and all game birds (i.e. both waterfowl and upland game birds) on their 2020 Saskatchewan game bird licence. Due to COVID-19, the Canada-United States border was closed to non-essential travel, which limited the number of non-resident hunters entering the province.

Residency	Licences Sold	Waterfowl Exclusively	Upland Game Birds Exclusively	All Game Birds
Saskatchewan Resident	20,841	27%	50%	23%
Canadian Resident	1,924	65%	14%	21%
Non-Resident	40	80%	10%	10%
All Residencies Combined	22,805	30%	47%	23%

Research Initiatives

In partnership with the University of Regina and SaskPower, a research project on sharp-tailed grouse commenced in the fall of 2017. The objectives of this study are to use historical grouse and habitat data, in combination with contemporary field studies, to characterize and map major habitat features important for the long-term persistence of sharp-tailed grouse leks and understand how variation in annual weather conditions influences productivity. This study was completed in 2020, with formal publication of results expected in 2021.

Management Objectives and Strategies

Long-term Management Objectives

- Maintain sustainable upland game bird populations that can support continued hunting opportunities for future generations.

Short-term Management Strategies

- Develop predictive models to estimate the impact of weather severity during key stages of upland game bird lifecycles and, in particular, the impact weather variables have on productivity.
- Continue to utilize all available data to inform management strategies, including the annual review of seasons, daily bag limits and possession limits.

Additional Information

Most recent provincial species plan:
Conkin, Katherine R. 2018. Management Plan for Upland Game Birds in Saskatchewan 2018-2028. Wildlife Unit, Fish, Wildlife and Lands Branch, Saskatchewan Environment. 35pp.

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Waterfowl

Saskatchewan is an important area for four species of geese and almost every duck species in western North America. Birds wintering in the Central, Mississippi and to a lesser extent Pacific Flyways use Saskatchewan either as breeding grounds during the summer or staging grounds along migrations to and from more northerly locations. Although not technically a waterfowl species, Saskatchewan also provides important staging habitat for sandhill cranes.

Population Status

Given that migratory birds fall under both federal and provincial jurisdiction and are managed cooperatively with other jurisdictions in the flyways, waterfowl populations have been monitored annually by both the Canadian and United States federal governments. A series of surveys, including air-ground breeding population surveys, waterfowl banding, white-fronted goose fall staging surveys and mid-winter waterfowl surveys across the United States, allow the Central Flyway to compile an annual Harvest and Population Survey Data Book.

Survey Data

Although the ministry does not collect waterfowl population data, the Central Flyway Harvest and Population Survey Data Book (Dubovsky 2020) produced annually allows wildlife managers to monitor populations along the Central Flyway. Pertinent results from this publication are included below (Tables 26, 27 and 28).

Table 26. Goose population status. All estimates are three-year running averages. Goose species include greater white-fronted geese (GWFG), Canada geese (CAGO), snow geese (SNOW) and Ross' geese (ROGO).

Year	GWFG Fall Survey	CAGO Winter Survey	SNOW/ROGO Winter Survey
2009-2011	658,250	1,433,559	1,144,450
2010-2012	724,600	1,519,168	1,065,004
2011-2013	732,000*	1,592,601	1,229,884
2012-2014	891,732*	1,561,818	1,219,806
2013-2015	991,483*	1,523,304	1,376,606
2014-2016	994,300	1,461,271	1,400,059
2015-2017	916,277	1,517,993	1,370,293
2016-2018	848,613	1,683,043	1,542,431
2017-2019	937,536	1,679,695	1,471,569
2018-2020	1,020,500*	1,597,658	1,712,818

*No survey in 2013 or 2020.

Table 27. Breeding population estimates (thousands) for 10 species of ducks from the traditional survey area (strata 1-18, 20-50, 75-77) covered by annual breeding population surveys. Duck species include mallard (MALL), gadwall (GADW), American wigeon (AMWI), green-winged teal (GWTE), blue-winged teal (BWTE), northern shoveler (NSHO), northern pintail (NOPI), redhead (REDH), canvasback (CANV) and both greater and lesser scaup (Scaup Spp.).

Year	MALL	GADW	AMWI	GWTE	BWTE	NSHO	NOPI	REDH	CANV	Scaup Spp.	Total
2011	9,183	3,257	2,084	2,900	8,949	4,641	4,429	1,356	692	4,319	41,810
2012	10,602	3,586	2,145	3,471	9,242	5,018	3,476	1,270	760	5,239	44,806
2013	10,372	3,351	2,644	3,053	7,731	4,751	3,335	1,202	787	4,166	41,392
2014	10,900	3,811	3,117	3,440	8,542	5,279	3,220	1,279	685	4,611	44,884
2015	11,634	3,834	3,037	4,081	8,547	4,391	3,043	1,196	757	4,395	44,924
2016	11,793	3,712	3,411	4,275	6,689	3,967	2,618	1,289	736	4,992	43,482
2017	10,488	4,180	2,777	3,605	7,889	4,353	2,889	1,115	733	4,372	42,401
2018	9,255	2,886	2,820	3,043	6,450	4,208	2,365	999	686	3,989	36,701
2019	9,423	3,259	2,832	3,178	5,428	3,649	2,269	732	652	3,591	35,013
2020	Survey not conducted due to COVIDCOVID-19 pandemic.										

