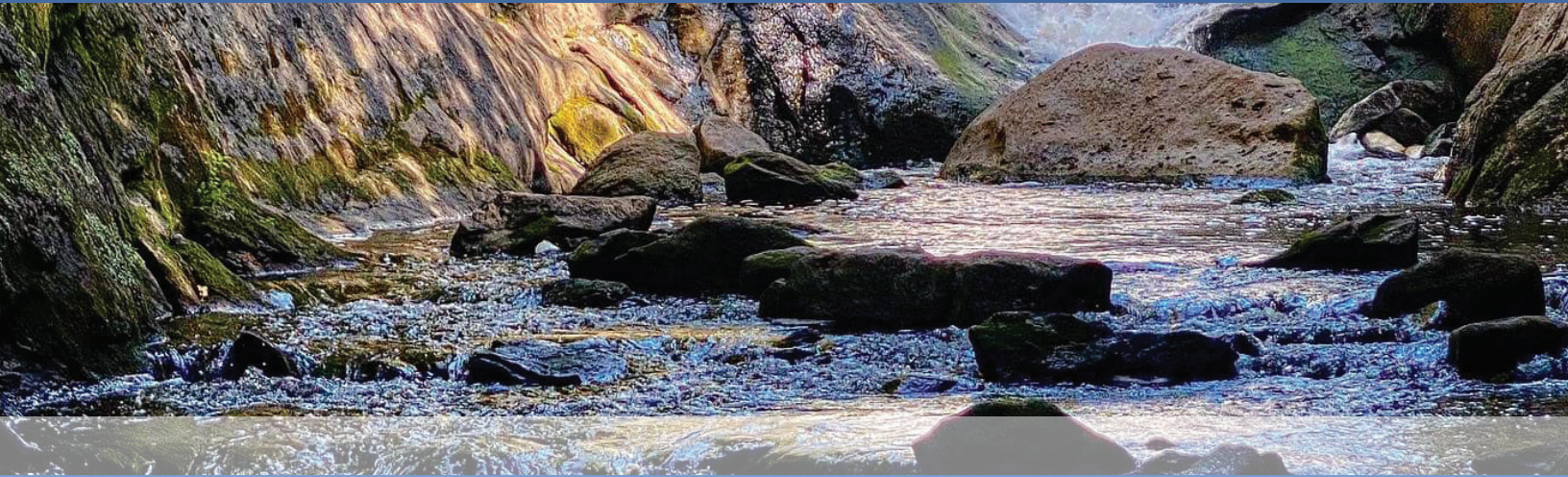




STATE OF ONTARIO'S BIODIVERSITY 2020 SUMMARY

Ontario Biodiversity Council



Introduction

In order to conserve biodiversity, we need to first monitor it. This means understanding the current state of Ontario's biodiversity, and learning about the pressures and threats that can harm biodiversity, along with how to best protect, restore and sustainably manage it.

The State of Ontario's Biodiversity 2020 report is one tool to help us better understand biodiversity trends in our province and monitor our conservation progress. This report also serves as a report card on our progress in achieving the targets associated with Ontario's Biodiversity Strategy 2011, which formally ended in 2020.

The report uses 26 indicators to measure the health of Ontario's biodiversity and progress on Ontario's biodiversity targets. The indicators summarize the state of biodiversity, the impacts and pressures on biodiversity, and how we are working across the province to protect and restore and sustainably manage biodiversity. Some indicators relate directly or indirectly to biodiversity targets and others deal with important aspects of biodiversity that are not directly associated with targets.

This 2020 Summary provides an overview of the status and trends of those indicators, along with an assessment of progress against Ontario's 15 biodiversity targets.



