



# State of the Environment Report



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# Minister's Message



*Hon. Warren Kaeding  
Minister of Environment*

It is both opportune and challenging to present a State of the Environment report in 2021, as our planet and all its residents feel the effects of a global pandemic. While priorities must continue to focus on preventing the spread and managing the many impacts of COVID-19, it is also a good time to assess and determine how resilient our physical environment is to change – including changes to climate, resources and the growth of Saskatchewan's industries and communities. Hence our ministry's vision: a healthy, resilient environment.

This year's State of the Environment report – which our government publishes in various forms every two years – builds on measures highlighted in our full 2017 report, as well as our 2019 Focus on Forests report. The 2021 report will largely be an online product. This approach will allow the ministry to update environmental indicators in a timelier manner, and provide easier public access to State of the Environment information.

The 2021 report demonstrates our environment is indeed healthy, and illustrates how resilient and prepared it is for growth and global climate change. For example, our air quality is good, our forests are sufficiently regenerated after harvest activity, we've introduced multiple regulations to address greenhouse gas emissions, and our province's recycling programs continue to thrive and expand.

The 2021 State of the Environment report also complements other government and ministry reporting and communication efforts. This includes our annual climate resilience report, which shows 18 of 25 measures are classified as good, an increase from 15 in the 2019 resilience report. It also includes the ministry's growing social media presence – used to share educational, environmental information – and our Solid Waste Management Strategy, which will report on provincial progress towards waste reduction goals in the coming years.

All this important environmental work and progress – designed by government policy and programming, but made possible by the people and organizations of our beautiful province – contribute to Saskatchewan's Growth Plan. As we set a foundation for the future to support a strong economy, strong communities and strong families, our goal is always to build a stronger Saskatchewan.

# About the Report

The State of the Environment report is a requirement in *The Environmental Management and Protection Act, 2010*, with the specific purpose to produce a report “concerning the current condition of the environment in Saskatchewan and the relationships between the condition of the environment and the economy of Saskatchewan.”

The Government of Saskatchewan continues to improve its ‘state of the environment’ reporting to offer accessible and comprehensive information to enhance our understanding of the environment. This includes moving primarily to an online version of the report this year, to allow for more regular updating and easy public access to information.

Unlike prior reports, the 2021 edition does not categorize measures into air, habitat, land and water. Some measures – for example, greenhouse gas emissions – are intertwined with multiple categories and should not be considered within only one limited view. Instead, this report focuses on individual indicators and discusses those multi-pronged relationships within each measure.

The most recent data is reported in each measure, and this often depends on availability and frequency of reporting from third parties. As such, some data is as recent as 2020, while some may be from years prior. The new online reporting format will allow for more timely updates and discussion when new data becomes available.

The report will provide the following information in each section.

## Why we measure this

***A simple explanation of what information the environmental indicator conveys and why that information is important.***

## What is happening

***An explanation, graph or map, of how human activities are having an impact on specific environmental measures.***

## What we are doing

***Actions being taken to improve or maintain environmental conditions.***

# Greenhouse gas emissions



## Why we measure this

Greenhouse gases are changing the climate. This will have both local and global effects, from the vegetables in your back yard to ocean acidification.

Much of our prosperity comes from the natural world, including agriculture, forestry, ecotourism and other resource-based industries. The success of these industries, and the province, is dependent on a stable climate and a resilient environment.

Saskatchewan's infrastructure was designed to operate within a range defined by historical norms. As the climate changes, we will experience weather outside of that historical norm. When this occurs, there is an increased probability of physical and longer-term risks.

This measure discusses the effects of a changing climate on the province and economy, as well as government programs designed to address the impacts.

## What is happening

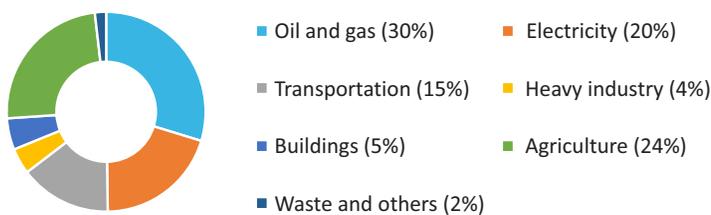
State	Trend	Information	Extent
 mixed/fair	 mixed/no change	 good	 province

The climate is affected by the amount of greenhouse gases (GHGs) in the air. Globally, the amount of GHGs in the air is rising. Carbon dioxide (CO<sub>2</sub>) levels are now 411 parts per million, 50 per cent more than 200 years ago. Methane levels are now 1,884 parts per billion, 160 per cent more than 200 years ago. The more GHGs in the air, the faster and further the climate will change.

Saskatchewan's GHG emissions in 2018 totaled 76.4 million tonnes. This represents approximately 10 per cent of Canada's emissions, which are approximately two per cent of global emissions. However, our per-person emissions of 65.8 tonnes CO<sub>2</sub>e (carbon dioxide equivalent) are among the highest in Canada. Carbon dioxide represents 66 per cent of Saskatchewan's emissions in 2018. Other sources include methane at 23 per cent, nitrous oxide at 10 per cent and fluoridated gases at less than one per cent.

**Saskatchewan's GHG emissions totaled 76.4 million tonnes of CO<sub>2</sub>e in 2018.**

### Saskatchewan's GHG emissions by economic sector, 2018



GHG emissions per dollar of gross domestic product (GDP), or the total amount of goods and services produced in an economy, is known as the GHG emission intensity. Saskatchewan's GHG emission intensity dropped 12 per cent after 2005, and was relatively flat from 2011 to 2018.

### Quick facts

- Saskatchewan's GHG emissions in 2018 totaled 76.4 million tonnes.
- Saskatchewan's GHG emission intensity dropped 12 per cent after 2005, and was relatively flat from 2011 to 2018.
- There are dozens of greenhouse gases, each with their own potency and life expectancy. To make comparison easier, the warming potential of all these gasses is expressed in units of CO<sub>2</sub>e, or carbon dioxide equivalent.
- Modern farming practices pull CO<sub>2</sub> out of the air and store it in the soil, increasing the organic content and boosting productivity.

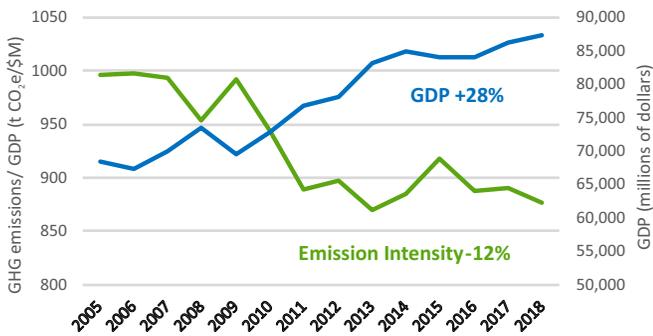
Last updated: April 2020  
Update frequency: annually

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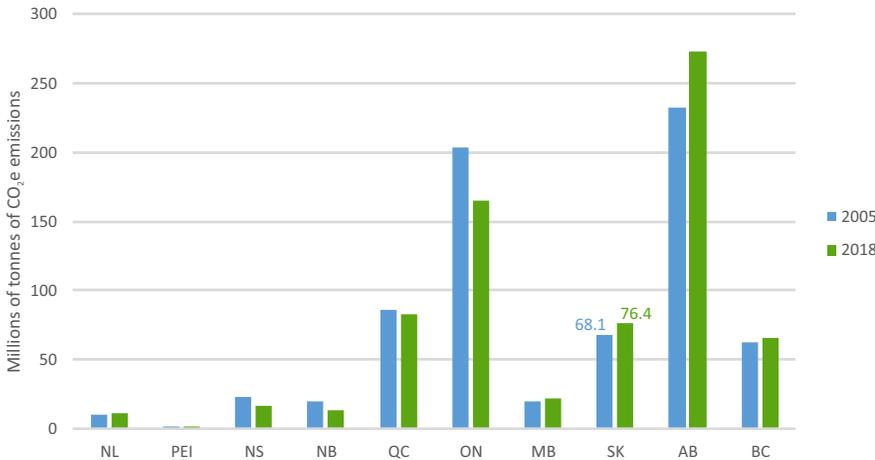
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### GHG emission intensity to gross domestic product, 2005 to 2018



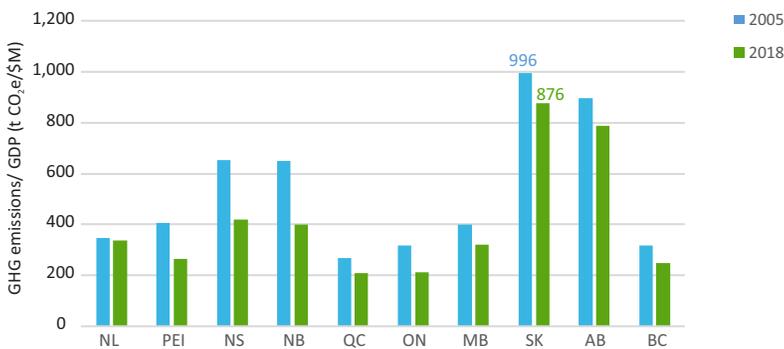
Saskatchewan's 76.4 million tonnes of CO<sub>2</sub>e emissions are the fourth highest in the country, after Alberta, Ontario and Quebec. Between 2005 and 2018, half of the provinces increased GHG emissions, while the other half reduced GHG emissions.

### Interprovincial comparison of GHG emissions, 2005-2018



Due to the province's export-oriented and resource-dependent economy, Saskatchewan has the highest GHG emission intensity of the provinces, at 876 tonnes of CO<sub>2</sub>e per million dollars of GDP in 2018. Every province had lower GHG emission intensity than in 2005.

### Interprovincial comparison of GHG emissions intensity, 2005 - 2018



The latest research shows Saskatchewan is getting more rain, which may lead to more floods. At the same time, higher temperatures dry the ground faster, deepening the severity of droughts.

Higher temperatures are increasing the length of the growing season. But warmer winters are causing more problems with pests and invasive species. The mountain pine beetle has already destroyed forests in British Columbia and Alberta.

In some parts of the boreal forest, trees may start growing faster because of the longer growing season. Other parts of the boreal forest will naturally burn, and aspen parkland and grassland will grow in their place.

The type of crops and livestock that grow best will change with the climate.

## What we are doing

In 2015, at the COP-21 meeting in Paris, 195 countries, including Canada, agreed to reduce their GHG emissions in what is known as the Paris Agreement. Following the Paris Agreement, Premiers and the Prime Minister met in Vancouver, where they signed the Vancouver Declaration in which all provinces agreed to the national goal of reducing GHG emissions by 30 per cent below 2005 levels by 2030.

Following the Vancouver Declaration, Saskatchewan developed *Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy*, which is available at [saskatchewan.ca/climate-change](http://saskatchewan.ca/climate-change). *Prairie Resilience* is a strategy that takes a system-wide approach and includes more than 40 commitments designed to make Saskatchewan more resilient to the effects of a changing climate. The commitments – which go beyond emissions reductions alone – span Saskatchewan's natural systems and resources, infrastructure for electricity, transportation, homes and buildings, and community preparedness.

*Prairie Resilience* focuses the province's efforts on specific industries and activities that could have the greatest impact on provincial GHG emissions.

Electricity generation was first among the industries covered by *Prairie Resilience* to directly reduce emissions in that sector over time.

**SaskPower's current electricity generation plan will see their emissions fall by two thirds over the next decade.**

To reduce GHG emissions, SaskPower will phase out all conventional coal-fired power generation and achieve up to 50 per cent of electricity production capacity from renewable resources by 2030.

SaskPower also pioneered the development of carbon capture and storage (CCS) technology in 2014, which has since been used to capture more than 3.7 million tonnes of CO<sub>2</sub>. All these efforts are expected to reduce emissions from electricity generation by two-thirds over the next decade.

*Prairie Resilience* also targets methane emissions in the oil and gas industry. About 60 per cent of GHG emissions in the oil and gas industry come from the disposal of unwanted methane. In 2019, the province introduced the Methane Action Plan, designed to reduce the amount and methods of methane disposal. The plan is expected to reduce methane-related emissions by 40 to 45 per cent by 2025.

Heavy industry and the oil and gas industry are subject to output-based performance standards, also known as the OBPS program. The standards require companies to reduce the emissions intensity of their operations. Upstream oil and gas producers are required to reduce their emissions intensity by 15 per cent, on top of reductions required by methane regulations. Refineries are required to reduce their emission intensity by 10 per cent, while other industrial emitters are required to reduce their emission intensity by five per cent.

Saskatchewan is making efforts to reduce GHG emissions, but climate change requires collective global action. For this reason, the core principle of *Prairie Resilience* is: **resilience – the ability to cope with, adapt to, and recover from stress and change**. This is essential, as the effects of climate change are already being experienced.

The province is tracking many initiatives for enhancing resilience, from forest management to culvert expansion, and from crop diversification to monitoring diseases. For a complete list, please refer to Saskatchewan's 2020 Climate Resilience Report.

## Air pollutant volume



### Why we measure this

To evaluate air quality in Saskatchewan, it is important to know the total volume of air pollution produced. That volume is influenced by the particular characteristics of individual emissions and other factors, such as weather. In this section, we examine the total amounts of three primary air pollutants – fine particulates, sulphur oxides (SO<sub>x</sub>) and nitrogen oxides (NO<sub>x</sub>).

Emission source location and volume are important factors to consider in evaluating and adjusting the provincial air monitoring network. The information collected from our air monitoring network will help inform provincial actions and policies that ensure air quality is safe for people and the environment.

### What is happening

State	Trend	Information	Extent
fine particulate matter	deteriorating	In 2018, there were approximately 485,000 tonnes of PM <sub>2.5</sub> released in Saskatchewan. The most common cause was open sources.	province
SO <sub>x</sub> (sulfur oxide)	improving	In 2018, there were approximately 117,000 tonnes of SO <sub>x</sub> released in Saskatchewan. The most common cause was non-industrial sources.	province
NO <sub>x</sub> (nitrogen oxide)	improving	In 2018, there were approximately 151,000 tonnes of NO <sub>x</sub> released in Saskatchewan. The most common cause was mobile sources.	province

Emissions in Saskatchewan come from industrial sources, non-industrial sources, open sources and mobile sources. In Saskatchewan, industrial sources include oil and gas activity, mining and industrial facilities. Non-industrial sources mainly consist of power generation. Open sources include wildfires, agricultural operations, construction and road dust. Mobile sources include vehicle emissions.

Generally speaking, levels of SO<sub>x</sub> and NO<sub>x</sub> have been dropping in Saskatchewan since 2010. However, we are seeing more fine particulates (PM<sub>2.5</sub>) in the air, mainly due to periodic wildfire activity in Saskatchewan and across North America.

**Levels of sulphur oxides (SO<sub>x</sub>) and nitrogen oxides (NO<sub>x</sub>) have been dropping in Saskatchewan since 2010.**

### What we are doing

Saskatchewan has a number of tools available to ensure air quality is safe for people and the environment. *The Environmental Management and Protection Act, 2010* requires an environmental protection plan for major industrial emission sources. Companies must make sure their operations meet Saskatchewan's air quality standards. This ensures air quality is safe for human health and the environment. The Ministry of Environment has a compliance assurance program in place to ensure environmental protection plans are being followed.