Table 28. Annual spring abundance indices for the Mid-Continent Population of Sandhill cranes derived from surveys of the Central Platte River Valley, NE. All estimates are three-year running averages.

Year	Sandhill Cranes
2009-2011	579,863
2010-2012	504,658
2011-2013	563,167
2012-2014	608,202
2013-2015	623,812
2014-2016	470,030
2015-2017	453,519
2016-2018	659,899
2017-2019	839,992
2018-2020	975,804*

*Survey not conducted in 2020 due to COVID-19 pandemic and associated travel restrictions.

Biological Sample Collections

No biological samples were collected during this time period.

General Overview

In 2020, drought conditions were occurring in some areas of southern Saskatchewan, resulting in further deterioration of wetland conditions and reduced waterfowl habitat and productivity, while the northern portion of the province experienced above average water levels. Populations of Arctic nesting geese continued to remain high in numbers in 2020 and white-fronted goose populations remain well above the management plan objectives.

Hunting Season Review

While Saskatchewan produces a large number and variety of waterfowl, the province's waterfowl harvest is only of continental significance for snow, Ross's, white-fronted and Canada geese, mallards, pintails and sandhill cranes.

Waterfowl can be harvested in Saskatchewan by all hunters. Hunters can harvest eight ducks, 10 coots, 20 white geese and eight dark geese (of which five may be white-fronted geese) daily, with a possession limit of three times the daily limit. In 2020, the restriction on the number of northern pintail within the duck limit was removed.

In addition to a Saskatchewan Game Bird Licence, waterfowl hunters must possess a federal Migratory Bird Permit. The sale of these permits has remained relatively stable between 17,000 and 22,000 permits sold annually in Saskatchewan (Appendix A). In 2020, a game bird-specific youth licence was created, separating it from the previous combined youth licence.

Harvest of waterfowl in Saskatchewan fluctuates annually (Tables 29 and 30), with no significant trends apparent in the available data. However, with the Canada-United States border closed to non-resident

hunters in 2020, due to COVID-19 restrictions, the harvest estimates for 2020 within Saskatchewan are likely to be decreased.

Table 29. Duck harvest in Saskatchewan. Data from 2019 and 2020 were not available at the time of writing.

Year	MALL	GADW	AMWI	GWTE	BWTE	NSHO	NOPI	REDH	CANV	LESC
2009	135,546	17,720	3,873	1,147	2,624	6,045	17,226	760	456	826
2010	125,686	15,653	5,251	6,093	12,272	14,176	13,625	4,353	491	4,059
2011	143,258	29,404	8,992	3,534	22,787	22,040	20,217	4,563	6,150	2,029
2012	188,380	15,570	5,950	4,360	15,470	12,330	15,470	3,970	1,690	1,410
2013	193,591	18,864	2,527	6,969	38,943	15,458	19,243	5,884	761	1,973
2014	163,468	43,710	4,316	3,895	25,278	10,943	30,717	3,460	5,703	528
2015	179,718	14,492	8,091	9,477	29,860	7,456	11,790	2,407	1,094	48
2016	159,158	25,707	14,329	21,295	15,217	13,360	11,869	3,144	3,967	3,016
2017	133,725	15,200	7,741	4,977	19,148	8,395	28,390	326	530	443
2018	168,068	13,703	11,209	10,180	19,671	7,308	15,714	2,615	2,125	1,571

Table 30. Goose harvest in Saskatchewan. Data from 2019 and 2020 were not available at time of writing.

Year	SNGO	ROGO	GWFG	CAGO/CACG
2009	80,753	20,655	30,882	140,922
2010	77,568	26,280	33,558	149,533
2011	85,848	34,682	52,762	173,045
2012	95,620	20,830	36,130	178,540
2013	127,835	29,478	42,181	141,655
2014	121,091	30,269	65,463	161,815
2015	68,341	19,302	31,953	177,475
2016	50,105	14,803	32,304	201,289
2017	54,502	35,452	45,104	208,946
2018	53,415	8,916	48,434	152,697

Research Initiatives

No research initiatives were conducted during this time period.

Management Objectives and Strategies

Long-term Management Objectives

- Continue to work within the Central and Mississippi Flyways framework to ensure that all waterfowl and sandhill cranes are managed within sustainable and socially acceptable levels.

- Continue to work in partnerships through the Prairie Habitat Joint Venture to ensure a strong ongoing commitment to waterfowl habitat retention and improvement through the North American Waterfowl Management Plan (NAWMP).

Short-term Management Strategies

- In collaboration with federal and provincial colleagues in the Prairie Provinces, develop a prairie-wide duck management plan/harvest management strategy.