Photo: Ducks Unlimited Canada

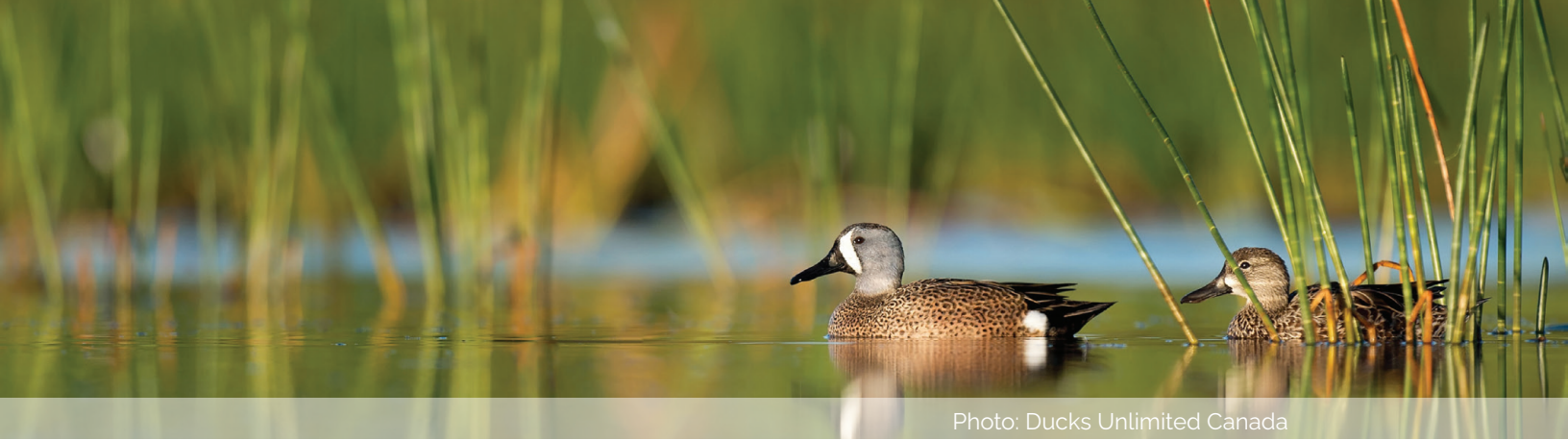


Photo: Ducks Unlimited Canada

What is biodiversity and why is it important?

Biodiversity is the variety of life on Earth. It includes all living things and the ways they interact with each other and their environment. Simply put, biodiversity is life. There are three levels of biodiversity: *genetic diversity* – the variety of genetic information contained within individuals and populations of plants, animals, fungi and microorganisms; *species diversity* – the variety of species; and *ecosystem diversity* – the variety of habitats, ecological communities and processes (ecological and evolutionary) that allow ecosystems and species to function and evolve.

Biodiversity is about being connected. All species, including humans, rely on each other to survive. Humans depend, directly and indirectly, on biodiversity for clean air and water, food and fibre, and amazing outdoor experiences like hiking, fishing and canoeing. Conserving Ontario's biodiversity is important because healthy ecosystems sustain healthy communities and healthy economies. Biodiversity also helps us better mitigate and adapt to the impacts of climate change. Ontario's biodiversity also has inherent value and should be recognized, appreciated, and conserved for its own sake.

Ontario is a vast, diverse province, larger than many countries in the world. Ecosystems across this province range from lush, deciduous Carolinian forests in the southwest to the Arctic tundra along the coast of Hudson Bay. It is home to an exceptional array of ecosystems, flora and fauna, including over 70 million hectares of forest, over 30,000 known species, and more than 250,000 lakes.



Reporting on biodiversity

The Ontario Biodiversity Council leads efforts to monitor biodiversity in Ontario and reports on the state of Ontario's biodiversity on a 5-year cycle. Knowing more about the health of biodiversity in our province gives us a clear picture on how to best conserve it, areas where more work is needed, or, highlights successes in slowing, stopping, or reversing the loss of biodiversity.

The first State of Ontario's Biodiversity report was released in 2010 and assessed status and trends of 29 indicators. The 2010 report showed that Ontarians were placing large demands on the province's biological resources and that biodiversity losses were occurring, especially in southern Ontario.

In 2015 the State of Ontario's Biodiversity report moved online to a **dynamic website** where indicators could be updated as new information became available. This report included 45 indicators and assessed progress in meeting the targets of Ontario' Biodiversity Strategy, 2011.

The State of Ontario's Biodiversity 2020 includes updates on 26 indicators and an assessment of progress on meeting biodiversity targets.

Some indicators included in the 2010 and 2015 reports were not updated for 2020. This is due to timing related to research, monitoring and data issues, updates to the suite of indicators, or other delays caused by the COVID-19 pandemic. As we learn more about biodiversity and our understanding and research improves, we may replace or retire indicators. Indicators could also be removed based on policy and program changes, lack of new data, or methodology limitations. You can learn more about current, retired, and recently updated indicators at www.sobr.ca.

Ontario's Biodiversity Strategy and global biodiversity targets

Ontario's Biodiversity Strategy, 2011 is a 10-year strategy that aligns with the Convention on Biological Diversity's Strategic Plan for Biodiversity and its associated Aichi Targets. It guides conservation efforts across the province using four strategic directions that highlight the work we must do: Engage People, Reduce Threats, Enhance Resilience, and Improve Knowledge. Each of the strategic directions is supported by long term objectives, outcomes, actions, and targets.