The ministry supports Canada's National Pollutant Release Inventory (NPRI) program. NPRI collects, stores and distributes annual air emissions figures from all reporting sources.

Saskatchewan has committed to an Air Quality Management System (AQMS) established by the Canadian Council of Ministers of the Environment (CCME). This management system will help the ministry identify and resolve potential air quality issues, including issues related to pollutant sources.

#### Quick facts

- In 2018, there were approximately 485,000 tonnes of PM<sub>2.5</sub> released in Saskatchewan. The most common cause was open sources.
- In 2018, there were approximately 117,000 tonnes of SO<sub>x</sub> released in Saskatchewan. The most common cause was non-industrial sources.
- In 2018, there were approximately 151,000 tonnes of NO<sub>x</sub> released in Saskatchewan. The most common cause was mobile sources.

Last updated: March 2021

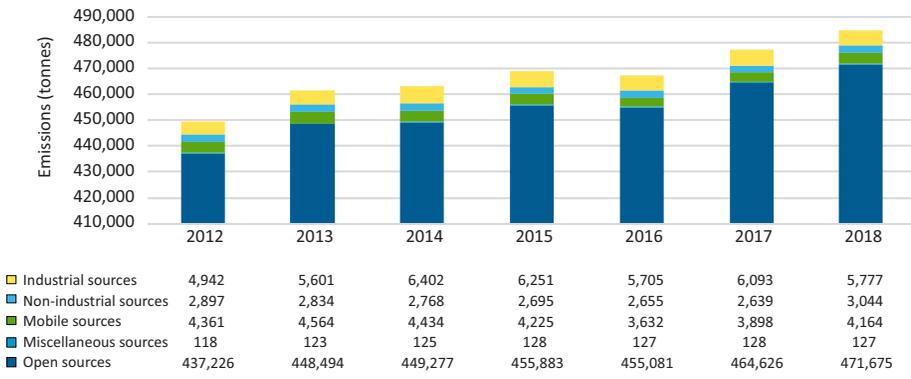
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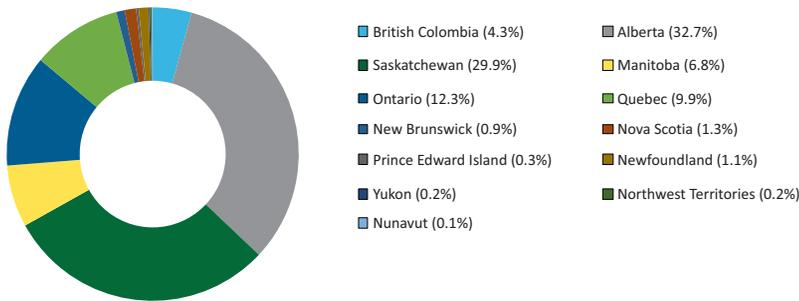


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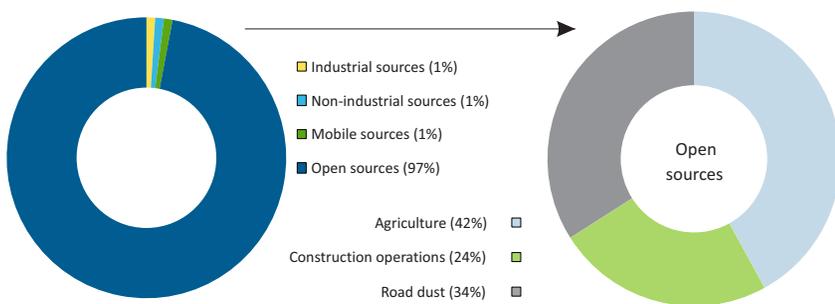
**Saskatchewan PM<sub>2.5</sub> emissions by sector, 2018**



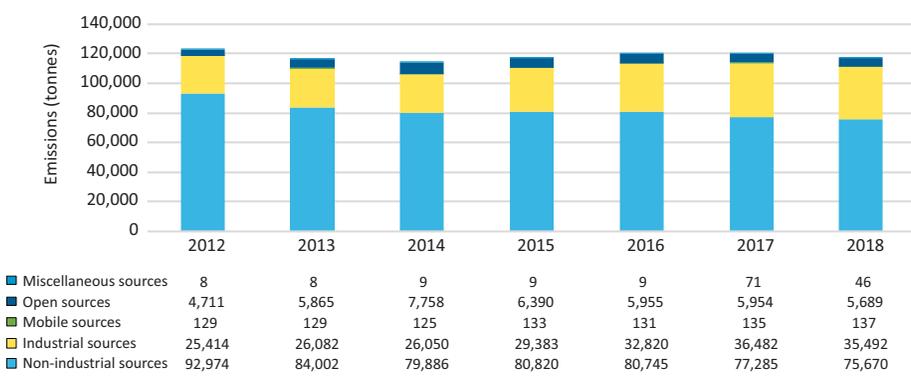
**PM<sub>2.5</sub> emissions across Canada, 2018**



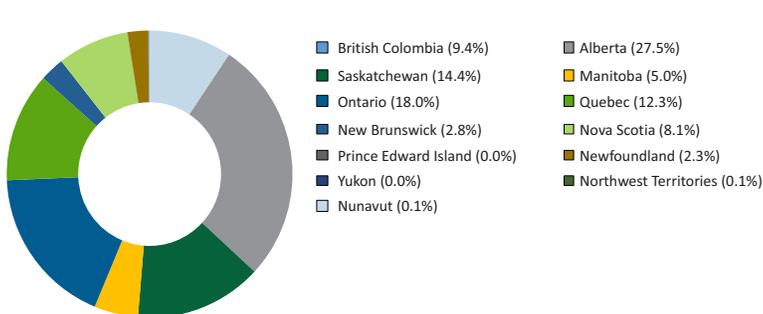
**Saskatchewan PM<sub>2.5</sub> emissions by sector, 2018**



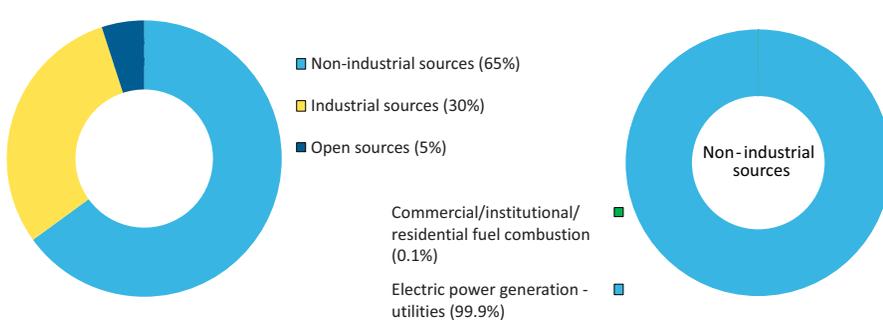
**Saskatchewan SO<sub>x</sub> emissions by sector, 2018**



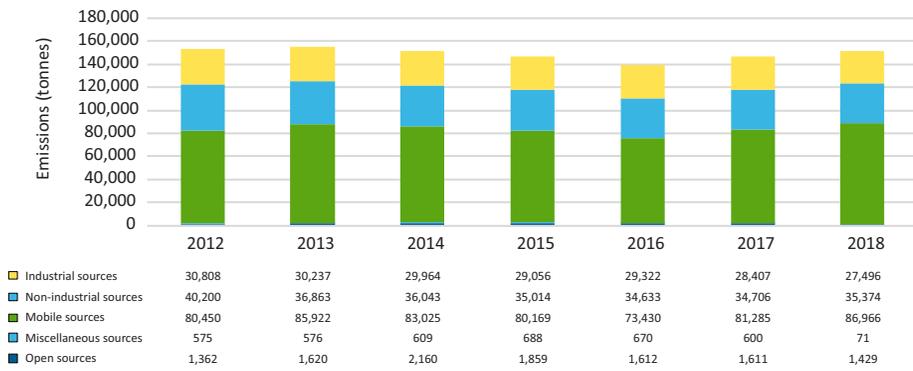
**SO<sub>x</sub> emissions across Canada, 2018**



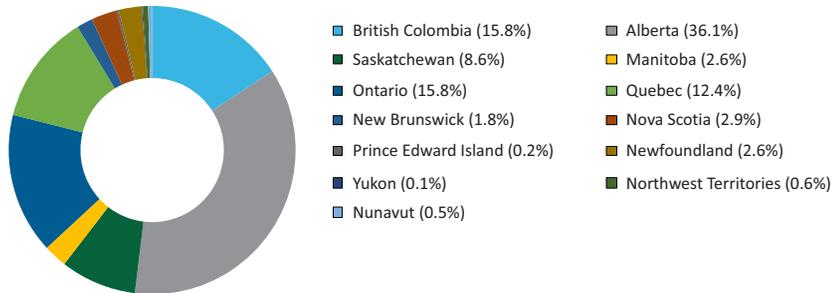
**Saskatchewan SO<sub>x</sub> emissions by sector, 2018**



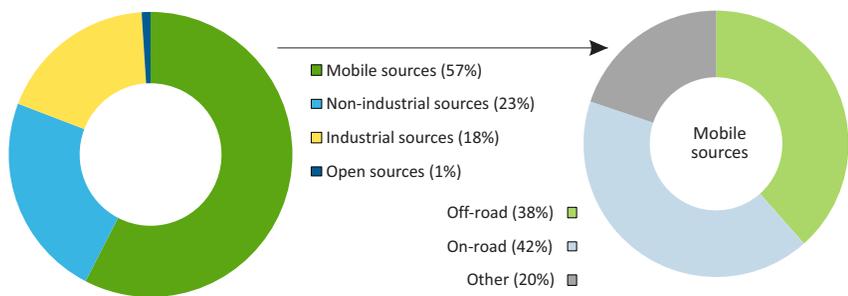
**Saskatchewan NO<sub>x</sub> emissions by sector, 2018**



**NO<sub>x</sub> emissions across Canada, 2018**



**Saskatchewan NO<sub>x</sub> emissions by sector, 2018**



All data in graphs sourced from Environment and Climate Change Canada.

## Air pollutant concentration



### Why we measure this

The Ministry of Environment monitors air quality in Saskatchewan. The concentration of various air pollutants is measured to ensure Saskatchewan has a healthy and resilient environment.

Measuring and evaluating the concentration of air pollution across Saskatchewan is a vital activity. These measurements provide the public with real time air quality information, and the government with long-term trends, making it easier identify and track changes in our environment.

### What is happening

Indicator	State	Trend	Information	Extent
fine particulate matter	mixed/fair	deteriorating	The concentration of fine particulate matter is increasing over time. The provincial annual average is still below the annual Saskatchewan Ambient Air Quality Standard.	province
O <sub>3</sub> (ozone)	mixed/fair	deteriorating	The trend for provincial annual average O <sub>3</sub> concentrations is increasing. The Saskatchewan Ambient Air Quality standards for O <sub>3</sub> are rarely exceeded at provincial monitoring stations.	province
NO <sub>2</sub> (nitrogen dioxide)	good	improving	The trend for provincial annual average NO <sub>2</sub> concentrations is decreasing and the annual average is below the annual Saskatchewan Ambient Air Quality Standard.	province
SO <sub>2</sub> (sulphur dioxide)	good	improving	The trend for provincial annual average SO <sub>2</sub> concentrations is decreasing and the annual average is below the annual Saskatchewan Ambient Air Quality Standard.	province
CO (carbon monoxide)	good	improving	The trend for provincial annual average CO concentrations is decreasing. There is no standard for annual CO averages; however, the Saskatchewan Ambient Air Quality Standards for CO were not exceeded at our provincial monitoring stations.	province

Air quality across Saskatchewan is generally low risk to human health. Average pollution levels for most parameters have been dropping over time. Sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and nitrogen dioxide (NO<sub>2</sub>) levels declined from 2000 to 2020. SO<sub>2</sub> concentrations have increased slightly since 2017 with the establishment of a permanent air monitoring station in Estevan.

Fine particulate matter (FPM or PM<sub>2.5</sub>), defined as airborne particles less than 2.5 micrometres in diameter, has been increasing slightly since 2010. This is mostly due to the impacts of wildfire smoke. These fires are considered “exceptional events” and cause a short-term reduction in air quality. Were it not for wildfires, the overall average concentration of fine particulate matter in Saskatchewan would actually be dropping.

The improvements we have seen in Saskatchewan's overall air quality do not extend to ozone (O<sub>3</sub>). Ozone levels continue to increase, despite the reduction in pollution concentrations that contribute to ozone formation. Several reasons could explain this, including a rise in average background ozone concentrations and cross-border impacts. Background ozone includes naturally occurring ozone. The formation of ozone is complex and is dependent on a chemical reaction involving NO<sub>x</sub> and hydrocarbons in the presence of sunlight. When there is less NO<sub>x</sub> in the air, it can result in ozone levels remaining high and may even increase in concentration.

### Quick facts

- Continuous air quality monitoring takes place in six locations across our province: Regina, Saskatoon, Prince Albert, Swift Current, Estevan and Buffalo Narrows.
- Air zone associations have been established in three of the six air zones. They are: Southeast Saskatchewan Airshed Association, Western Yellowhead Air Management Zone, and Great Plains Air Zone.

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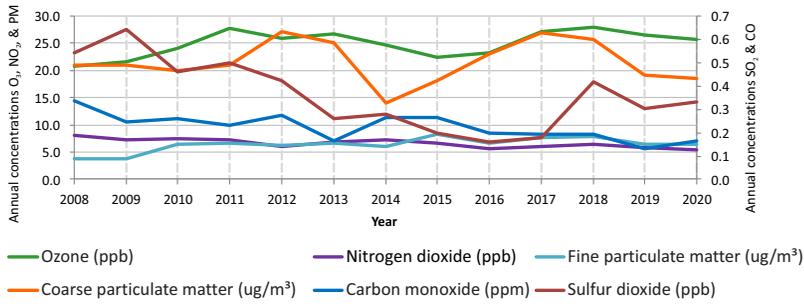
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**Air quality in Saskatchewan is typically low risk and pollution levels are improving for most pollutants.**

**Saskatchewan urban air pollutant concentrations (annual averages)**



**What we are doing**

Saskatchewan is committed to the Air Quality Management System established by the Canadian Council of Ministers of the Environment. The system is a national approach to managing air quality in Canada. The driver of the system is the Canadian Ambient Air Quality Standards, which are federal standards developed to protect human health and the environment. Saskatchewan contributes to the system by reporting on the federal goals and developing plans to assign progressively more rigorous actions to prevent air quality deterioration, as the air quality comes closer to exceeding the federal standards.

As part of the system, Saskatchewan has identified six air zones. Air zones define areas that exhibit similar air quality characteristics, issues and trends. These air zones form the basis for monitoring, reporting and taking action on air quality issues. Saskatchewan will improve its collaborative efforts with air zone associations to review air quality trends and assess air quality issues to meet the standards of the system.

The Ministry of Environment operates six ambient air monitoring stations, one in each air zone, under the National Air Pollution Surveillance (NAPS) program. Continuous air quality monitoring takes place in six locations across our province: Regina, Saskatoon, Prince Albert, Swift Current, Estevan and Buffalo Narrows. The NAPS program is jointly operated and maintained by the provinces, territories and Environment and Climate Change Canada. The NAPS ambient air monitoring program is operated by the provincial government in Saskatchewan and provides accurate, long-term air quality data. Real time information from these monitoring sites is available to the public, under Air Quality Monitoring on saskatchewan.ca.