Additional Information

Most recent provincial species plan:

Central Flyway Webless Migratory Game Bird Technical Committee. 2018. Management guidelines for the mid-continent population of Sandhill cranes. Central Flyway Council Document.

Central Flyway Waterfowl Technical Committee. 2010. Management guidelines for hi-line Canada geese. Central Flyway Council Document.

White-fronted Goose Subcommittee of the Central Flyway Waterfowl Technical Committee, the Arctic Goose Committee of the Mississippi Flyway Game Bird Technical Section, and the Alaska Department of Fish and Game, with assistance from representatives of the Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2015. Management plan for midcontinent greater white-fronted geese. Flyway Council Document.

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Furbearers

Furbearers include 21 species or species groups (e.g. hare, squirrel, weasel) in Saskatchewan that are trapped and whose pelts are marketed. The trapping industry in Saskatchewan currently includes over 4,500 licensed trappers and generates annual revenue between one and six million dollars from the sale of pelts and by-products. Furbearers are a renewable resource and many trappers depend on raw fur sales to supplement their annual income, therefore proper conservation management is important to ensure the long-term sustainability of the resource and the trapping industry. A vibrant trapping industry is also important since trappers play an important role in controlling numbers of some potentially problematic species such as coyotes, wolves and beaver.

Since trapping seasons extend throughout the winter and into spring, some information presented in this report is necessarily based on data from the trapping season that closed the year prior to publication while some is based on the trapping season that closed in the current year.

Population Status

Populations of furbearers are monitored using the annual status of furbearers survey and field reports from the general public, landowners and Ministry of Environment staff. The survey moved to an online format in 2017 and became available under the automated licensing system.

Data is also collected on annual fur harvest, however this data tends to track market conditions and so are not reliable for assessing population trends. However, inferential conclusions about population status are possible when harvest volumes fail to track markets in a predictable manner. For some species, such as wolverine, that are not specifically targeted by trappers and therefore capture conditions approach randomness, the number of animals harvested in a year can be indicative of populations but these are only inferential since there is no measure of trapping effort available.

There are currently no furbearer species in Saskatchewan for which existing data indicate a rate of decline or a population level that would require restricting harvest.

Survey Data

The annual status of furbearers survey asks trappers to assess the abundance of local furbearers. Each assessment is assigned a number between 0 and 4, with 0 corresponding to never being found in the area, 1 to sometimes being found but not present in the year of interest, 2 to being scarce, 3 to being common and 4 to being abundant. The average of all trappers reporting on the species is summarized in order to determine if the species is abundant (>3.2), common (2.8 – 3.2), fairly common (2.4 – 2.7), uncommon (2.0 – 2.3), scarce (<2.0) or never found (0). Species that are not found in the area are excluded from the calculation. Results of the survey are shown in Table 31.