The success of the Strategy is tracked through 15 specific targets, with progress measured on a 5-year cycle. The 10-year timeframe of the strategy encourages ambitious long-lasting actions to improve the state of biodiversity in Ontario.

In 2022 the Ontario Biodiversity Council will lead efforts to review and renew the Strategy to 2030. This will align Ontario's efforts with the new Global Biodiversity Framework. To learn more or to get involved in the renewal of this important Strategy, please visit www.ontariobiodiversitycouncil.ca.

Biodiversity and COVID-19

During the unprecedented global pandemic, people have increasingly relied on nature for their physical and mental health. Use of parks and green spaces has increased as we seek outdoor experiences in our communities and reconnect with nature.

The pandemic has also highlighted the critical role nature can play in protecting us from zoonotic diseases like Coronaviruses. There is a direct link between biodiversity loss and an increase in zoonotic diseases. This is another reason why conserving biodiversity is essential to our health and well-being.

There is a critical opportunity to include nature-based solutions in the economic recovery from COVID-19. A sustainable recovery that includes ecosystem restoration, protection, and management will help us live in harmony within nature. Many countries are looking at ways to boost economies while also benefiting people, biodiversity and the climate. The need for transformative change has never been so urgent.

Table 1. Assessment of progress on Ontario's biodiversity targets

Target	Progress	
Engage People		
1. By 2015, biodiversity is integrated into the elementary, secondary, and postsecondary school curricula, including schools of business.	SUBSTANTIAL PROGRESS by 2020 – Biodiversity is fully integrated into elementary and postsecondary schools; partially integrated into postsecondary and schools of business.	
2. By 2015, 50% of Ontarians understand biodiversity and its role in maintaining their health and well-being.	TARGET ACHIEVED by 2020 – 74% of Ontarians were aware of biodiversity, 82% agree it is important to their health.	
3. By 2015, the number of Ontarians who participate in biodiversity conservation activities is increased by 25%.	SOME PROGRESS by 2020 – Participation in biodiversity conservation continues to increase but has not increased by 25%.	
4. By 2015, all sectors have initiated the development of implementation plans in support of Ontario's Biodiversity Strategy, and by 2020, those plans are implemented.	SOME PROGRESS by 2015 – Some sectors have developed and are implementing plans. Progress continues on this target but was not formally assessed for 2020.	
5. By 2020, all relevant policies and programs integrate biodiversity values.	SUBSTANTIAL PROGRESS by 2015 – 116 government policies and programs were identified that integrated biodiversity. Progress continues on this target but was not formally assessed for 2020.	
Reduce Threats		
6. By 2015, plans for climate change mitigation are developed and implemented and contribute to Ontario's target to reduce greenhouse gas emissions by 6% below 1990 levels.	TARGET ACHIEVED by 2020 – This target has been met. Greenhouse gas emissions have declined by approximately 8% below 1990 levels.	
7. By 2015, strategic plans are in place to reduce the threats posed to biodiversity by invasive species.	TARGET ACHIEVED by 2015 and work is ongoing – Strong national and provincial strategic framework including Ontario Invasive Species Strategic Plan (2012) and Invasive Species Act (2015).	
8. By 2015, the release of pollutants harmful to biodiversity is reduced.	SUBSTANTIAL PROGRESS by 2020 – Observed reductions of greater than 50% in the point-source release of major pollutants, but still issues with contaminants in the environment.	
9. By 2020, the growth of Ontario's per-capita resource consumption and waste generation is halted and reversed.	SUBSTANTIAL PROGRESS by 2020 – Between 2005 and 2015 Ontario's Ecological Footprint was reduced by 28%. However, biocapacity has declined as Ontario's population has increased.	

Target

Progress

Enhance Resilience

10. By 2015, the status of species and ecosystems of conservation concern in Ontario is improved.

LITTLE PROGRESS by 2020 – Although the status of some species at risk has improved, more species have declined. The status of ecosystems of conservation concern remains largely unchanged from 2015, save for an increase in legally protected alvar ecosystems.



11. By 2015, the proportion of private lands in Ontario that are managed for biodiversity is increased.

SUBSTANTIAL PROGRESS by 2020 – The proportion of private lands with stewardship and lands acquired for conservation continues to increase.