Air zone associations have been established in three of the six air zones, where higher industrial activity and population density are found. They are: Southeast Saskatchewan Airshed Association, Western Yellowhead Air Management Zone, and Great Plains Air Zone. These associations provide additional monitoring in areas not monitored by the provincial monitoring program. For more information on air zone management in Saskatchewan, please view the latest Air Zones Report.

Saskatchewan also has two mobile air quality stations used to supplement the continuous monitoring network. The Mobile Air Quality Station (MAQS) and the Rapid-deployment Air Quality Station (RAQS) are specially designed trailers equipped to supplement the ministry's air monitoring capabilities anywhere in the province accessible by road.



## Impacted sites



### Why we measure this

Environmentally impacted sites are areas of land or water that contain a substance that may cause, or is causing, an adverse effect. Adverse effect means impairment of – or damage to – the environment, or harm to human health. An impacted site is usually a piece of land or a body of water that has been disturbed or affected by a chemical or substance as a result of human activities that have changed it in a way that may harm or alter the environment.

In Saskatchewan, environmentally impacted sites are typically associated with transportation, manufacturing, industrial, commercial or mining activities.

The Ministry of Environment’s role is to manage the health of Saskatchewan’s environment in a responsible manner that supports sustainable growth through objective, transparent and informed decision-making and stewardship. Managing impacted sites allows the ministry to identify areas in the province that are a potential risk to the health and safety of the public and to the environment. Failure to identify impacted sites in the province may increase the risks of an adverse effect to the environment.

### What is happening

State	Trend	Information	Extent
 mixed/fair	 improving	 adequate	 province

In accordance with Section 9 of *The Environmental Management and Protection Act, 2010* (EMPA, 2010), there is a duty to report to the ministry any discoveries of a substance that may cause, or is causing, an adverse effect.

The ministry maintains a registry of all reported impacted sites in the province. The registry includes information on contaminants, location of the site, involved parties and the environmental status of the site. The registry helps the ministry keep track of and monitor impacted sites and regulate parties responsible for remediation of the site. By maintaining a registry, the ministry can prioritize and focus on sites that present an immediate threat to human health and the environment.

The progression of an environmentally impacted site through the impacted sites process remains voluntary, and is overseen by the ministry. The responsible party is given the opportunity to identify, assess, manage and remediate impacts on a site to meet legislative requirements and to ensure protection of human health within a reasonable amount of time. The Minister of Environment may direct the responsible party to take action in situations where the Minister believes adverse effects pose a significant risk to human health or the environment and where the responsible party is not addressing impacts adequately. Such direction would impose strict timelines to which the responsible party must comply.

As of December 31, 2020, 59 historical discoveries were entered into the ministry’s registry for the 2020-21 fiscal year. As these sites are reported, responsible parties and the ministry assess the degree of impacts, and the sites are entered into the ministry’s registry as impacted sites. Every time a discovery is reported, the ministry obtains valuable information and acquires a better understanding of what the impacts are in the province.

As of December 31, 2020, the ministry manages 2,712 impacted sites through its registry. This registry is based on information submitted by responsible parties or involved parties. It is not an exhaustive list of all impacted sites in the province and may not include impacted sites that have not yet been discovered or reported to the ministry. It also may not include activities that are authorized under the authority of EMPA, 2010 or other activities approved under different legislation.

In accordance with Section 18 of EMPA 2010, a person responsible for an environmentally impacted site may apply to the Minister to file a notice of site condition in the registry if the environmentally impacted site has been reclaimed and met the requirements of EMPA 2010 and the Saskatchewan Environmental Code.

As of December 31, 2020, a total of 27 notices of site conditions were filed in the registry. The registration of a notice of site condition for a site is an acknowledgment by the Ministry of Environment that an acceptable level of risk remains at the subject site and results in a limited release of liability of the responsible party. The issuance of a notice of site condition enters the site into the registry, and the information in the registry is accessible through the Freedom of Information process. Where any subsequent information disproves or contradicts the information used to register the notice of site condition, the Minister is authorized to revoke the notice of site condition for the site. However, if the documentation used to register a notice of site condition for a site is incomplete or contains false or misleading information, the Minister may require further assessment and/or revoke the notice of site condition for that site.

### Quick facts

- 59 historical discoveries were entered into the ministry’s registry from April 1, 2020 to December 31, 2020.
- A total of 27 notices of site conditions were filed as of December 31, 2020.
- In 2020, the ministry manually completed its review of 8,600 paper files for historical sites to identify impacted sites.

Last updated: December 31, 2020  
Update frequency: quarterly

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***By maintaining a registry, the ministry can prioritize sites based on risk and focus on sites that present an immediate threat to human health and the environment.***

## What we are doing

On June 1, 2015, *The Environmental Management and Protection Act, 2002* was repealed and replaced with *The Environmental Management and Protection Act, 2010* and included the implementation of the Saskatchewan Environmental Code. The code provides results-based objectives, specifications, procedures, criteria and methods to manage impacted sites to limit the risk of adverse effects to the environment and human health. The enactment of the new legislation included the ministry's move towards results-based regulation, which fosters flexibility and innovation by encouraging responsible parties to determine their own course of action while allowing the ministry to use its resources to focus on high-risk sites that pose a threat to the public and the environment.

The ministry continues to work with parties involved with impacted sites to ensure realization and appropriate application of EMPA 2010 and the code by continued stakeholder consultation. The ministry attended several meetings and conferences in 2020, including with the Canadian Fuels Association (CFA) and a presentation at the Saskatchewan Environmental Industry and Managers Association (SEIMA) semiannual meetings to discuss EMPA 2010 and the code.

In addition to stakeholder consultation, the ministry continues to publish communications to assist parties in understanding the requirements of current environmental legislation. In January of 2020, the ministry published *Managing Impacted Sites in Saskatchewan* to provide further education and information on the impacted sites process.

In 2020, the ministry manually completed its review of 8,600 paper files for historical sites to identify impacted sites. Each site was assessed for potential impacts based on the available information. As new information becomes available regarding an impacted site, the ministry reviews all information to ensure compliance with environmental legislation and deals appropriately with any risk to the public and to the environment. The ministry strives to obtain accurate information for impacted sites and to lower the risk of adverse effects to ensure a better quality of life for the people of Saskatchewan and a healthy, resilient environment for our province.

## Waste reduction and recycling



### Why we measure this

Waste management includes reducing, reusing and recycling our waste to prevent it from ending up in Saskatchewan's landfills. Waste reduction or prevention is the preferred approach to managing waste, as it avoids creating waste through product design and consumer purchasing habits. Reusing or repurposing an item can give products a second life before they become waste. Finally, recycling is one of the final options available to responsibly manage waste before disposal.

Recycling uses time, energy and resources to reprocess waste materials into new products or materials. Saskatchewan has several regulations and programs that use the extended producer responsibility (EPR) model to encourage reducing, reusing, and recycling products and materials. EPR is a policy in which responsibility for the end-of-life management of products and materials shifts to the producers of these materials (i.e. brand owners, first importers or manufacturers) and away from municipalities and general taxpayers. The Ministry of Environment maintains regulations for EPR programs in Saskatchewan for used oil and antifreeze, scrap tires, waste paint, electronic equipment, printed paper and packaging, agricultural plastics, batteries and household hazardous waste. The ministry also works with SARCAN Recycling through a contract to manage the province-wide depot system for the collection and recycling of beverage containers.

One way to reduce pressure on the environment and sustain scarce resources is to divert waste before it gets to landfills. Much of what we describe as trash or waste is a valuable resource. Less waste means better landfill management and less pressure on natural resources. It also means lower carbon emissions. Recycling is an indicator of public commitment to share in the responsibility for environmental stewardship.

### What is happening

State	Trend	Information	Extent
good	improving	partial	province

In 2019-20, Saskatchewan people recycled 77 per cent of all deposit-paid, ready-to-serve beverage containers sold in the province, for a total of more than 438 million beverage containers collected by the program. Since 2015-16, the average number of containers recycled and recovery rate has been trending upwards, but saw a decline in 2019-20. Since 2010, the SARCAN program has diverted 22,000 tonnes of materials from Saskatchewan landfills each year. In April 2017, fluid milk containers were added to the beverage container program.

In 2019, the Saskatchewan Paint Stewardship Program collected 472,731 litres of waste paint and 137 tonnes of paint cans and containers. This includes more than 82,700 litres of paint collected and reused through the program's paint exchange initiative.

Saskatchewan had the first industry-led electronics recycling stewardship program in North America. In 2019, more than 2,400 metric tonnes of end-of-life electronics were collected. In 2018, the program was expanded to incorporate additional products including, net-top computers, external disk drives, desktop scanners, e-book readers, floor-standing printers and countertop microwaves.

**In 2019, 18,945,438 litres of waste liquid and 88,727 tonnes of solid waste were diverted from landfills through provincially regulated waste stewardship programs.**

The Multi-Material Recycling Program is a cost-sharing program between businesses and municipalities to help pay for the collection and recycling of household packaging and paper materials. In 2019, more than 41,900 tonnes of printed paper and packaging materials were recycled and the program now includes more than 500 municipalities, representing 84 per cent of the population.

In 2019, 904,125 tires (more than 22,800 tonnes) were collected through the province-wide tire recycling program.

In 2019, the used oil recycling program collected and recycled 18 million litres of used oil, 328,800 litres of used antifreeze, and 1,100 tonnes of oil filters, and almost 463 tonnes of plastic containers. In 2018, Saskatchewan launched an agricultural plastics recycling program under *The Agricultural Packaging Product Waste Stewardship Regulations*. The program is the first of its kind in Canada and provides a responsible option for producers to return plastic grain bags for recycling. In 2019, the program collected 2,200 tonnes of grain bags.

### Quick facts

- 438 million beverage containers were recycled through SARCAN in 2019.
- 429,300 litres of paint were collected and diverted from landfills in 2019.
- 2,400 tonnes of waste electronics were collected and recycled in 2019.
- 18 million litres of used oil and 1.8 million oil filters were recycled in 2019.
- 41,900 tonnes of printed paper and packaging materials were recycled in 2019.
- 904,100 tires were collected in 2019.
- 2,200 tonnes of grain bags were collected in 2019.

Last updated: January 2021  
Update frequency: annually

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## What we are doing

Plastic waste management has emerged as a significant and rapidly evolving public issue that is putting pressure on municipal recycling programs in Saskatchewan and throughout Canada. In November 2018, through the Canadian Council of Ministers of the Environment (CCME), the federal, provincial and territorial governments approved a Canada-wide Strategy on Zero Plastic Waste. Building on the Ocean Plastics Charter, the CCME strategy takes a circular economy approach to plastics and provides a framework for action. The key areas in the Strategy include product design, single-use plastics, collection systems, markets, recycling capacity, consumer awareness, aquatic activities, research and monitoring, cleanup, and global action. Saskatchewan supports the CCME Strategy, which complements other waste reduction efforts in Saskatchewan, such as the development of a Solid Waste Management Strategy.

In January 2020, the Government of Saskatchewan released its Solid Waste Management Strategy for the province, which strives for a practical, sustainable and integrated solid waste management system. The strategy will serve as a roadmap for waste reduction and management, and outlines six goals and several commitments to raise public awareness, encourage regional collaboration, modernize rules and regulations, enhance waste diversion, foster innovation, and demonstrate government leadership. Saskatchewan's strategy adopts and supports the targets set in the CCME's Strategy on Zero Plastic Waste – to reduce the amount of waste generated per person by 30 per cent by 2030 and 50 per cent by 2040.

In 2019, *The Household Hazardous Waste Product Stewardship Regulations* came into effect, requiring sellers of household hazardous waste (HHW) products to manage the collection and safe disposal of the products. HHW is defined as equipment, material, products and substances that meet the criteria for flammable, corrosive or physically hazardous. HHW can include toxic or environmentally hazardous materials, household pesticides and batteries. The program for household batteries was launched in January 2021, and the program for the remaining HHW products listed above is planned to launch on April 1, 2021.

As the economy grows, reducing the amount of waste going to local landfills will improve our environment and maintain our quality of life. In 2019, 18,945,438 litres of waste liquid and 88,727 tonnes of solid waste were diverted from landfills. Some of this material can be turned into recycled products, which will create new business and employment opportunities.

## Regeneration of timber harvest area



### Quick fact

- Ninety-six per cent of the area harvested from 2004 to 2013 is sufficiently restocked with healthy growing trees.

Last updated: January 2021  
Update frequency: annually

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### Why we measure this

An important indicator of long-term forest productivity and sustainable forest management practices is the area of harvested forest land sufficiently regenerated according to a measurable standard. Forests that are regenerated successfully are essential to a long-term sustainable flow of wood products and ecosystem productivity. Successful regeneration of harvested areas is an important indicator of anticipated long-term forest productivity and sustainable forest management practices.

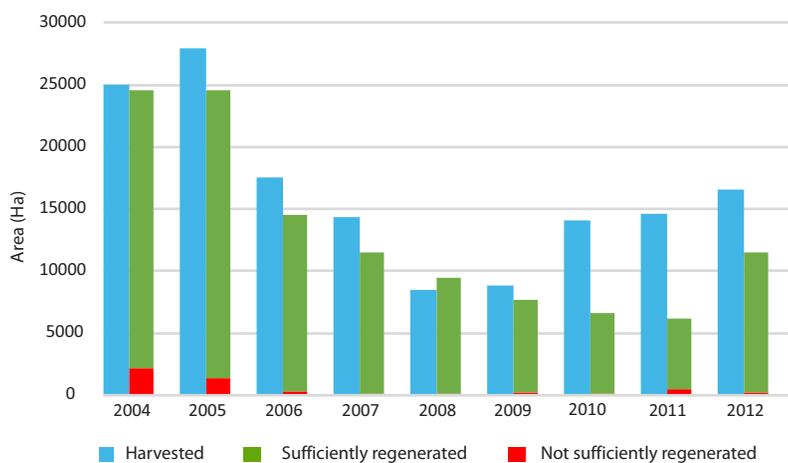
### What is happening

State	Trend	Information	Extent
good	improved	partial	commercial forest

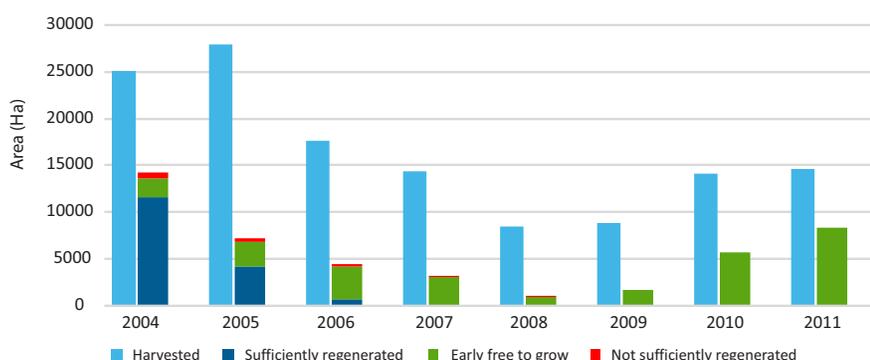
The area harvested does not always match the area surveyed by year of harvest because of the changing sources of the harvest and survey data. The area harvested and surveyed is reported by industry within 18 months of the activity being completed. While every effort is made to ensure data sets are correct at time of reporting, there can be discrepancies. The reporting time period includes harvest/fiscal years 2004-05 to 2012-13, because this is the most up-to-date regeneration survey data available from industry.