Table 31. Results of Annual Status of Furbearer Survey, 2011-2020

	South Saskatchewan Trapping Area										Northern Fur Conservation Area									
	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
Arctic Fox	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	0	0	0.4	1.0	1.0	1.1	0.2
Badger	2.5	3.0	2.3	2.3	2.4	2.3	2.7	2.6	2.7	3.0	0.7	0.5	0.5	0.5	0.5	0.9	1.4	1.1	1.3	1.1
Beaver	2.6	2.8	3.6	2.8	3.5	3.7	3.4	3.4	3.4	3.3	3.5	3.8	3.4	3.6	3.7	3.7	3.5	3.4	3.4	3.4
Black Bear	0.4	0.4	1.4	2.0	1.9	1.3	3.1	3.0	3.1	2.9	3.3	3.1	3.3	3.2	3.5	3.8	3.5	3.3	3.5	3.6
Bobcat	0.6	0.2	0.3	1.0	0.8	0	1.4	1.3	1.2	0.7	0.5	0.5	0.5	0.2	0.2	0.6	1.1	1.0	1.1	0.8
Cougar*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coyote	3.4	3.8	3.4	3.5	3.6	2.7	3.3	3.1	3.3	3.3	2.6	2.9	2.2	2.4	2.8	2.8	2.9	2.7	2.8	2.9
Coyotes with Mange	2.0	2.4	2.6	2.3	2.8	3.3	2.4	2.5	2.3	2.4	1.4	2.1	1.3	1.1	0.8	1.6	2.3	1.9	2.0	2.0
Fisher	0	0.2	1.0	1.3	0.4	0.3	2.1	2.0	2.1	1.8	2.9	2.9	2.7	2.9	2.4	2.8	2.5	2.4	2.7	2.7
Hare	2.3	2.2	2.6	2.0	2.5	3.0	2.7	2.9	3.0	2.9	2.9	3.1	2.8	2.6	2.9	2.5	3.0	3.1	3.1	3.0
Lynx	0.2	0.4	1.3	0.8	0.9	0.7	1.8	1.6	1.8	1.6	2.5	2.6	2.6	2.8	2.6	2.7	2.4	2.7	2.7	2.9
Marten	0	0	0.2	0.3	0.1	0.7	1.8	1.6	1.7	1.3	2.3	2.9	2.8	2.4	2.6	2.8	2.4	2.4	2.6	2.6
Mink	1.4	1.4	2.0	2.0	1.7	1.7	2.5	2.5	2.4	2.2	2.4	2.5	2.6	2.5	2.9	2.6	2.6	2.5	2.7	2.5
Muskrat	2.3	2.4	3.1	2.8	3.4	3.7	2.6	2.3	2.3	2.4	2.3	2.4	2.5	2.4	2.7	2.3	2.6	2.4	2.4	2.5
Otter	0.1	0	1.4	1.3	0.9	1.0	2.0	2.1	2.3	1.8	2.9	3.1	2.7	2.8	3.4	3.1	2.8	2.9	2.9	3.0
Raccoon	2.6	2.6	2.9	2.5	2.4	3.0	3.2	3.2	3.2	3.1	0.9	1.8	0.9	1.1	1.3	2.3	2.3	1.9	2.0	2.0
Red Fox (cross & silver)	2.3	3.2	2.4	2.7	2.9	2.7	2.8	2.8	3.0	3.1	2.6	2.8	2.6	2.2	2.2	2.6	2.4	2.7	2.6	2.4
Skunk	2.5	2.6	2.8	2.5	2.8	3.3	3.2	3.1	3.2	3.1	2.4	2.1	2.1	2.3	1.8	2.8	3.0	2.3	2.5	2.5
Squirrel	1.4	1.2	2.1	2.7	2.7	2.3	3.0	3.0	3.1	3.0	3.0	3.5	3.1	2.9	3.2	3.4	3.3	3.4	3.4	3.3
Weasel	2.1	1.8	2.6	2.5	2.8	2.3	2.4	2.6	2.7	2.8	2.9	3.0	2.8	3.0	3.2	3.2	2.8	2.9	3.1	3.1
Wolf	0.8	0.4	1.4	1.5	1.3	1.7	2.7	2.4	2.3	2.6	2.9	2.5	2.9	2.8	3.8	3.1	2.8	3.0	2.9	3.0
Wolverine	0.1	0.2	0	0.3	0.1	0	1.2	1.2	1.2	0.5	0.9	0.9	1.1	1.4	1.5	0.8	0.0	1.3	1.4	1.4
# Survey Respondents	10	5	7	4	11	3	528	495	593	732	43	8	18	18	19	14	50	58	71	105

Biological Sample Collections

No biological samples were collected during this time period.

Trapping Season Review

Only Saskatchewan residents are eligible to trap in the province and first time trappers must pass an education course (or equivalency exam) prior to obtaining a fur licence. Although trapper numbers tend to remain relatively stable, small year to year variations occur and can be particularly obvious in the south where there are fewer species to drive the markets.

Fur harvest is driven by a variety of factors. While market conditions are the single largest driver of harvest fluctuations at the species level, they are not the only determinant. Trappers will also target species based on their abundance, trap cost, ease of trap set up, opportunity for by-catch of other profitable species, personal preference for processing of animals once trapped, time available for trapping, as well as a host of other influences. Given these individual influences, the overall annual harvest is often quite variable (Table 33).

Regardless of the particulars of the annual harvest, trapping generates significant revenue, with between $1 and $6 million in pelts being sold annually (Table 34) and over $3.5 million in each of the last nine years. More detailed information about annual fur harvest and revenue can be found in the Saskatchewan Wild Fur Harvest and Cash Value reports produced annually by the Ministry of Environment and available at Fur Harvest.

Table 32. Annual fur licence sales in Saskatchewan (2009 - 2020).

Year	Northern Fur Conservation Areas Licences	Southern Saskatchewan Licences	Youth Trapper Licences	Total Licence Sales
2008-2009	1,992	1,143	115	3,250
2009-2010	1,691	1,076	96	2,863
2010-2011	1,665	976	76	2,717
2011-2012	1,662	1,385	86	3,106
2012-2013	1,749	1,783	94	3,626
2013-2014	1,892	2,173	175	4,240
2014-2015	1,848	2,552	209	4,609
2015-2016	1,896	2,878	216	4,990
2016-2017	1,639	2,723	172	4,534
2017-2018	1,675	2,812	159	4,646
2018-2019	1,542	2,947	178	4,667
2019-2020	833	2,276	181	3,290
2020-2021	1,424	2,942	237	4,603

Table 33. Saskatchewan fur harvest by species based on export sales (2009 - 2020).