12. By 2015, natural heritage systems plans and biodiversity conservation strategies are developed and implemented at the municipal and landscape levels.

LITTLE PROGRESS by 2015 – Municipal natural heritage system planning increased, but in 2013 natural heritage systems were identified in less than 30% of municipal plans. While progress was not formally assessed, the identification and development of municipal natural heritage systems continues.



13. By 2020, at least 17% of terrestrial and aquatic systems are conserved through well connected networks of protected areas and other effective area-based conservation measures.

LITTLE PROGRESS by 2020 – Although the amount of protected areas and conservation lands has increased since 2010 it is assessed at 10.7%, still well below 17% target.



14. By 2020, programs and policies are in place to maintain and enhance ecosystem services.

LITTLE PROGRESS by 2015 – While there are many biodiversity related policies and programs that help maintain ecosystem services, very few address them specifically. Progress on this target has been informally assessed and suggests that more work needs to be done.



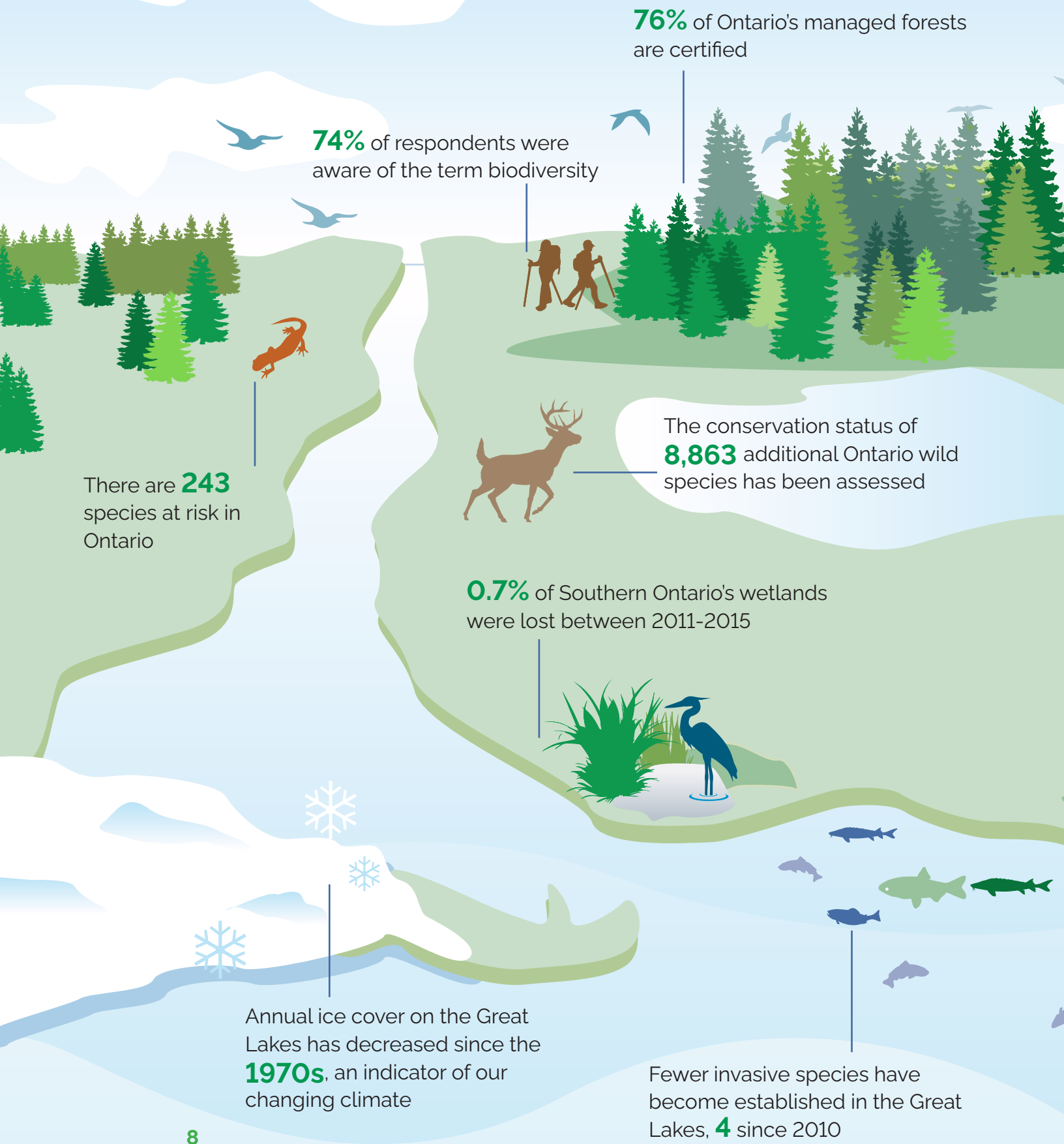
Improve Knowledge

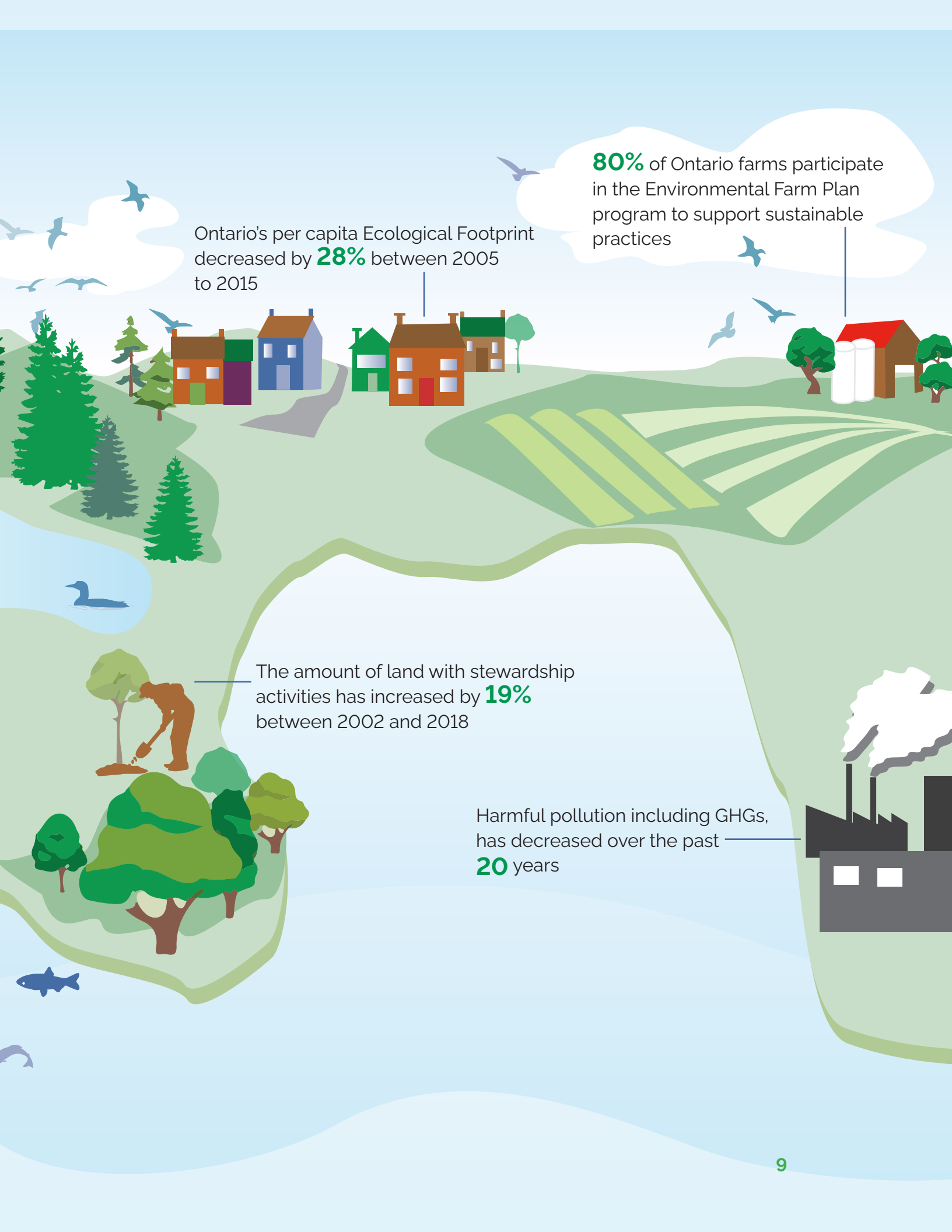
15. By 2015, a long-term monitoring and reporting system for assessing the state of Ontario's biodiversity is established and operating.

SOME PROGRESS by 2015 – Ontario has a well-developed, online biodiversity reporting system and comprehensive monitoring continues to improve.