The establishment survey results demonstrate the forest industry is renewing harvested areas in a timely manner and within acceptable growth standards to meet future forest conditions. The amount of area reported as not sufficiently regenerated (NSR) at establishment for the reported time period is four per cent.

#### Sufficiently regenerated area at establishment survey (4 to 7 years post-harvest)



#### Sufficiently regenerated area at free-to-grow survey (8 to 14 years post-harvest)



## What we are doing

Every major licensee (forest management agreement and area-based term supply licence holders) that harvests forest products in the province has a legal obligation to ensure that the licence area has also been renewed.

The Forest Regeneration Assessment Standard applies to blocks harvested after 2004, and provides assurance that the achievement of the desired forest condition is likely. There are two timeframes when regeneration is assessed:

1. Establishment: four to seven years post-harvest; and
2. Free-to-grow: eight to 14 years post-harvest.

## Forest type and age



### Quick facts

- The northern half of Saskatchewan is the provincial forest. Of this area, 65 per cent is forested, an area roughly the size of the entire United Kingdom.

Last updated: April 2019

Update frequency: every 10 years

## Why we measure this

Healthy forests provide many benefits, such as clean air, fresh water, healthy soils, habitat for plants and animals, materials for building homes and paper products. Forest management is based on the idea that forests change over time, young trees grow until they reach maturity. During this time a forest may be cut for wood products, burn in wildfires, or continue growing until trees become old and fall over, or are killed by insects and disease.

Forest management plans are used by professional foresters to care for the forest. When trees are cut following these plans, the harvest is sustainable, meaning that forests and the good things they provide will always be there. In Saskatchewan's managed forests, there is a mix of different forest types, and there are more mature and older trees than would be expected naturally. Protecting forests from fires, insects and disease is one of the reasons why our forests are now older. As a result, tree cutting is needed to help the forests stay healthy.

The type and age of forests are important factors to consider when managing Saskatchewan's natural resources. Aging forests are more vulnerable to wildfire, insects and disease. Forest management in Saskatchewan is designed to result in a forest age structure that emulates natural disturbance. By emulating natural disturbances, the natural range of ecosystems should be maintained, resulting in a more resilient system.

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## What is happening

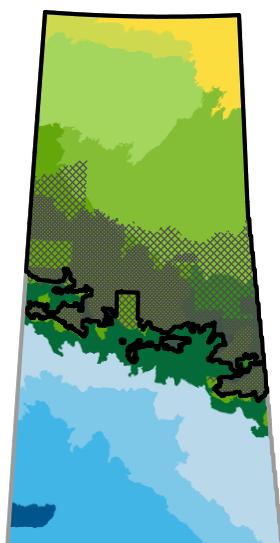
State	Trend	Information	Extent
 mixed	 mixed/no change	 partial	 province, provincial forest* and greater commercial forest zone*

The province of Saskatchewan covers an area of approximately 65.2 million hectares. The northern half of the province is largely covered by upland forests, wetlands and water. Grass and agricultural lands cover 36 per cent of the province, mainly in the south.

Four ecozones are found within the province: Taiga Shield, Boreal Shield, Boreal Plain and Prairie. The "provincial forest" is a region defined in *The Forest Resources Management Act* covering approximately 34 million hectares within the Taiga Shield, Boreal Shield and Boreal Plain ecozones.

About 64 per cent of the provincial forest is an upland forest (41 per cent softwood, eight per cent mixed wood, seven per cent hardwood, and eight per cent open productive/shrub forest types). Wetlands and water each account for 17 per cent of the provincial forest. Grass, barren rock/sand, agricultural and anthropogenic areas make up the remaining two per cent of the landcover.

### Ecozones and analysis areas



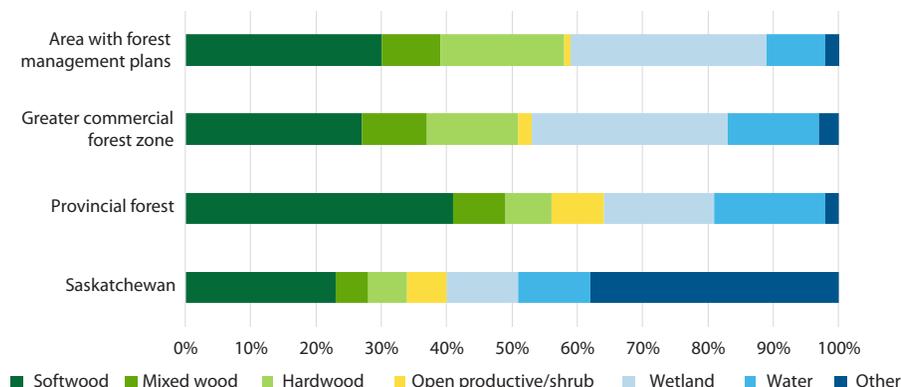
- Taiga Shield Ecozone**
  - Selwyn Lake Upland Ecoregion
  - Tazin Lake Upland Ecoregion
- Boreal Shield Ecozone**
  - Athabasca Plain Ecoregion
  - Churchill River Upland Ecoregion
- Boreal Plain Ecozone**
  - Mid-Boreal Upland Ecoregion
  - Mid-Boreal Lowland Ecoregion
  - Boreal Transition Ecoregion
- Prairie Ecozone**
  - Aspen Parkland
  - Moist Mixed Grassland Ecoregion
  - Mixed Grassland Ecoregion
  - Cypress Upland Ecoregion
- provincial forest
- timber supply areas with forest management plans
- greater commercial forest zone\*  
\*includes Cold Lake Air Weapons Range and adjacent provincial/federal parks

\*For the purposes of this indicator, the 11.7 million-hectare commercial forest zone has been expanded to include the Cold Lake Air Weapons Range, and provincial and national parks within and adjacent to the commercial forest zone. Within the provincial forest, the greatest amount of human activity occurs within this 14.3 million-hectare area referred to here as the greater commercial forest zone.

The greater commercial forest zone is largely softwood, but features a greater proportion of hardwood and mixed wood forest types compared to the provincial forest. Wetlands also feature prominently within the greater commercial forest zone, covering nearly a third of the area.

Most forest-based economic activity and fire suppression occurs within the greater commercial forest zone, which is subdivided into a number of timber supply areas. As of 2019, there are six active forest management plans, covering 8.3 million hectares.

**Forest and non-forest landcover types within the province, the provincial forest, the greater commercial forest zone\* and those timber supply areas with active forest management plans**



\*Including Cold Lake Air Weapons Range and provincial and federal parks within or adjacent to the commercial forest zone

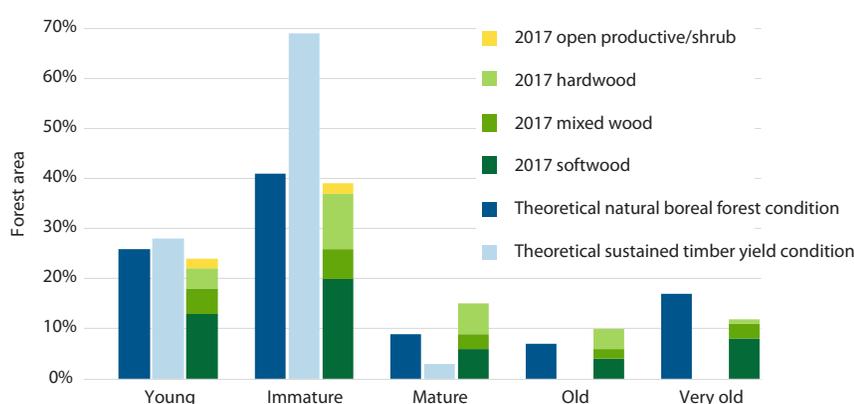
Boreal forests, when uninfluenced by human activities, are shaped by natural disturbances such as wildfire, insects, disease and wind. In theory, the greatest amount of forest area is typically found in the youngest forest ages, and the least amount of forest area is typically found in the oldest forest ages. In contrast, forests managed solely to sustain timber yield are evenly distributed among young, immature and mature forest ages with very little forest area in the old and very old forest ages. The greater commercial forest zone's current forest age structure falls between these two theoretical patterns.

Where humans have been putting out wildfires for decades, the forest has become older than it would under natural boreal forest conditions. This can lead to more intense wildfires and more serious insect infestations. Letting wildfire play its natural role when safe and feasible is one way to address this age imbalance; carefully planned forest harvesting can be another.

Native plant and animal species are often associated with certain forest and wetland types and certain forest ages. The availability of habitat for various species may be partially assessed through the abundance and distribution of forest types, forest ages and wetlands. Maintaining the natural range of ecosystems results in a more resilient system, helping to sustain overall biological diversity. Ecosystem diversity, the variety and relative abundance of ecosystems and their plant and animal communities, is necessary for species preservation.

The ideal distribution of forest ages for any management area depends on the ecology and management goals for that area. In reality, the target forest age structure is somewhere in between the natural pattern and that of a forest managed solely for timber. What is important is that wood fiber, habitat and ecosystems are maintained.

**Forest area in the greater commercial forest zone\* by forest age and type**



\*including Cold Lake Air Weapons Range and provincial or federal parks within and adjacent to commercial forest zone

[More detailed information can be found in this technical report.](#)

**What we are doing**

Saskatchewan's forest management planning process emulates natural disturbances – unlike a sustained timber yield approach – allowing ecosystems to be maintained, resulting in a more resilient system. Resilient systems sustain biological diversity, protect habitat, maintain recreational opportunities and ensure economic growth.

Forests must be managed to balance habitat needs, recreational opportunities and economic growth. Like a well-diversified financial portfolio makes it easier to adapt to economic market changes, biological diversity makes it possible for ecosystems and species to respond and adapt to environmental change. Generally, forest management practices over the last several decades in Saskatchewan have shifted the distribution of forest ages towards older classes in the greater commercial forest zone.

# Natural forest disturbance



## Why we measure this

Natural disturbances such as fire, wind, flood, insects and disease outbreaks are an important part of the natural life cycle of forests, especially the boreal forest. These disturbances change the environment by changing the amount and distribution of forest stand types across the landscape, diversify the age class distribution of forest stands and facilitate the renewal of the forest.

All natural disturbance types are unpredictable and can have a significant effect on sustainable forest management. While natural disturbances are essential to forest health and renewal, they can have a negative impact on communities and businesses that reside in or rely on forests. Wildfires threaten human safety, property and infrastructure, and smoke often becomes a public health concern. All natural disturbances can damage and reduce the supply of timber and impact the socio-economic well-being of communities and citizens.

## What is happening

State	Trend	Information	Extent
 good	 mixed/no change	 partial	 province

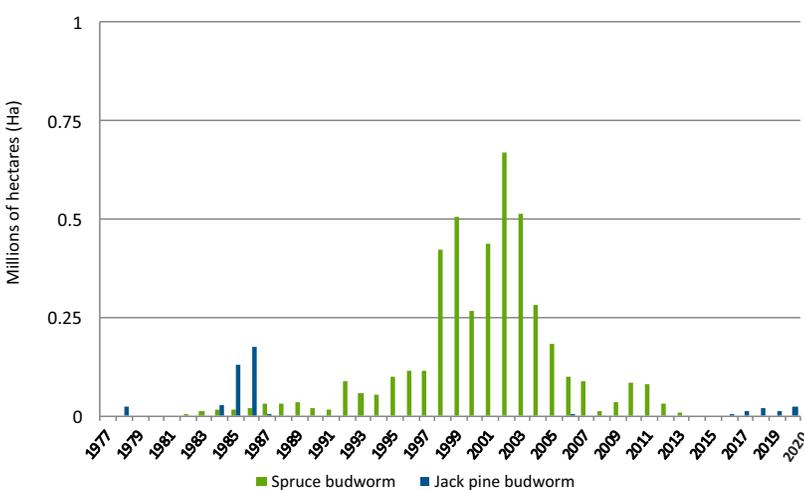
Although these disturbances are natural forces shaping the boreal forest, there is a need to maintain and protect forests and other values found within the forest. There is a cost to deploying resources to protect the forest from wildfire, insects and disease, and there is a cost to lost timber for forest products. Unpredictable disturbances create uncertainties in terms of forest product availability, and can have a significant effect on sustainable forest management.

The provincial forest management planning standard requires the owner of a forest management plan to describe how the risks of natural disturbances including fire, insects, disease and wind could affect the timber supply. Forest management plans must be revisited when the projected sustainable timber targets and other management objectives over the planning period are no longer achievable due to natural disturbance.

Spruce budworm, jack pine budworm, forest tent caterpillar and large aspen tortrix are all cyclic in their outbreak behaviour. Generally, populations of these insects increase and reach outbreak levels within expected and predictable timeframes. These pests feed on tree foliage and may cause tree mortality after repeated annual attacks during outbreaks.

The spruce budworm cycle is relatively long, and peak outbreaks are expected to occur roughly 35 years apart. A spruce budworm outbreak that peaked in 2002 poses no current threat to sustainable forest management.

### Defoliation from spruce budworm and jack pine budworm



### Quick facts

- Compared to natural disturbances, such as wildfire and insect damage, forest harvesting is a relatively small landscape disturbance within Saskatchewan's commercial forest zone.
- The largest disturbance type in the commercial forest zone is from native insects and diseases.
- A 10,000-hectare wildfire in the commercial forest burns roughly enough wood to build almost 10,000 homes.
- Large wildfires have been the norm in the boreal forest for thousands of years. On average, a given area of forest will burn every 70 years in natural boreal systems.
- Every year, about half of Saskatchewan wildfires are started by human activity. These include campfires, industrial activity, cleanup projects that get away, agriculture fires, vehicle and ATV exhaust, and arson.

Last updated: February 2021  
Update frequency: annually

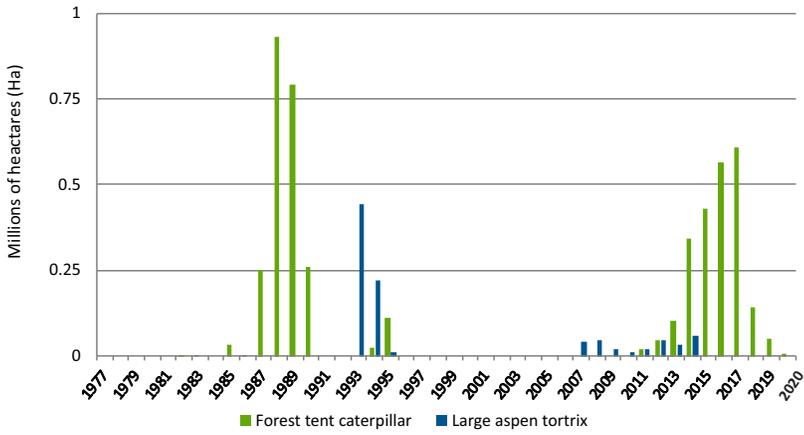
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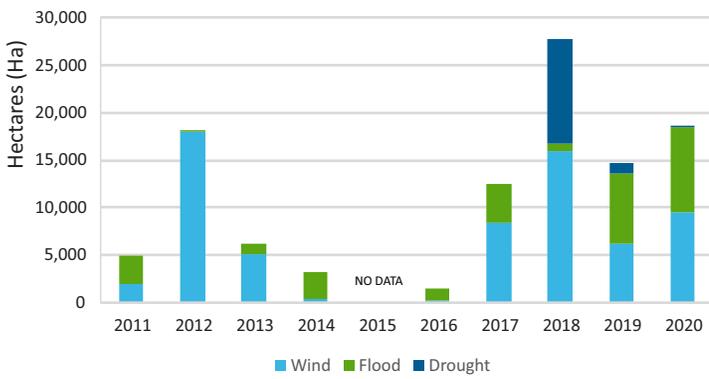
Hardwood defoliation is primarily caused by forest tent caterpillar cycles approximately every 10 to 12 years, with outbreaks lasting three to five years. The pattern has been quite regular with outbreaks occurring in 2001 to 2007 and again from 2013 to 2017. The outbreak in the early 2000s was not aerially mapped (and does not appear on the graph below); however, disturbed areas are documented in a separate report produced by BioForest Technologies in 2015. The current outbreak that reached a peak in 2017 has now generally collapsed throughout the province.