Species	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Arctic fox	2	0	0	0	0	11	8	3	3	29	4	0
Badger	336	249	371	928	710	286	358	219	130	316	142	118
Bear	51	45	35	54	35	9	23	52	17	15	27	46
Beaver	11,926	11,253	11,741	17,125	15,558	12,676	10,498	10,612	8,616	6,685	6,031	5,726
Bobcat	17	4	1	33	1	3	0	2	1	0	1	0
Coyote	17,723	14,207	14,813	25,833	28,599	28,703	36,802	34,652	24,380	39,416	34,039	38,265
Cougar	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	-	-
Fisher	1,110	1,028	1,341	2,115	1,908	2,540	2,082	1,585	1,028	1,084	897	847
Fox	1,775	1,173	1,402	2,725	2,609	2,694	3,332	3,102	2,297	4,250	2,547	2,876
Lynx	427	443	878	1,614	1,315	1,203	650	638	417	569	487	370
Marten	3,934	3,490	5,804	10,419	9,035	10,145	7,079	5,736	4,165	6,306	6,413	4,255
Mink	1,508	964	1,187	1,163	1,454	1,566	1,794	1,042	644	810	924	533
Muskrat	18,956	16,291	14,016	60,494	47,362	66,183	59,115	28,637	18,696	11,360	5,489	2,302
Otter	450	391	450	642	610	522	482	480	308	255	290	191
Raccoon	900	509	720	1,249	997	1,293	1,033	601	532	566	492	561
Skunk	64	44	43	68	45	45	112	161	207	109	56	98
Squirrel	2,472	3,270	2,224	3,261	1,516	1,987	984	1,210	1,369	1,164	449	545
Weasel	2,155	1,386	1,829	2,985	2,488	2,686	2,412	1,730	1,407	1,201	989	1,405
Wolf	320	243	149	225	166	273	204	169	132	182	166	155
Wolverine	18	11	5	16	14	19	19	16	13	20	25	24
# of Licensed Trappers	3,250	2,863	2,717	3,106	3,626	4,240	4,609	4,990	4,534	4,646	4,667	3,290

* To date, cougar harvest by trappers is not being sold at auction and so is tracked by permit. These data are shown in Table 36.

Table 34. Annual pelts marketed and associated cash value (2009-2020).

Year	Southern Saskatchewan		Northern Fur Conservation Area		Total Pelts Marketed	Total Cash Value
	Pelts Marketed	Total Cash Value	Pelts Marketed	Total Cash Value		
2008-2009	42,382	$661,686	21,762	$523,760	64,144	$1,185,446
2009-2010	33,014	$634,315	21,987	$493,516	55,001	$1,127,832
2010-2011	36,532	$1,078,296	20,477	$804,422	57,009	$1,882,719
2011-2012	95,923	$2,432,578	35,026	$1,841,001	130,949	$4,273,580
2012-2013	82,497	$3,277,079	31,925	$2,478,710	114,422	$5,755,790
2013-2014	101,638	$3,265,262	31,206	$1,617,697	132,844	$4,882,959
2014-2015	104,452	$4,271,753	22,535	$1,075,712	126,987	$5,347,466
2015-2016	72,417	$3,076,512	18,230	$633,871	90,647	$3,710,383
2016-2017	52,132	$2,952,721	12,230	$597,295	64,362	$3,550,016
2017-2018	58,493	$4,718,042	15,844	$799,091	74,337	$5,517,133
2018-2019	44,235	$3,821,833	14,548	$570,773	59,468	$4,457,212
2019-2020	48,325	$3,236,384	9,992	$280,098	58,317	$3,516,482

Research Initiatives

Trap testing research is ongoing and based on the priorities determined by the Canadian Wildlife Directors Committee. Traps meeting the killing efficiency standards of the Agreement on International Humane Trapping Standards are certified for continued use for the appropriate species. Work began in 2018 to test varieties of power snares.

Management Objectives and Strategies

Long-term Management Objectives

- Continue to maintain a viable fur harvesting industry in Saskatchewan and to ensure there is training and regulatory support for attracting new trappers and managing human-wildlife conflicts.

Short-term Management Strategies

- Work with Saskatchewan trapper's organizations, Ministry of Agriculture and Saskatchewan Crop Insurance Corporation to coordinate approaches for dealing with problem furbearers.

Additional Information

Most recent provincial species plan:
Koback, L. 2020. Saskatchewan Wild Fur Harvest and Cash Values 2019-2020. Fish, Wildlife & Lands Branch Summary Report. Saskatoon, SK.

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Gray Wolf (*Canis lupus*)

Wolf management is of interest to a wide variety of government agencies, professional organizations and public groups. They are classed as a furbearer and a big game species. In most cases, management effort has traditionally been directed toward dealing with human-wildlife conflicts.

A regular hunting season for gray wolf in the Southern Fur Conservation Area was added in 2017 following pilot programs in each of the three preceding years. The season was restricted to wildlife management zones along the forest fringe not within the Northern Fur Conservation Area.

Population Status

The ministry does monitor populations indirectly using indices such as fur harvest sales, habitat carrying capacity, prey base modeling and an index survey of population trends based on information from trappers. Provincial populations were estimated in 2006 using a linear regression model of the relationship of wolf density and ungulate biomass and a habitat model based on typical densities reported in the literature for habitat types prevalent in Saskatchewan. The ungulate biomass method yielded an estimated provincial population of 2,719 wolves based on predicted densities of one wolf/150 km^2 in the forest fringe (WMZs 37, 43, 47-55) and forest (WMZ 56-69) and one wolf/400 km^2 in the shield (WMZs 70-76). The habitat method resulted in an estimate of 3,773 wolves based on predicted densities of one wolf/70 km^2 in the forest fringe, one wolf /50 km^2 in the forest and one wolf /200 km^2 in the shield.