The State of Biodiversity in Ontario





Ontario's per capita Ecological Footprint decreased by **28%** between 2005 to 2015

80% of Ontario farms participate in the Environmental Farm Plan program to support sustainable practices

The amount of land with stewardship activities has increased by **19%** between 2002 and 2018

Harmful pollution including GHGs, has decreased over the past **20** years



Photo: Destination Ontario

Summing it all up for 2020

Progress on Targets

The biodiversity indicators show that there have been mixed results on progress towards achieving Ontario's biodiversity targets (Table 1). While 11 of the targets had an end-date of 2015, progress has been updated to reflect 2020 results where possible.

There has been some progress towards meeting components of all targets and three targets have been achieved (targets 2, 6 and 7).

Most progress has been seen on targets related to increasing awareness and societal actions (targets 1-5). This is an encouraging sign that people continue to develop an appreciation and understanding of the importance of biodiversity to our lives. Increasing awareness and engagement is a critical step in creating the societal changes that will support continued conservation efforts.

Progress has also been good on reducing threats to biodiversity (targets 6-9) but no new targets were achieved in this category since 2015.

Progress has stalled on targets related to enhancing resilience (targets 10-14) where small improvements were seen in some of the indicators but not enough to reflect a change across the province. This is partly because enhancing and restoring ecosystems takes time, and progress may not be seen for years or decades. It may also show the urgent need to prioritize and implement actions at a scale that will measurably enhance resilience.

Work is ongoing to establish and improve a long-term monitoring and reporting system for assessing the state of Ontario's biodiversity. Progress on this target (15) was informally assessed and suggests that more work needs to be done to improve knowledge.