**Defoliation from forest tent caterpillar and large aspen tortrix 1977-2020**



Along with fire, insect and disease disturbances, physical (abiotic) disturbances including drought, flooding and extreme wind events result in tree mortality, which leads to stand-level and landscape-level changes in the forest ecosystem. Abiotic disturbances shape forest structure, composition and function, and contribute to maintaining a biologically diverse and healthy forest. It is only more recently that abiotic disturbances are being monitored at the same time as the insect and disease aerial survey. Events such as blowdown and flooding are the more prevalent cause of abiotic disturbances.

**Net area abiotic forest disturbances**

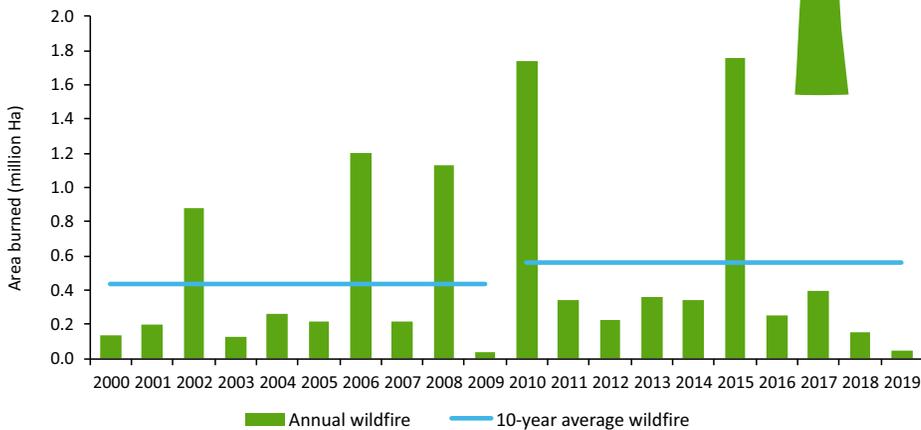


The boreal forest ecosystem is driven by natural disturbances. Boreal species have evolved over time to cope with, and even require, periodic disturbance as part of their natural life cycles. Wildfires are a natural part of the forest ecosystem. The area burned from year to year varies and is significantly affected by weather. Autumn and spring rains, timely summer precipitation, and winter snowfall will significantly reduce wildfires and limit their spread.

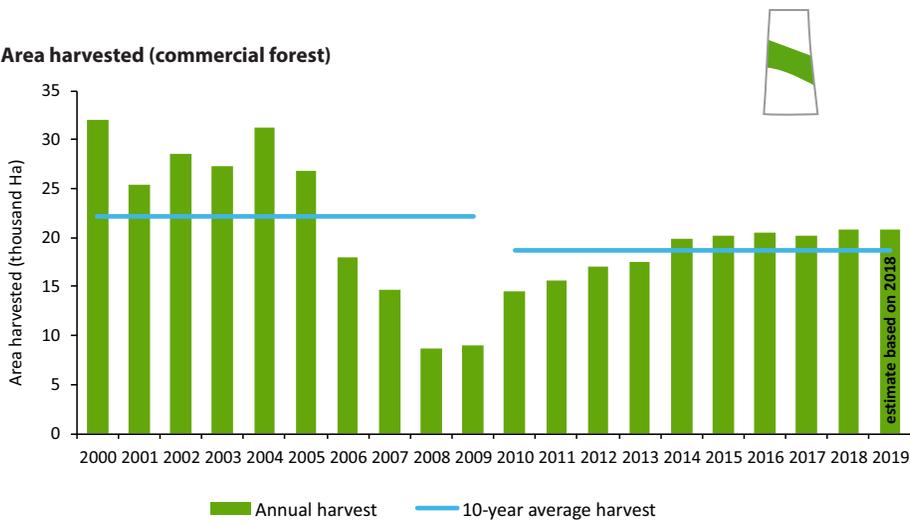
While the number and size of catastrophic wildfires in some North American jurisdictions has increased over the last five years, 20 years of available data do not show any statistically significant increasing trend in Saskatchewan. However, some variation is occurring in the expected seasonal trends during a wildfire season. Climate change is expected to extend wildfire seasons with potentially more extreme weather events occurring within a wildfire season that could support more severe wildfires.

The Government of Saskatchewan uses modern technology and decision-making systems to detect, monitor and suppress wildfires, and has dedicated resources to help promote FireSmart principles. Wildfires that threaten human life and communities are always the government's top priority, followed by protection of critical public infrastructure, major industrial infrastructure, commercial timber, remote structures and natural resources. Wildfires in low-value timber areas and non-commercial northern forests are considered for initial attack and sustained action based on an assessment of values and estimated financial cost. Some wildfires are allowed to act as a necessary and natural process on the landscape.

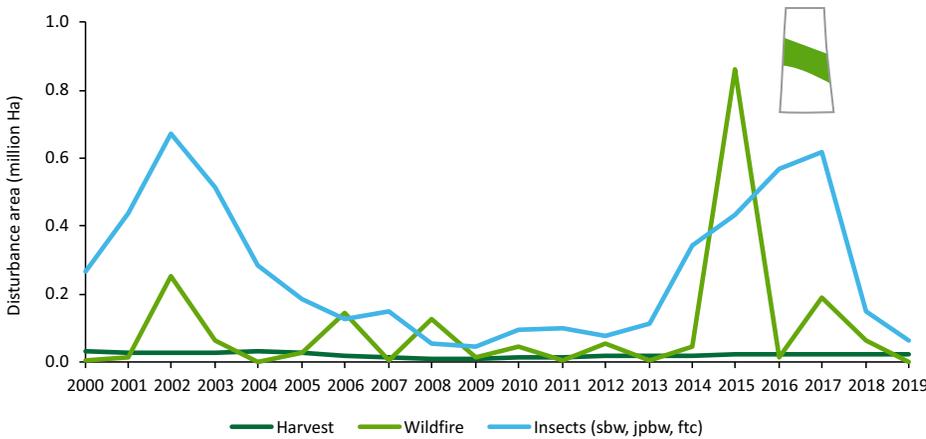
**Saskatchewan area burned by wildfire**



### Area harvested (commercial forest)



### Commercial forest zone area disturbed by harvest, wildfire and insects



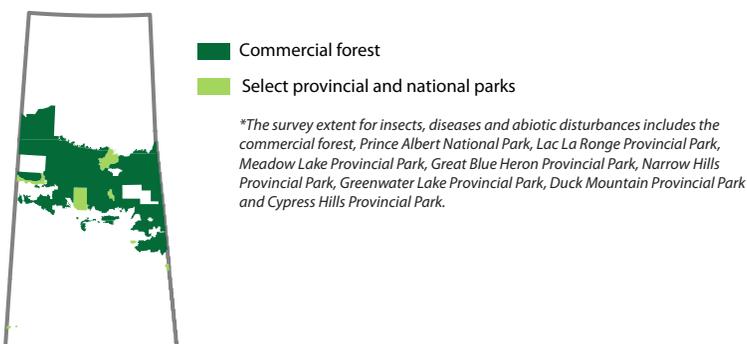
## What we are doing

Disturbances influence forest structure, composition and function and are important in maintaining biological diversity, forest dynamics and regeneration. Sustainable forest management is successful when management strategies emulate natural processes. The ministry conducts annual aerial surveys to monitor insects, diseases and weather events that cause major forest disturbances to assess the health of Saskatchewan's forest.

The three main natural native insect disturbance agents tracked by aerial survey across the commercial forest and select provincial parks\* are spruce budworm, jack pine budworm and forest tent caterpillar. Other damaging agents monitored during the annual aerial surveys include:

- eastern larch beetle;
- spruce beetle;
- aspen leaf spot disease;
- large aspen tortrix
- spruce needle rust; and
- abiotic damage from wind, floods and drought.

### Survey extent for insect and abiotic disturbances



Forest harvesting for commercial timber products is a human disturbance impacting an average of 18,700 hectares per year between 2010 and 2019. This represents roughly a quarter of one per cent (0.24 per cent) of forested lands within Saskatchewan's commercial forest zone. Forest managers work to ensure timber harvesting resembles natural forest disturbance patterns. In the commercial forest zone, wildfires are the second-largest disturbance type, with approximately 127,060 hectares burned per year on average between 2010-2019. The largest disturbance type in the commercial forest zone are insects and diseases. In the case of the three most impactful forest defoliating insect pests (spruce budworm, jack pine budworm, and forest tent caterpillar), 255,260 hectares per year on average were disturbed between 2010-2019. While insects and diseases cause the greatest disturbance in terms of area in the commercial forest zone, it should be noted that they generally do not result in immediate stand replacing events, such as is often the case for wildfire and timber harvesting.

# Annual timber harvest



### Quick facts

- The sustainable timber harvest from the commercial forest and fringe forest zones is 9.3 million cubic metres.
- In 2019-20, timber harvest from the commercial forest and fringe forest zones was 4.4 million cubic metres (48 per cent of the sustainable timber harvest).

Last updated: February 2021  
Update frequency: annually

## Why we measure this

Healthy forests provide many benefits such as clean air, fresh water, healthy soils, habitat for plants and animals, and materials for building homes and printing books. Forest management is based on the idea that forests change over time; young trees grow until they reach maturity. During this time a forest may be cut for wood products, burn in wildfires, continue growing until they become old and fall over, or are killed by insects and diseases.

Forest management plans are used by professional foresters to care for the forest. When trees are cut following these plans, the harvest is sustainable, meaning that the forests and the benefits they provide will always be there. In Saskatchewan's managed forests, more trees are growing back than are being cut. This means that the forest will grow older than planned, and more tree cutting may be needed to help the forests stay healthy.

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## What is happening

State	Trend	Information	Extent
mixed/fair	improving	partial	commercial forest and forest fringe

For each timber supply area (TSA) in the commercial forest and fringe forest (Crown agriculture) zones, a harvest volume schedule (HVS) is calculated. The HVS is also known as an annual allowable cut (AAC) or sustainable wood supply in other Canadian jurisdictions. The HVS is determined based on the results of a timber supply analysis, which provides the output of the selected long-term forest resource management strategy using complex computer modelling. To ensure forest sustainability, the amount of timber harvested must not exceed the HVS for a specified term. Timber harvesting on private and federal lands is not regulated in Saskatchewan. For the purpose of this indicator, timber harvested from private and federal lands have been included and the HVS have been estimated.

HVS compared to actual harvest is a key performance indicator of sustainable forest management. This comparison provides information on the over- or under-utilization of available wood supply and how the forestry industry is performing relative to its allocation of timber. Additionally, it highlights potential investment opportunities in the forestry sector. A higher ratio of actual harvest to HVS indicates that the forest industry is performing well, whereas a low ratio indicates a downturn.

The low actual harvest to HVS ratios observed between 2006 and 2009 in Saskatchewan's commercial forest zone mirrored a period of global economic recession. Since then, as the forest industry recovers, the ratio of actual harvest to HVS has increased. However, the ratio has not yet returned to pre-recession levels. In 2019-20, of the 9.3 million cubic metre provincial HVS, 4.4 million cubic metres of timber were harvested from Saskatchewan's commercial forest and fringe forest zones. This represents a 48 per cent harvest to HVS ratio. As a result, Saskatchewan's commercial forest and fringe forest zone will grow older and potentially more susceptible to natural disturbances, such as wildfires, insects and disease.

### Timber harvest and AAC in the commercial forest zone



## What we are doing

Licensees are required to ensure their timber harvest levels do not exceed the HVS in each TSA. Stakeholders want to be assured that overharvesting is not occurring in provincial forests. This indicator provides stakeholders with evidence that the harvest at the provincial scale is being conducted on a sustainable basis.

For more information on the forest sector in Saskatchewan, visit [saskatchewan.ca/forestry](https://saskatchewan.ca/forestry).

# Mountain pine beetle detection and prevention



## Why we measure this

The mountain pine beetle (MPB) is the most significant pest threat to pine forests in North America. MPB can colonize and kill jack pine trees, posing a threat to pine forest ecosystems and sustainable development of the forest industry in Saskatchewan and across Canada.

Saskatchewan is the MPB's "gateway" to Canada's boreal forest. Once MPB spreads into and across Saskatchewan, the rate of spread will increase substantially because the distribution and density of pine forests increases in eastern forests. Confirming MPB (presence or absence) in the northern boreal is a significant measure, helping to guide the Ministry of Environment's risk assessment policies and subsequent response actions.

Forestry is the largest industry in Saskatchewan's north. The forest industry depends on a sustainable supply of forest products. On average, one third to one half of all softwood manufactured in Saskatchewan annually is jack pine. In 2020, Saskatchewan's Ministry of Energy and Resources reported the forest industry supported nearly 8,000 direct and indirect jobs and generated more than \$1 billion in forest product sales annually, of which more than 65 per cent is from exports. Losses of pine inventory would interrupt the long-term sustainable wood supply to mills, resulting in reduced mill productivity, manufacturing and ultimately job loss.

The MPB outbreak in British Columbia infested over 18 million hectares and killed 731 million cubic metres, or 54 per cent, of the province's merchantable lodgepole pine. Those losses impacted forest-dependent communities.

Many of Saskatchewan's most visited provincial parks (Cypress Hills, Meadow Lake, La Ronge, Narrow Hills, Candle Lake and Makwa Lake) have large pine forests that, if killed by the beetle, would have serious implications on visitation, experience and public safety from increased fire risk, and dead and falling trees.

The beetle has been designated under *The Forest Resources Management Act*, which makes it illegal to import, transport and store pine logs and pine forest products with bark attached if they originate from British Columbia, Alberta and the United States.

## What is happening

State	Trend	Information	Extent
 good	 improving	 partial	 province

Since crossing the Rocky Mountains in two mass dispersal events in 2006 and 2009, MPB has spread into lodgepole pine and jack pine forest ecosystems in central and eastern Alberta, where the beetle had not been found before. Monitoring and early detection of the presence and severity of insect and disease conditions in the forest helps ensure timely detection and response.