Survey data from the forest fringe indicates moderately high populations in the last five years but the data has low statistical reliability. Wolf populations in the forest have typically fluctuated in response to food supplies. In recent years, wolf numbers have remained moderately high and the species range has extended southward to some extent.

Survey Data

There was no formal population survey conducted for wolves during 2020. A wolf population index is derived from the annual status of furbearers survey that is aimed primarily at trappers. Since this survey began the sample size of trappers reporting has generally been too small to assess trends with any confidence. However, in 2017 the furbearer survey was added to the automated licensing system. This resulted in a significant increase in the number of trappers responding. Results from that survey are shown in Table 35.

An indirect measure of abundance is also obtained from export records of wolf pelts marketed by trappers. This data mainly reflects trapper effort as influenced by market prices but can indicate population declines where predicted harvest fails to mirror market peaks. Wolf harvest data are presented in Table 33.

Biological Sample Collections

There were no formalized biological sample collections made in 2020.

General Overview

Although complaints persisted in some areas around wolves impacting moose populations there was no widespread anecdotal evidence to support that wolf populations along the forest fringe were above long-term norms. Compensated livestock losses to wolves were also at normal levels. There were 29 Rural Municipalities in the Wolf Management Area (WMA; Figure 10) in 2020. Policy allows these municipalities access to some wolf harvest methods not available outside the WMA.

Survey data from all sources as well as anecdotal reports from ministry field staff and general public seem to indicate populations at normal levels with typical anomalies in distribution resulting in pockets with higher densities.

Hunting Season Review

The current hunting season for wolves is in forest fringe (WMZ's 43, 47-50, 53,54, 55, 68N) and runs from October 15, 2020 to March 31, 2021, which targets the majority of wolf conflict areas in Saskatchewan. There is no limit on the number of licences available and each licence provides a Saskatchewan resident the opportunity to harvest one wolf. Wolves have been included on the hunter harvest survey since 2017, which allows hunters to report their results and thereby contribute to responsible management of the species. A total of 611 licences were sold in the three combined years from 2018-2020 with an estimated harvest of 8 (2018/19), 22 (2019/20), 0 (2020/21) wolves over the last 3 years. Although harvest remains low, having hunters in the field actively seeking and targeting wolves is seen as potentially having a deterrent in areas where wolf-livestock conflict occurs. The hunt also affords an opportunity for interested individuals to harvest a wolf from a sustainable population in an area where wolf-livestock conflicts are an ongoing concern.

Research Initiatives

There are currently no ministry research initiatives on gray wolves in the province.

Table 35. Saskatchewan Wolf Hunter Harvest Survey Results, 2014 – 2020.

	Licences Sold/Tags Available	# Hunters Reporting	Response Rate	Estimated # Who Hunted	Estimated # Wolves Harvested	Estimated Harvest Success
2014-2015* WMZ 49	81	36	44%	31	3	5%
2015-2016*						
WMZ 49	14	7	44%	3	0	0%
WMZ 53	93	23	25%	15	0	0%
2016-2017	202	188	93%**	139	10	7%
2017-2018	266	67	25%	167	16	10%
2018-2019	177	40	23%	106	8	8%
2019-2020	169	46	27%	99	22	22%
2020-2021	223	99	44%	97	0	0%

*Pilot study years.