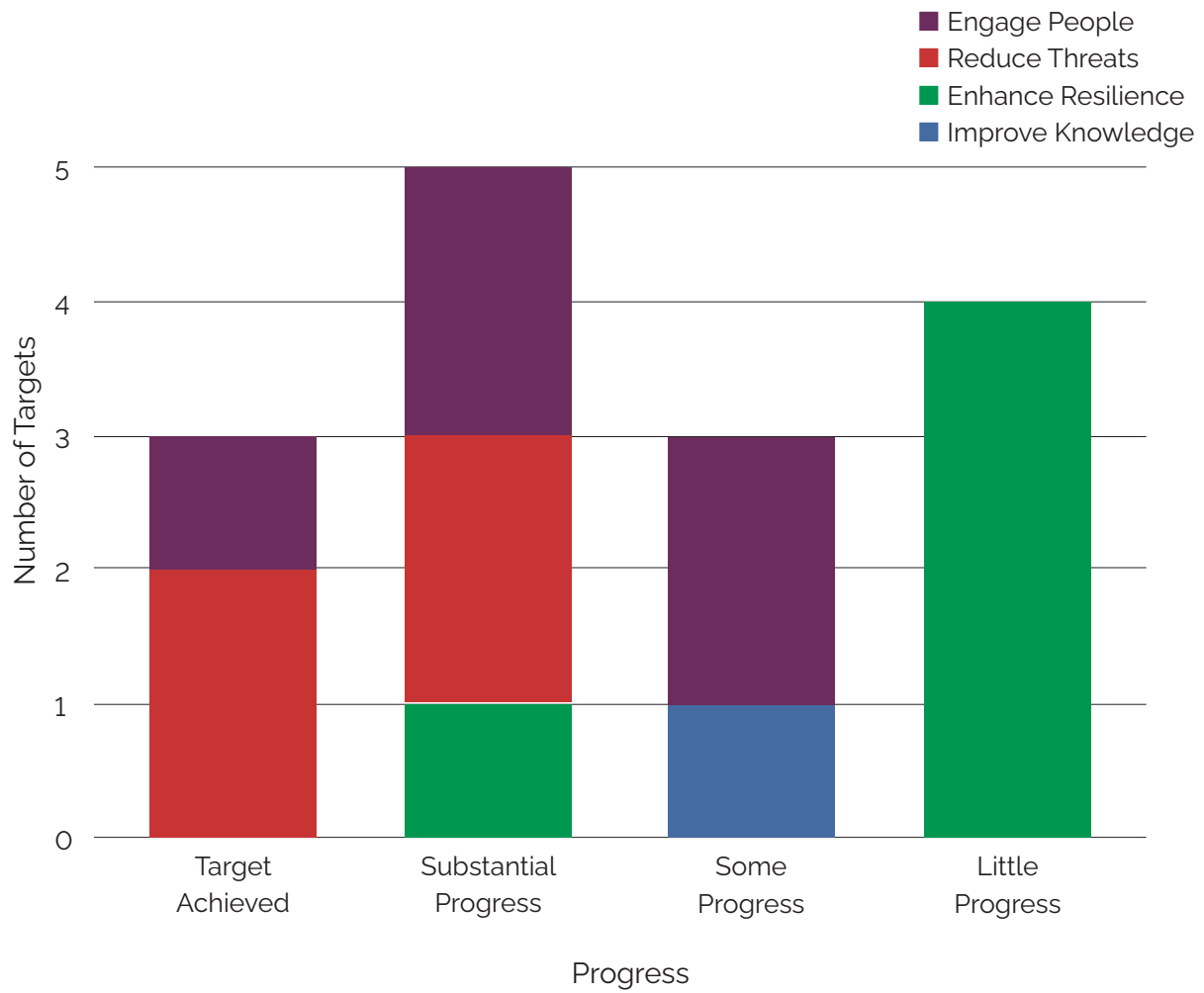
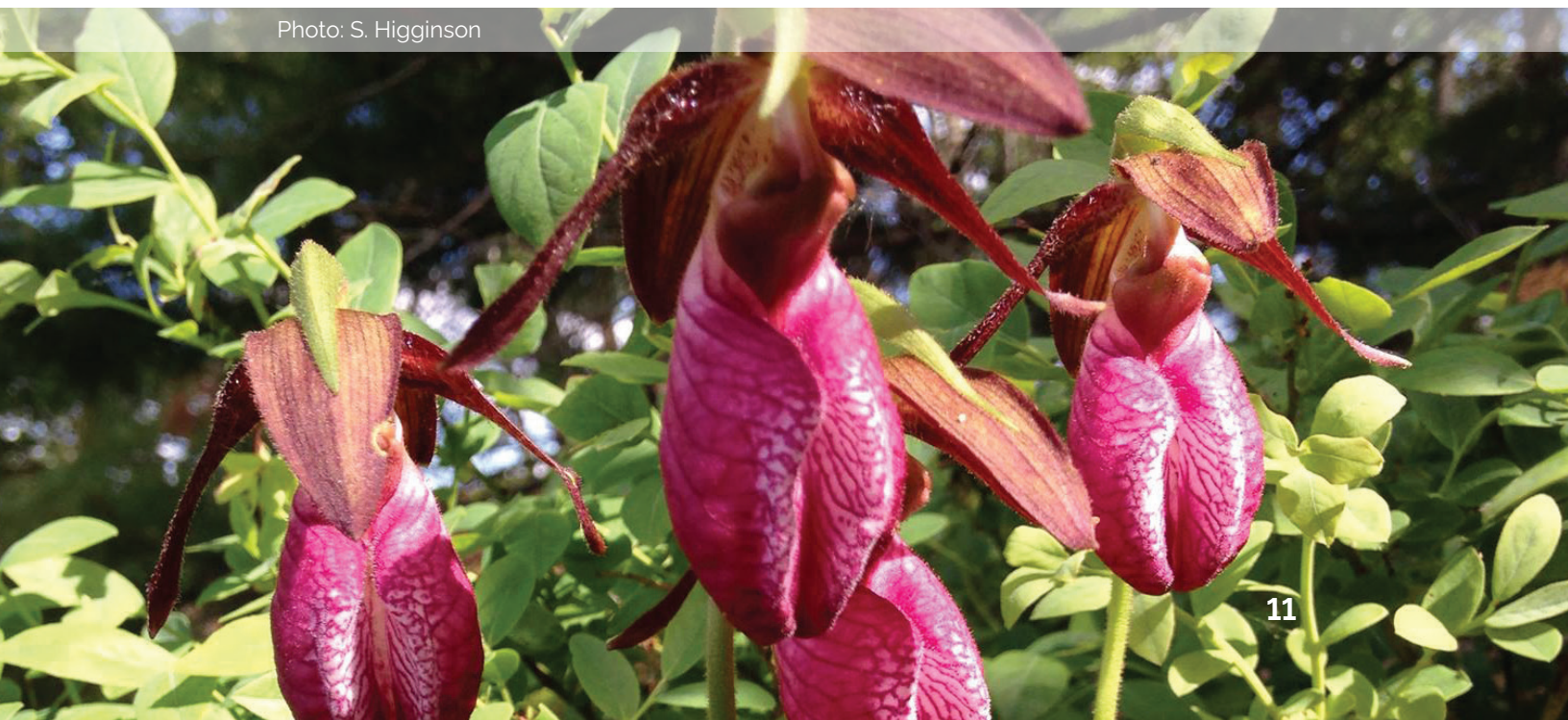