**Currently, no mountain pine beetles have been detected in the boreal monitoring area.**

It is anticipated that eastward spread rates could increase significantly in the near future due to recent policy changes in Alberta. Alberta announced in 2018-19 that protecting key watersheds along the eastern stages of the Rockies and protecting endangered species would take priority over slowing the eastern spread of MPB. This could allow spot infestations along the eastern edge of Alberta to establish and spread, leaving boreal jack pine forests in Saskatchewan and the rest of Canada vulnerable to invasion by MPB.

Large populations of MPB that have been building in western Alberta, in the Jasper and Hinton areas, may spread east, increasing the possibility that large populations could build in the Swan Hills area of Alberta. That would mean MPB could easily spread into east-central Alberta and Saskatchewan's northwest boreal forest.

### Quick facts

- Mountain pine beetles prefer lodgepole pine but can attack and kill all the pine species found in Canada.
- Mountain pine beetles affect pine trees by laying eggs under the bark. The beetles introduce a blue stain fungus into the sapwood that prevents the tree from repelling and killing the attacking beetles. If you see lumber with blue stains, it may have been salvaged from an MPB-infested stand.
- Mountain pine beetles can survive very cold temperatures, down to -40°C. Mild winters and warm summers contribute to the spread of mountain pine beetle.

*Last updated: February 2021  
Update frequency: annually*

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# What we are doing

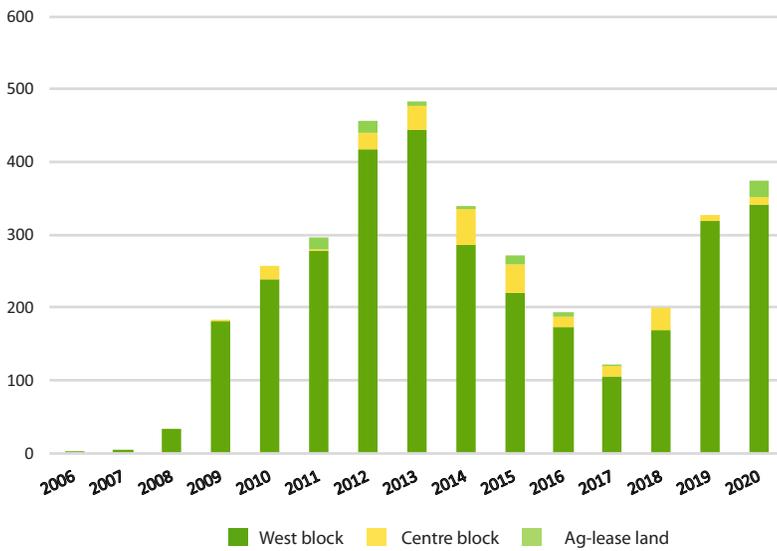
In Saskatchewan, MPB surveillance is conducted in the boreal northwest and in Cypress Hills Interprovincial Park. The ministry conducts ground-based monitoring in highly susceptible jack pine forests in the northwest boreal forest. Between 2011 and 2017, the ministry established a network of helicopter landing and tree-baiting sites to improve access and capacity to detect the leading edge of MPB infestation in the boreal forest. Tree-bait sites are established in 57 areas where highly susceptible pine exists throughout northwest Saskatchewan, including 50 sites north and south of the Cold Lake Air Weapons Range, and seven sites within the Air Weapons Range.

Survey and monitoring data support a framework that is crucial to the integrity of a long-term forest health management plan for Saskatchewan. The measure for MPB in the boreal forest is currently its presence or absence. Currently, no MPB have been detected in the boreal monitoring area.

The MPB is a natural component of the lodgepole pine forest ecosystem in Cypress Hills Interprovincial Park and is being actively managed through aerial and ground surveys. All lodgepole pine stands within Cypress Hills Interprovincial Park (Centre Block and West Block), and adjacent forested non-Crown lands that border the park (excluding Alberta) are surveyed. If beetles are found, surveyors expand their search area in a circle around infested trees, to locate all the trees attacked in the current year.

Once infested trees are found and marked, the next step is a quick and aggressive control response. The most effective control method is to find the beetle-infested trees in fall and winter months, then cut them down and burn them before the beetles can leave, spread and attack healthy pine trees in the late spring or early summer. Infested trees are controlled within Cypress Hills Interprovincial Park by the Ministry of Parks, Culture and Sport.

**Number of MPB trees controlled in Cypress Hills Interprovincial Park, 2006-2020**



# Indigenous involvement in the forestry sector



### Quick facts

- Approximately 27 per cent of the provincial timber supply is allocated to Indigenous businesses, by far the largest of any province.

Last updated: December 2020  
Update frequency: annually

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## Why we measure this

The Government of Saskatchewan is committed to promoting the use of provincial forest resources in an economically, socially and environmentally sustainable manner. Indigenous involvement is critical to the success of the forestry sector in Saskatchewan.

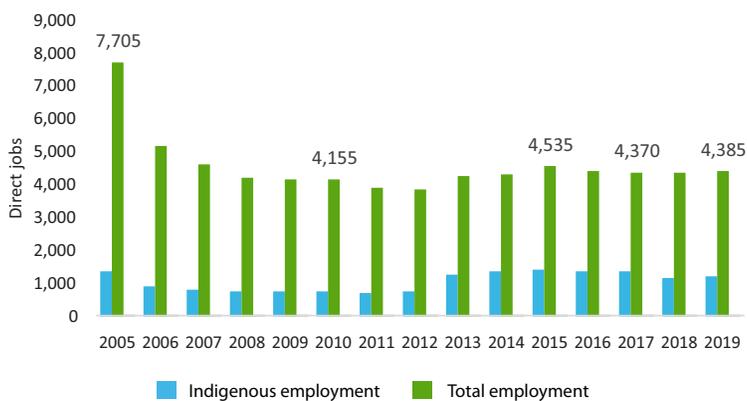
Northern Saskatchewan contains a significant population of Indigenous people. The largest industries in the region are forestry and mining. Saskatchewan has several large and small Indigenous forestry businesses that are major employers of Indigenous people in northern Saskatchewan.

## What is happening

State	Trend	Information	Extent
good	mixed	adequate	province

Indigenous people represent approximately 27 per cent of the forestry sector workforce in Saskatchewan, which is by far the largest of any province.

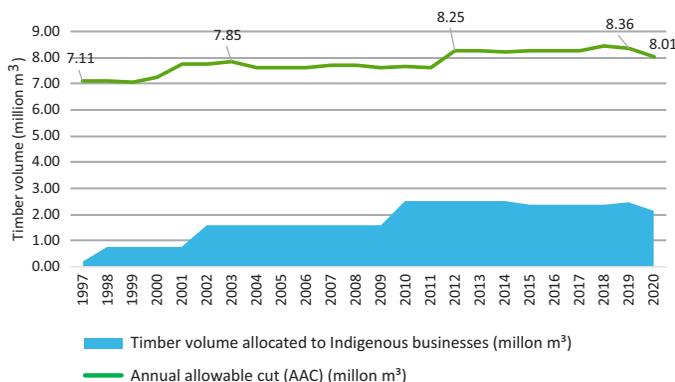
### Indigenous employment in the forest sector



## What we are doing

The annual allowable cut allocated to Indigenous businesses indicates the level of economic involvement and benefits derived from the forestry sector by Indigenous people. NorSask Forest Products, located in Meadow Lake, is the largest First Nations-owned and operated sawmill in Canada. Indigenous allocations dropped slightly from 2019 to 2020 because the annual allowable cut (AAC) declined during the same period due to major forest fires, which disproportionately impacted certain Indigenous allocation holders.

### Annual allowable cut allocated to Indigenous businesses



# Forestry sector contributions to the provincial economy



## Quick facts

- Forest product sales exceed \$1 billion annually.
- The forestry sector supports nearly 8,000 direct and indirect jobs.

Last updated: December 2020  
Update frequency: annually

## Why we measure this

This indicator measures the economic benefits derived from harvesting timber and manufacturing forest products in the province.

Sustainable forest management includes balancing social, economic and environmental benefits from forest management activities. Full utilization of the annual allowable cut has the potential to generate more than \$2.2 billion in forest product sales annually, and support nearly 8,000 direct and indirect jobs.

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## What is happening

State	Trend	Information	Extent
 good	 mixed	 adequate	 province

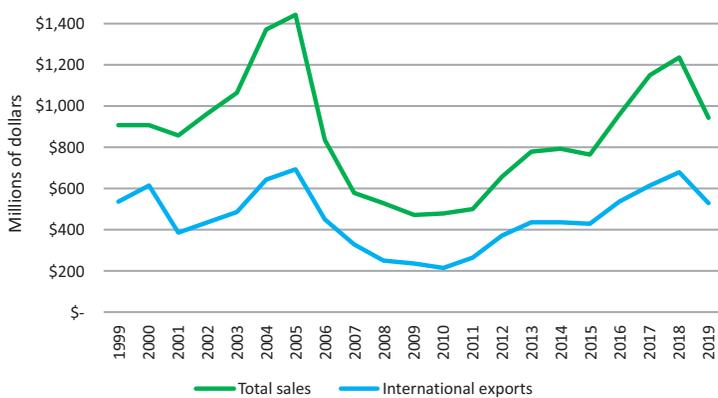
In 2019, forestry was the largest industry and a major employer in northern Saskatchewan, representing approximately one per cent of the provincial gross domestic product. Forestry provides economic development and employment opportunities, resulting in improved quality of life for the people of northern Saskatchewan.

Saskatchewan has seven large primary forest product facilities producing lumber, pulp and wood panels. In addition to these facilities, more than 210 smaller businesses produce a variety of primary and secondary forest products. More than 230 businesses provide goods or services that support primary forest product manufacturers, including road construction, logging, trucking, silviculture services and forest management.

## What we are doing

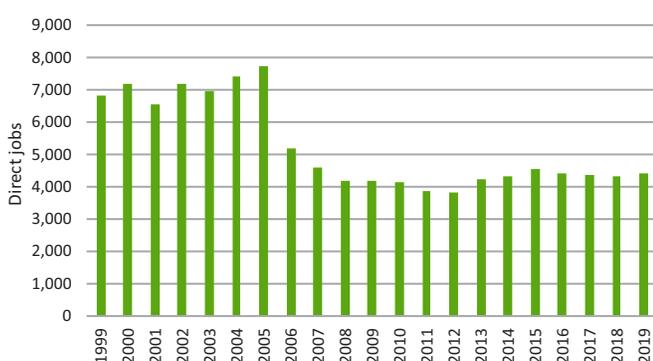
In 2019, the forestry sector sold nearly \$1 billion worth of forest products, 56 per cent of which was exported to other countries.

### Forest products sales and exports



In 2019, the forest sector supported nearly 4,400 direct jobs.

### Forestry sector direct employment



# Private land stewardship



## Why we measure this

Land stewardship involves managing soil, air, water and biodiversity resources wisely and in a way that keeps land healthy and productive, now and into the future. Many landowners already practice good land stewardship. Several private conservation organizations and government programs support private stewardship actions through voluntary incentive-based programs. A number of private conservation agencies also contribute directly by buying, restoring and managing land for conservation purposes.

To maintain a sustainable and healthy environment, the Government of Saskatchewan needs help from conservation organizations and private land managers. These conservation stewards play an important role in maintaining and conserving natural areas. Good stewardship is key to conserving our natural assets and the values they provide to Saskatchewan people.

## What is happening

State	Trend	Information	Extent
 mixed/fair	 slight decrease	 partial	 agricultural zone

Last updated: March 2021  
Update frequency: every five years

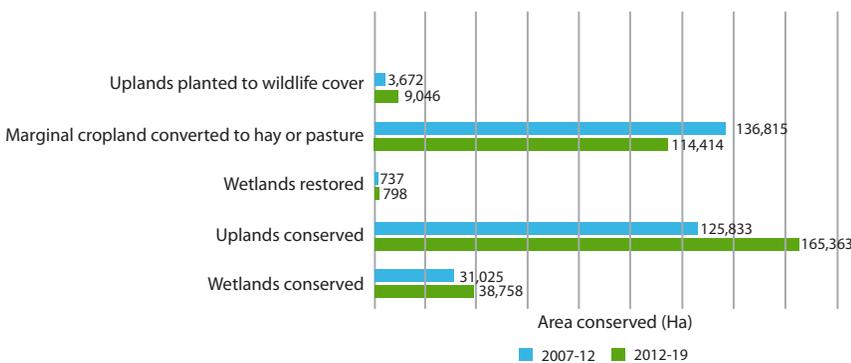
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Private land stewardship in the State of the Environment is reported as the area of private and Crown land enrolled in specific programs delivered by Prairie Habitat Joint Venture partner agencies in Saskatchewan. This expands on the 2017 indicator, which was based on the number of participants enrolled in a subset of programs managed by the Water Security Agency, Agriculture and Agri-Food Canada, and Ducks Unlimited Canada.

### Area conserved through private land stewardship



## What we are doing

Under its Growth Plan, Saskatchewan will work with private land stewards to achieve targets identified in its Climate Resilience Measurement Framework for preserving natural lands, enhancing soil organic matter, promoting nutrient stewardship and achieving economic resilience and crop diversification. Additionally, the province will strive to align regulations, policies and programming to support and reward producers who provide habitat by maintaining natural areas.

We will also continue to support private land stewardship through programs such as the Fish and Wildlife Development Fund, the Environmental Sustainability and Climate Change component of the Federal-Provincial Canadian Agricultural Partnership, the Agricultural Water Management Strategy and through lease arrangements with private agricultural Crown land lessees and pasture patrons.

Saskatchewan is also a key partner in the Prairie Habitat Joint Venture, a multi-agency conservation partnership under the North American Waterfowl Management Plan (NAWMP) arrangement between Canada, the United States and Mexico. Through their participation, Saskatchewan and other prairie provinces support implementation planning and enable funding support for important private land stewardship programs through NAWMP.

## Protected and conserved areas



### Quick fact

- To date, 6,354,385 hectares or 9.76 per cent of Saskatchewan is contained within the provincial Representative Areas Network.

Last updated: December 2020  
Update frequency: annually

### Why we measure this

Saskatchewan is committed to protecting 12 per cent of the province's terrestrial areas and inland waters for future generations, and in support of the *Prairie Resilience* climate change strategy. These areas are representative of Saskatchewan's natural ecosystems and will be conserved for future generations.

Increasing protected and conserved areas in the province supports the Ministry of Environment's goal of productive and biologically diverse landscapes and resilience to climate change. Quality and quantity of protected and conserved areas are important considerations. These areas are stores of ecological and cultural heritage, and are also available for future research.

### What is happening

State	Trend	Information	Extent
 mixed/fair	 increasing	 partial	 province

Protected areas are added to the provincial Protected and Conserved Areas Network each year. To date, 6,354,385 ha or 9.76 per cent of Saskatchewan is contained within the network.

A range of approaches is used to conserve landscape, from traditional tools such as parks and ecological reserves to working landscapes conserved through the Wildlife Habitat Protection Act, and conservation agreements with ranchers.

A multi-ministry working group assesses and prioritizes areas for conservation; identifies appropriate tools for protection based on ecological value, land tenure, economic potential and cultural significance; establishes a work plan to achieve provincial goals for biodiversity conservation; and identifies actions and challenges associated with meeting provincial and national targets.

### What we are doing

The Protected and Conserved Areas Working Group is a multi-ministry committee developing a Protected and Conserved Areas Roadmap. The roadmap will identify desired outcomes and goals, and the significant steps needed to reach and maintain protection of 12 per cent of the province's land and water.