** Mandatory reporting in 2015/16.

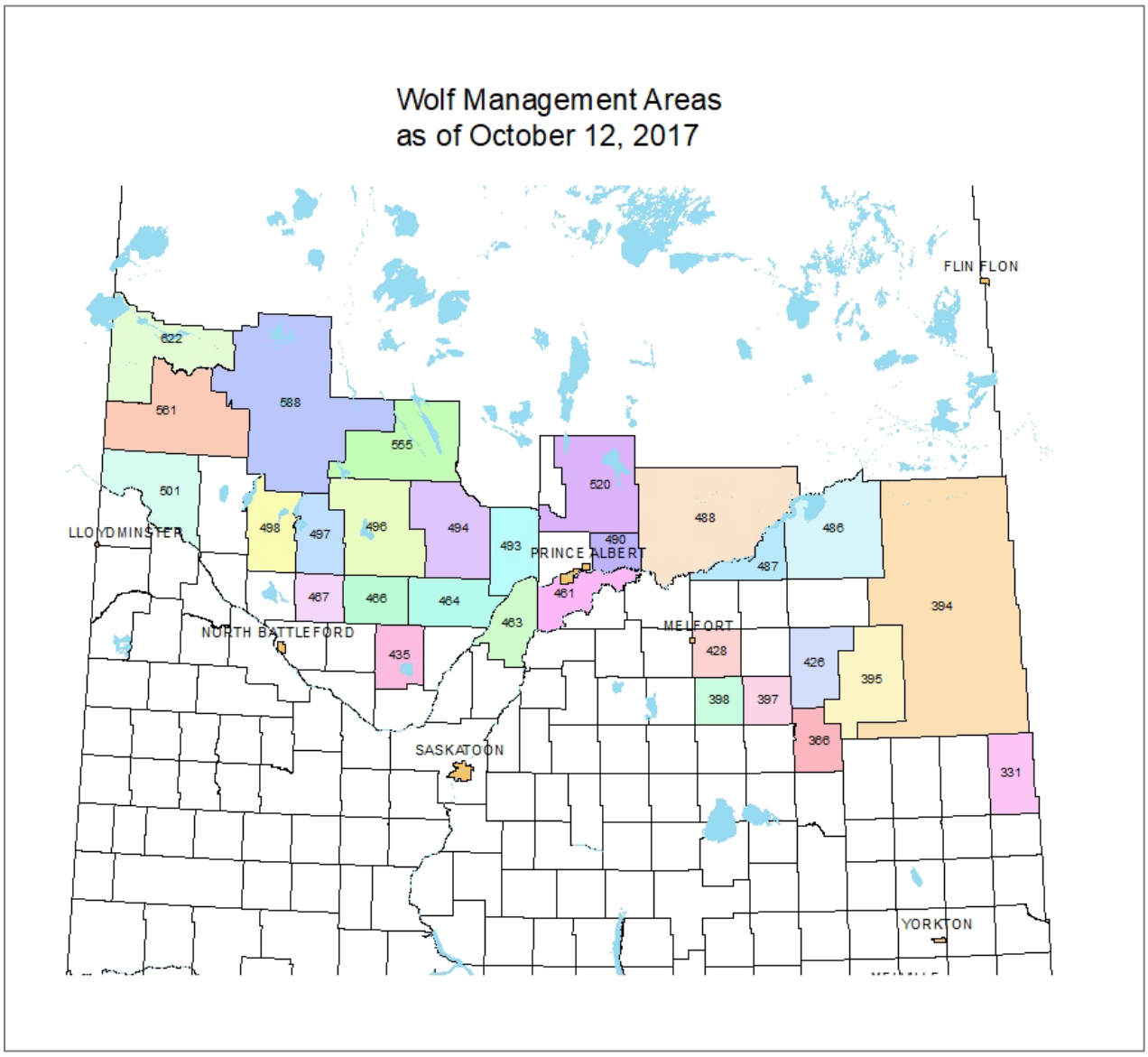

Figure 10. Current Wolf Management Areas in Saskatchewan by Rural Municipality (RM).

Management Objectives and Strategies

Long-term Management Objectives

- Monitor and document wolf range in Saskatchewan.
- Increase sample size reporting on the population index survey.

- Improve harvest data by accessing export data for wolves retained for personal use and by acquiring better data on wolves harvested, but not marketed, by trappers.
- Monitor hunter harvest and other related mortality.
- Create long-term management units.

Short-term Management Strategies

- Analyze and assess future use of hunting as a wolf management tool.
- Document wolf distribution from field reports.

Additional Information

Most recent provincial species plan: Seguin, R. J. 1991. A Wolf Management Strategy for Saskatchewan. Editors Mike Gollop (chair), Dave Brewster, Wayne Runge, Tim Trottier. Wildlife Population Management. Information Base, 91-WPM-4

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Additional Species

Cougar (*Puma concolor*)

Cougars are one of the most evasive and secretive of all wildlife. Like many species, cougar numbers dropped and their range decreased dramatically following settlement of the prairies. Beginning about the turn of this century there was an increasing number of cougar sightings outside of the traditional post-settlement range. This trend occurred in western and mid-western jurisdictions across the continent, including Saskatchewan. Cougar sightings in Saskatchewan have since been confirmed across the south and as far north as La Ronge and Wintego Lake. Breeding populations have been confirmed in the Cypress Hills, Glaslyn and Porcupine Hills areas with suspected breeding in Moose Mountain and across the parkland-boreal forest interface.

Population Status

Saskatchewan cougar populations are managed based on accepted principles of conservation weighted by trends in the occurrence of human and livestock conflicts. Saskatchewan has never offered hunting or trapping seasons. However, in 2016 legislation was advanced in support of a trapping season which was initiated for the 2017-18 trapping season. This was in response to increasing human conflicts in southwest Saskatchewan where local cougar populations have increased substantially since the first confirmation of a breeding population in 2006. Cougars are protected under Saskatchewan's Wildlife Regulations; however, landowners have the right to kill a cougar in order to protect their livestock or property. Any cougar killed must be reported to the Ministry of Environment immediately.

Research Initiatives

There is currently no research being undertaken on cougars in Saskatchewan. In 2010, University of Alberta master's student, Carl Morrison, began work building on previous cougar research conducted in the Cypress Hills (Bacon 2010). Using GPS radio collars and wildlife cameras, the focus of this research examined the cougars' spatial and temporal behavioral response to a seasonal flux in human use and evaluated habitat selection, movement and dispersal in an isolated and naturally fragmented landscape. This work was completed in 2013.

Survey Results

Although a trapping season for cougar was initiated in 2017-18, the species was not initially included on the annual status of furbearers survey, so no population estimates are available from that source. Cougar may be included in the future. To date the majority of cougar harvested by trapping are either being retained or sold by private sale rather than being sold through the auction where most furbearer pelts are marketed. For this reason, the data in Table 36 below, provide a more accurate portrayal of harvest than the trapping data in Table 33.

Table 36. Saskatchewan Cougar Harvest, 1999-2019

Year	Source of Mortality				
	Licensed Trapper*	Predator Control Specialist	Ministry Staff	Landowner	Other
1999-2012	4		4	4	3 (2 shot by hunters; 1 vehicle collision)
2013	1			2	1 (hunter shot)
2014	2		1	1	
2015	5			2	
2016	4	5	1	3	
2017	16	11	2	6	
2018	12	18		1	
2019 partial	5	10		1	2 (found frozen in barn)

* Trapper harvest prior to 2017 are incidental captures taken while targeting other species

Additional Information

Most recent provincial species plan: None available.

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Appendix

Appendix A. Licence sales (2011-2020) for all licence types in Saskatchewan. Data not available at time of writing is indicated by "---".

Licence Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Habitat Certificates	72,932	77,209	75,512	70,591	74,769	76,829	77,162	77,348	75,786	66,374
Res. Game Bird	17,861	19,373	19,752	19,983	20,850	21,542	20,399	19,188	17,218	18,666
Can. Res. Game Bird	2,033	2,096	2,221	2,181	2,376	2,141	2,023	2,099	1,904	1,929
Non. Res. Game Bird	8,491	8,823	9,353	9,662	9,853	10,462	11,118	12,193	12,762	40
Res. 1st White-tailed Deer	38,818	41,754	38,374	33,552	38,492	40,756	40,214	39,475	38,721	41,540
Res. 2nd White-tailed Deer	---	---	---	---	---	---	---	---	---	---
Can. Res. White-tailed Deer	4,548	4,381	2,972	892	972	962	1,004	945	921	813
Draw Can. Res. White-tailed Deer	---	4381	2,976	892	972	962	1,004	945	928	---
Guided White-tailed Deer	2,674	2,526	2,486	1,916	1,938	2,245	2,373	2,288	2,217	311
Res. Antlerless White-tailed Deer	14,025	6,063	4,741	1,435	1,155	1,086	805	1,331	1,241	1,532
Res. 2nd Antlerless White-tailed Deer	---	---	---	---	---	---	---	192	448	501
Regular Elk	5,018	5,792	6,202	7,552	6,288	6,174	6,329	6,364	5,691	6,230
Draw Elk	3,206	2,444	2,737	2,386	2,593	2,891	3,302	3,126	3,591	4,443
Regular Moose	6,033	6,348	6,590	7,156	7,756	7,221	6,594	4,951	4,950	6,448
Draw Moose	4,410	5,202	5,790	5,720	5,687	5,575	5,323	4,851	5,060	4,506
Guided Moose	121	105	95	114	120	119	124	126	137	17
Draw Mule Deer	4,955	4,530	4,144	3,661	3,622	3,574	3,985	5,840	6,343	7,072
Mule Deer Archery	2,391	2,875	3,221	2,327	2,666	2,803	2,937	3,135	2,889	4,438
Draw 1st Antlerless Draw Mule Deer	3,342	3,156	2,890	3,319	3,240	3,058	3,258	3,466	5,537	5,247
Draw 2nd Antlerless Mule Deer	---	---	---	1,402	1,257	1,173	1,107	1,341	5,363	1,915
Draw Pronghorn Antelope	---	---	---	---	133	129	432	603	1,050	555
Res. Bear (1st & 2nd Licence)	3,341	3,622	3,694	4,153	4,408	4,151	3,966	3,631	3,640	5,618
Can. Res. Bear	252	289	263	258	248	228	202	182	186	212
Guided Bear	1,545	1,520	1,635	1,651	1,628	1,759	1,765	1,939	1,934	33
Barren Ground Caribou	1	5	7	10	4	10	7	---	---	---
2nd Barren Ground Caribou	1	4	7	10	4	10	4	---	---	---

Youth Licence	4,888	5,314	6,009	5,566	5,732	5,780	5,549	5,283	5,755	7,408
Wolf	---	---	---	---	---	---	264	176	169	223
Northern Fur Con. Licence	1,527	1,749	1,893	1,854	1,896	1,639	1,673	1,665	1,534	1,424
South Sask. Fur Licence	1235	1,783	2,188	2,566	2,878	2,723	2,805	2,932	2,934	2,942
Youth Fur Licence	78	94	175	214	216	172	159	164	174	237
Total Licences Sold	199,794	207,057	202,981	190,135	200,654	206,382	209,170	209,133	209,083	91,279
Migratory Bird Permit Sales	17,533	20,112	21,376	20,518	21,099	20,756	19,862	---	---	---