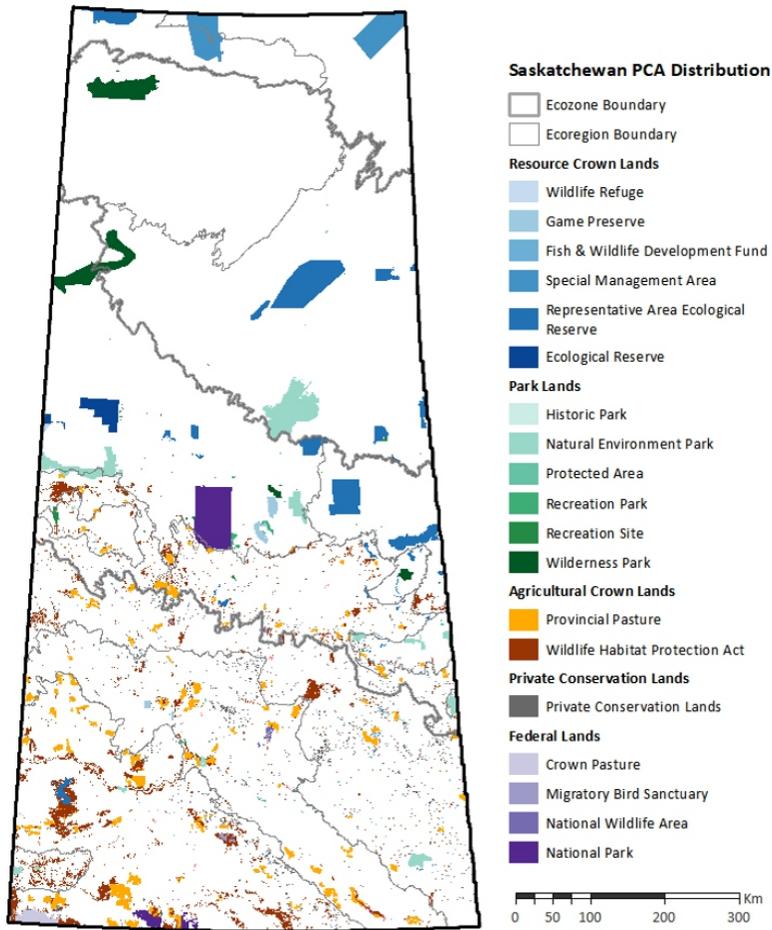
Through the Ministry of Environment, the government is exploring new tools such as 'other effective area-based conservation measures' (sometimes called OECMs), where biodiversity conservation is not necessarily the primary goal, yet they are managed over the long term in ways that result in effective and enduring protection of biodiversity and ecosystem services. This concept expands the conservation of biodiversity into areas with low to moderate human use levels, but with safeguards to ensure significant components of biodiversity have long-term protection.

Indigenous Protected and Conserved Areas (IPCAs) are also a new and emerging opportunity where areas are set aside to conserve both ecosystems and culture, and the land is managed, in part, for continued traditional use. IPCAs involve a long-term commitment to the conservation of lands for future generations, and highlight Indigenous rights and responsibilities.

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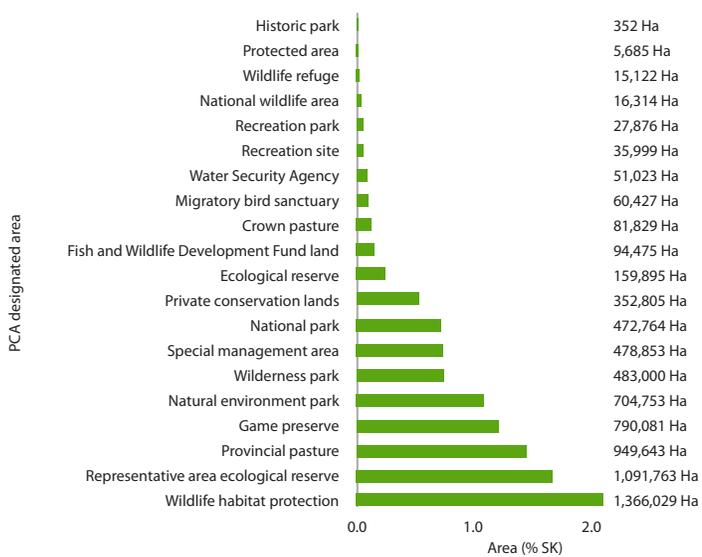


Protected and conserved areas (PCAs) by ecoregion (Ha, % total ecoregion area, % total SK area)

Ecoregion	PCA area (Ha)	PCA area (% Ecoregion)	PCA area (% SK)
Cypress Upland	107,735	21.46%	0.17%
Mixed Grassland	1,347,466	15.59%	2.07%
Mid-Boreal Lowland	329,977	15.26%	0.51%
Tazin Lake Upland	253,534	14.10%	0.39%
Mid-Boreal Uplands	1,329,561	13.05%	2.04%
Selwyn Lake Upland	337,069	11.80%	0.52%
Boreal Transition	497,452	9.18%	0.30%
Churchill River Upland	942,911	8.32%	1.45%
Moist Mixed Grassland	466,445	6.88%	0.72%
Aspen Parkland	527,880	6.46%	0.81%
Athabasca Plain	208,197	2.82%	0.32%
N/A	6,158	N/A	0.01%
<b>TOTAL</b>	<b>6,354,385</b>		<b>9.76%</b>

Note: N/A indicates PCAs outside of the ecoregions listed, as Saskatchewan's Ecoregion Boundary dataset excludes a small portion of Saskatchewan's total area.

PCA designated area (Ha) as a proportion of total Saskatchewan area (%)



Note: Individual Designated Area statistics do not account for overlap within the PCAN; therefore, hectare values should not be summed within this figure.

# Agricultural land cover



## Why we measure this

By area, agriculture is the dominant form of land use in southern Saskatchewan. Agricultural lands – or lands used for the production of crops and livestock – occupy most of the province south of the commercial forest. Agricultural lands encompass a great deal of land not exclusively dedicated to production, including wetlands and woodlands. Some types of agricultural lands, such as hay and pasture lands, provide forage and grazing for livestock but also reap important benefits such as wildlife habitat and carbon storage. Good management of agricultural lands keeps them healthy and productive, while also sustaining biodiversity, helping maintain a stable climate and providing other important benefits for Saskatchewan residents.

Good agricultural land management contributes to biodiversity, soil conservation and habitat availability for wild species. While the main intent of farming is food or forage production, land management impacts biodiversity and natural processes necessary to sustain clean adequate water supplies, a stable climate and other values that are important to people and the economy. Saskatchewan's Growth Plan sets out ambitious objectives for growth in the agricultural sector, while promoting the quality and sustainability of Saskatchewan's agricultural and natural resource exports. Monitoring trends in agricultural land management over time allows us to evaluate whether we are keeping agricultural landscapes healthy and productive, and sustaining joint biodiversity benefits.

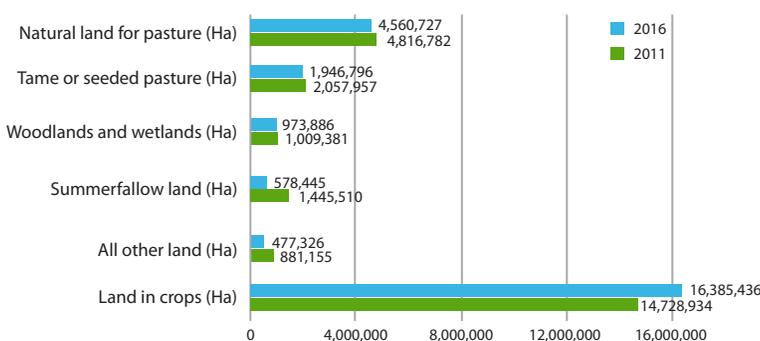
## What is happening

### Saskatchewan farmland

State	Trend	Information	Extent
mixed/fair	decreasing	partial	agricultural zone

The amount of farmland devoted to annual cropping has steadily grown since the 1970s, while summer fallow has declined. The change is associated with a growing awareness of the risk of negative environmental effects such as soil erosion, depletion of organic matter and increased soil salinity that can be exacerbated by summer fallowing. Some of the increase in the area of annual cropland can be attributed to decreases in summer fallow. However, increased cropland area also appears to have come at the expense of wetlands, woodlands and permanent cover such as tame hay, pasture and native rangelands.

### Agricultural land use in Saskatchewan



Note: Due to abnormally wet growing seasons in 2010 and 2011, land that couldn't be seeded because of excess moisture was reported to the Census of Agriculture as "too wet to seed" and is categorized in this figure as "all other land."

## Quick facts

- Saskatchewan has more than 16 million hectares of agricultural crop land.
- Flying insects such as bees and flies are responsible for pollinating several crop species popular in Saskatchewan, including canola, flax, mustard, buckwheat and coriander. Cross-pollination by insects can increase crop yields by up to 30 per cent.
- Wildlife benefits farmers through crop pollination, breakdown of organic matter to provide nutrients for crops, and agricultural pest control. For example, a member of the little brown bat species can eat 600 mosquitoes in an hour. A breeding pair of ferruginous hawks can effectively control gophers, and lady beetles are important predators for controlling numerous agricultural pests, including aphids.

Last updated: March 2021

Update frequency: to be determined

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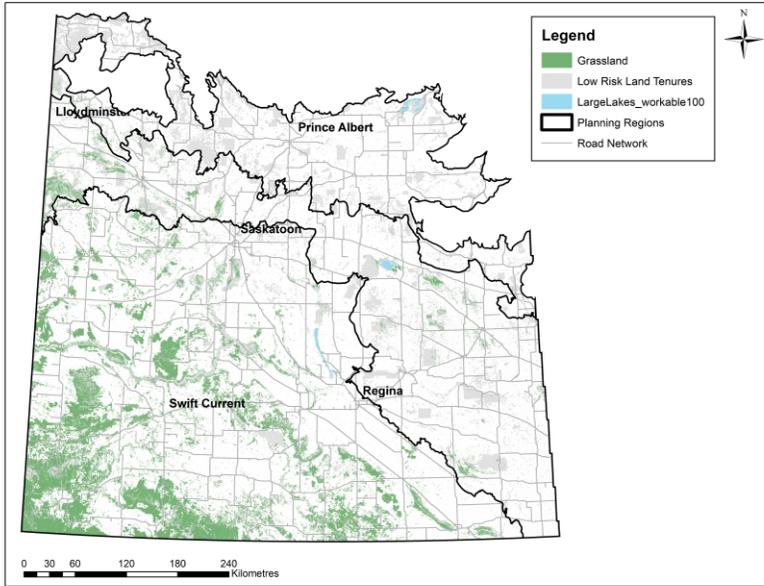
**Area of grassland**

State	Trend	Information	Extent
 mixed/fair	 slight decrease	 partial	 agricultural zone

Grassland is land dominated by native prairie or tame forage (cultivated land seeded down to non-native grasses and forbs – or herbaceous plants – and used as forage for livestock production).

Temperate grasslands are one of the most endangered ecosystems in the world. Most estimates suggest somewhere between 19 and 24 per cent of grassland cover remains in Saskatchewan. Many grassland wildlife species are experiencing population declines and many federally-listed species in the province rely on remaining patches of managed grassland. Grasslands also support Saskatchewan's beef industry. As such, it is important to conserve remaining grassland habitat for wildlife and people alike. Increasing the area of permanent cover, including grasslands, is a component of the Government of Saskatchewan's *Prairie Resilience Framework*. This measure will increase resilience and help mitigate climate change.

**Area of grassland**

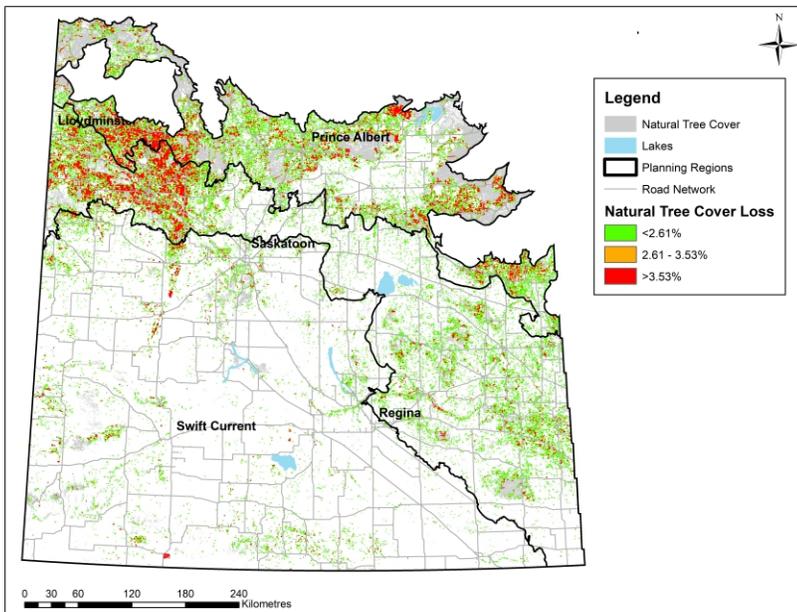


**Natural tree cover**

State	Trend	Information	Extent
 mixed/fair	 decreasing	 partial	 agricultural zone

Most deforestation in the Prairie, Parkland, and Boreal Transition areas occurred in the 1930s and 1940s, mostly for agricultural land use. Between 1966 and 1994, only 0.89 per cent of forest cover was converted for agriculture annually across the Boreal Transition with rates two times higher on private land (-1.13 per cent) compared to public land (-0.54 per cent). As a result, from the point of European settlement to 1994, 73 per cent of the Boreal Transition zone was converted from tree cover to agriculture. Conservation of tree cover provides important habitat for forest-associated wildlife species, including economically important species such as white-tailed deer. Like other natural land covers, trees in agricultural landscapes retain stored carbon and improve resilience to climate change.

**Per cent loss of natural tree cover**



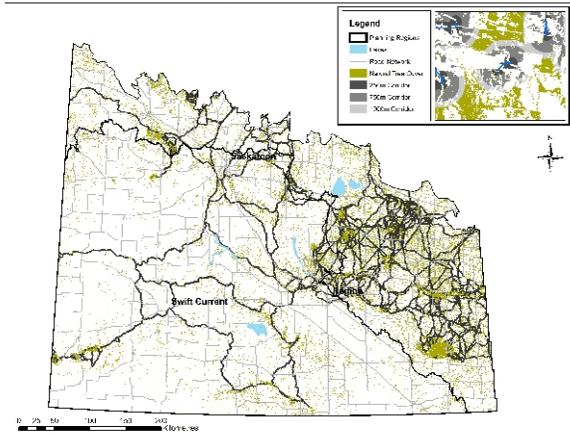
Natural tree cover is the percent loss of natural tree cover per quarter section between 2012 and 2017.

**Natural tree cover connectivity**

State	Trend	Information	Extent
 unknown	 unknown	 partial	 agricultural zone

Removal of woodland patches for agricultural production tends to fragment movement corridors for wildlife. The closer neighbouring patches are together, the more readily wildlife species can travel to find food, mates and living space. Conserving movement corridors helps facilitate dispersal and maintain resilience among populations of wide-ranging species.

**Woodland movement corridors**



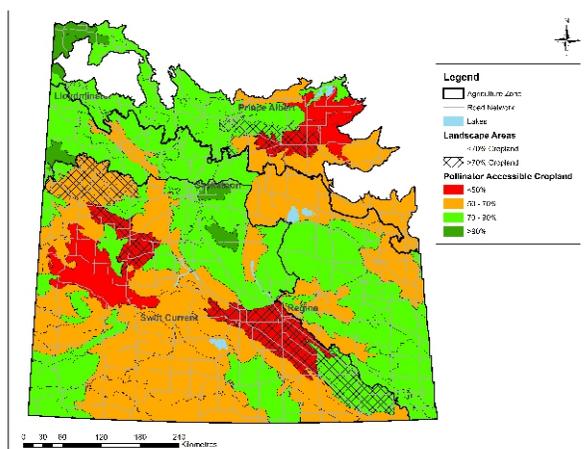
**Pollinator accessible cropland**

State	Trend	Information	Extent
 unknown	 unknown	 partial	 agricultural zone

Pollinator-accessible cropland is the proportion of cropland within 200 metres of natural land covers in landscape areas dominated by agriculture.

Flying insects such as bees and flies are responsible for pollinating several crop species popular in Saskatchewan, including canola, flax, mustard, buckwheat and coriander. Cross-pollination by insects can increase crop yields by up to 30 per cent. Natural land cover patches adjacent to cropland facilitates cross-pollination by providing nesting and foraging sites for insect pollinators. This is especially important in agriculture-dominated landscapes where the maximum benefit of cross-pollination is jeopardized by increasing isolation from natural patches where insect pollinators reside. Maintaining natural patches dispersed across agriculture-dominated landscapes will continue to facilitate cross-pollination by insects.

**Pollinator accessible cropland**



**What we are doing**

Under the province’s 10-year Growth Plan, Saskatchewan will work with agricultural producers to achieve targets identified in its *Prairie Resilience* climate change strategy and Climate Resilience Measurement Framework for preserving natural lands, enhancing soil organic matter, promoting nutrient stewardship and achieving economic resilience and crop diversification. Additionally, the province will strive to deliver on its Game Management Plan, develop and implement a Habitat Management Plan, and align regulations, policies and programming to support and reward agricultural producers who provide habitat by maintaining natural areas.

Government also continues to support positive land management through programs such as the Fish and Wildlife Development Fund, the Environmental Sustainability and Climate Change component of the Federal-Provincial Canadian Agricultural Partnership, the Agricultural Water Management Strategy and through lease arrangements with private Agricultural Crown Land lessees and pasture patrons.

## Intact boreal forest



### Why we measure this

An intact boreal forest ensures contiguous tracts of diverse habitat are available for boreal wildlife species and provides a massive store of carbon. The boreal forest is important for the forestry and mining sectors. At the same time, forest harvest practices that emulate the patterns of natural disturbance and minimize the footprint of development are critical. Prompt renewal after timber harvesting and active reclamation and restoration of disturbed habitat from mineral and other sectors will be necessary to ensure sustainable use of these landscapes.

As energy, mineral exploration, forest harvest and other activities expand in the boreal region, we can expect the associated network of human disturbance (e.g. seismic, geophysical lines, forest roads) to expand as well. These features can involve clearing forest cover along corridors or expansive areas, and may be used intermittently, temporarily or permanently. Site-level effects influence habitat suitability by altering behavioural responses among a broad array of forest-associated species. The temporary nature of human disturbance may imply lower ecological effects, but when effects are aggregated across broader landscapes, their impacts on biodiversity may be cumulative and substantial, especially where they occur in high densities.

### What is happening

State	Trend	Information	Extent
 mixed/fair	 increasing	 partial	 boreal plain and shield/taiga shield

### Quick facts

- Forest harvest is an important tool for managing forest health.
- Forestry companies use practices such as natural forest harvest patterns to emulate natural disturbance.
- Saskatchewan's woodland caribou range planning is a significant cumulative impacts program, aiming to manage habitat for woodland caribou and other forest-dwelling species by reducing disturbance and fragmentation on the landscape.

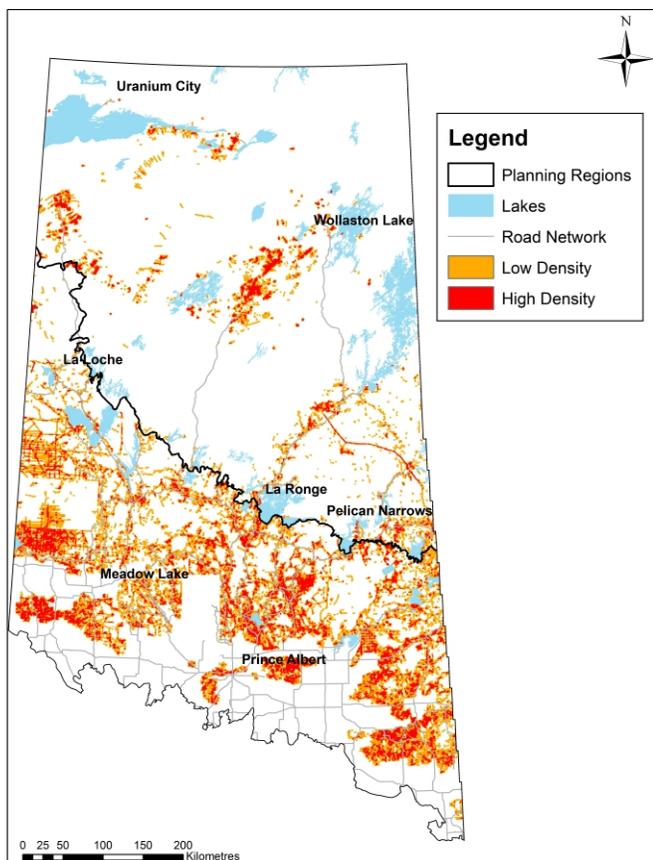
*Last updated: March 2021  
Update frequency: to be determined*

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### Temporary linear feature density



Temporary linear feature density - Total square kilometres containing low density (<1 km/km<sup>2</sup>) or high density (>1 km/km<sup>2</sup>) of temporary linear features with footprints that can be reclaimed to viable wildlife habitat (see Figure).

## What we are doing

Forest harvest is an important tool for managing forest health. The boreal forest has evolved with disturbance, particularly fire, and requires disturbance to maintain ecological health. Forestry companies are using natural forest harvest practices to emulate natural disturbance patterns. Other sectors, such as mining, are working to minimize their impact on the landscape by keeping exploration and development footprints to the minimum required to operate, and practicing active reclamation.

Saskatchewan's woodland caribou range planning is a significant cumulative impacts program, aiming to manage habitat for woodland caribou and other forest-dwelling species by reducing disturbance and fragmentation on the landscape. The program will document disturbance, prioritize reclamation, set standards for industry and designate areas of important habitat.

## Water allocations



### Quick facts

- The two largest uses of water in Saskatchewan are irrigation and municipal water.
- About 25 per cent of municipal and communal waterworks in Saskatchewan use surface water to serve about 72 per cent of the province's residents, or approximately 774,000 people.

Last updated: March 2021  
Update frequency: to be determined

### Why we measure this

The two largest uses of water in Saskatchewan are irrigation and municipal water. These two sectors account for almost 80 per cent of the surface water currently allocated. This remains a small fraction of the total water that may be available for allocation.

### What is happening

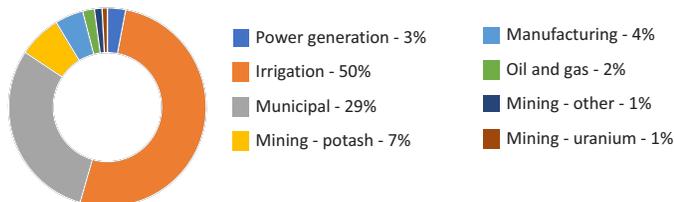
State	Trend	Information	Extent
mixed/fair	mixed/no change	adequate	province

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### Surface allocations by sector, 2019



### Usage by source and watershed, 2019

Source watershed	Ground	Surface
Assiniboine River	7,794	294
Battle River	2,677	973
Beaver River	1,165	1801
Big Muddy Creek	29	666
Black Lake	0	493
Carrot River	1,250	279
Churchill River	41	2,374
Cypress Hills North Slope	779	8,728
Eagle Creek	6,211	2,264
Lake Athabasca	0	155
Lake Diefenbaker	3,306	111,817
Lake Winnipegosis	1,200	540
Lower Qu'Appelle River	5,098	4,194
Lower Souris River	1,101	487
Milk River	382	11,099
Moose Jaw River	404	2,074
North Saskatchewan River	26,951	19,513
Old Wives Lake	1,242	16,670
Poplar River	1,419	5,275
Quill Lakes	2,657	2,874
Reindeer River / Wollaston Lake	1,086	865
Saskatchewan River	1,383	1,798
South Saskatchewan River	2,453	61,709
Swift Current Creek	1,013	7,187
Upper Qu'Appelle River	4,388	3,983
Upper Souris River	8,123	18,331
Wascana Creek	4,585	2,680

Cubic decametres (dam<sup>3</sup>)

1 dam<sup>3</sup> = 1,000 m<sup>3</sup> = 1 million litres

The figure above provides a snapshot of the total volume of water allocated from surface water sources within each of the watersheds shown. This provides only a general indication of development intensity, but is not necessarily an indication of stress on our water resources. Individual projects are reviewed on a case-by-case basis against the water that is available from the proposed source. This review also considers the cumulative impacts of all uses.

**About 25 per cent of municipal and communal waterworks in Saskatchewan use surface water to serve about 72 per cent of the province's residents, or approximately 774,000 people.**

## What we are doing

The use or diversion of water in Saskatchewan is regulated by the Water Security Agency, through *The Water Security Agency Act*.

A safe and secure water supply is essential to Saskatchewan's continued economic development and high standard of living. Water Security Agency is entrusted with ensuring the sustainable use of provincial water resources for both current and future generations. Requests for a water allocation for various purposes including agricultural, industrial, municipal and, in some cases, domestic use must undergo a regulatory review and are subject to licensing and conditions to ensure water resources are managed properly.

The first step in reviewing a request to use water is an assessment of water availability at the point of diversion. Water Security Agency completes this using the best available information to determine the suitability of the source to provide adequate water under a range of climatic conditions (such as drought) without negatively impacting existing water users, the watershed or future water management. Subject to a satisfactory review, and once all legislative requirements have been met, the Water Security Agency may issue a Water Rights Licence and an Approval to Construct the necessary diversion works. Upon completion of the construction and confirmation of compliance of the project and plans, the Water Security Agency would issue an Approval to Operate Works.

The Water Security Agency is also leading implementation of a number of actions from the 25-Year Saskatchewan Water Security Plan relating to water allocation systems to:

- Evaluate existing water supplies and future demands for the next 25 years and beyond to determine the need for new infrastructure across the province.
- Investigate alternative measures to increase the delivery of water from Lake Diefenbaker to Buffalo Pound Lake, including evaluation of the feasibility of the Qu'Appelle South Irrigation Project.
- Develop a modern system of water allocation, including a new allocation policy and regulations.
- Review existing water rights licences and assess current water use.
- Determine the existing use of water, level of protection of environmental flows, how much water is available for future allocation, and identify areas where water scarcity may be a factor.

# Water consumption and conservation



## Why we measure this

There is increasing pressure on Saskatchewan's water resources. Our population is growing, and people are moving from rural to urban areas. Economic growth and climate change also add to the strain, making this measure even more important.

Conserving our water makes economic sense. If water conservation can keep demand within the capacity of existing systems, expensive investments in new reservoirs and pipelines can be reduced or avoided. Pumping and treating water also consumes energy. Reducing the use of treated water cuts energy consumption and greenhouse gas emissions.

This measure is also discussed in the province's Climate Resilience Measurement Framework annual reports.

## What is happening

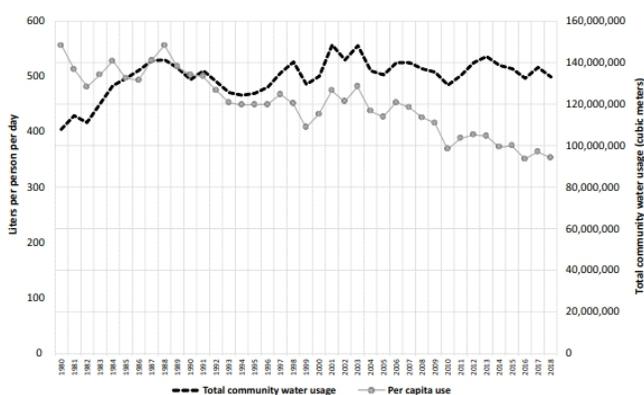
State	Trend	Information	Extent
 good	 improving	 adequate	 province

Saskatchewan water usage decreased in 2018, with residents using an average of 353 litres per capita per day (versus 364 litres per capita per day in 2017). The total volume of community water usage also decreased during the same period by 4.7 million cubic metres.

Further, in the last 30 years, the total community water consumption showed general stability, but with a general decrease for usage rates (litre per capita). The decline in usage rates could have resulted from technological investments (e.g. new water mains and high efficiency plumbing fixtures) and behavioural influences on water use.

Usage rates in smaller communities are more variable, with the smallest communities trending to increasing usage. This is likely due to improvement in the security of their water supplies, or the transition to other water treatment technologies with higher raw water requirements (e.g. reverse osmosis). Small communities are also more likely to see increases in per capita use as a result of declining population. That is, the water used for municipal services and commercial operations may not decline, but will be spread over a smaller population base.

Community water usage and rates, 1980 - 2018



## Quick facts

- 60 to 65 per cent of the water used in your family's home is used in the bathroom. Each year, about \$220 is flushed down the drain, and about \$260 is used in the bath and shower.
- 70 per cent of the earth's surface is covered with water, but only one per cent is useable fresh water.
- According to Environment and Climate Change Canada, the average Canadian uses 329 litres of water per day. Compare that to the average person living in a third world country, who only uses eight litres of water per day.
- 1,000 litres of tap water costs about \$2. The same amount of bottled water costs about \$1,500.

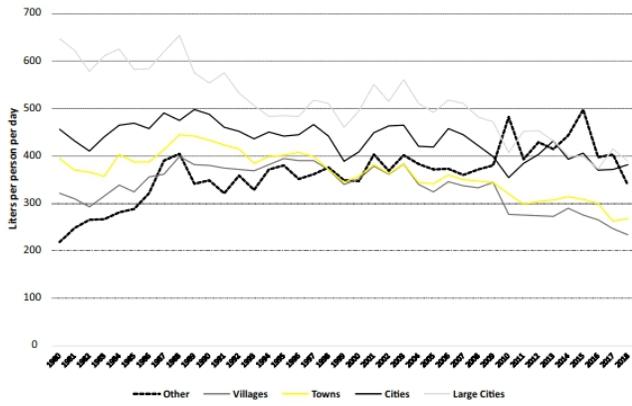
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Water usage by population size, 1980-2018



## What we are doing

The Water Security Agency continues to promote responsible water use through public education, partnerships and a variety of programs. Water rates set by waterworks owners that recognize the true and full cost of system design, construction, operation and maintenance also help promote water conservation.