Figure 1. Progress on Ontario's biodiversity targets 2010 - 2020

Photo: S. Higginson



State of Ontario's Biodiversity

In comparison to the 2010 and 2015 reports, there is a greater proportion of indicators with improving trends (35% improving in 2020 compared to 24% improving in 2015). The proportion of indicators with a deteriorating trend is similar to 2015 (12% compared to 11%), and there are fewer baseline indicators (8% compared to 31%), as Ontario's biodiversity monitoring and reporting becomes more established.

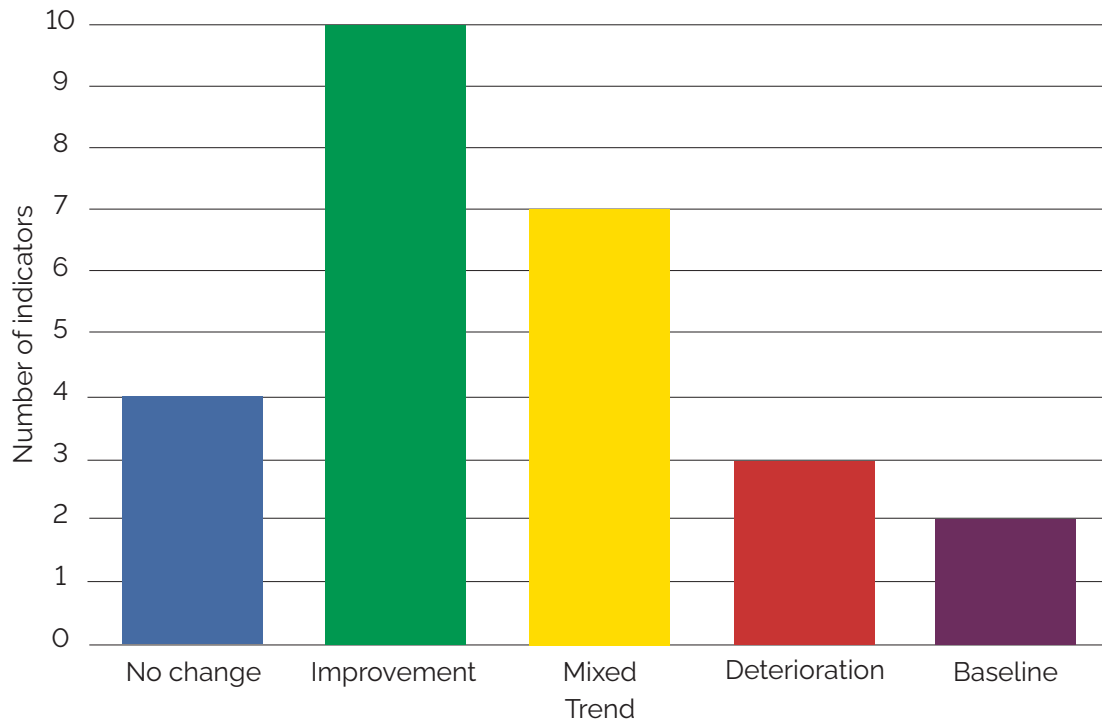


Figure 2. 2020 summary of trends for biodiversity indicators.

Photo: Chelsea Maracantonio





Photo: Destination Ontario

Trends related to some pressures have improved since 2015. The release of pollutants, alien species in the Great Lakes, and release of greenhouse gas emissions have all shown an improvement. In contrast, other indicators related to the impacts of climate change show continued deterioration, including ice cover on the Great Lakes and changes in vegetative phenology.












Four of the six indicators related to the state of ecosystems and species are assessed as mixed, showing both improving and deteriorating trends. Efforts to improve the state of species and ecosystems are ongoing, however more work is needed to address the cumulative impacts of pressures. Ontario currently ranks eighth of Canada's 13 provinces and territories for the proportion of terrestrial area conserved.

Most trends for indicators related to conservation response were positive owing to increased societal awareness about the importance of biodiversity to our lives and communities. Six of the nine conservation response indicators showed an improvement from 2015. Seventy-four percent of Ontarians are aware of biodiversity (compared to 60% in 2014 and 64% in 2016) and the majority agree that it is important to their health and well-being. Since the beginning of the State of Ontario's Biodiversity reporting, there has been a general trend of increasing awareness of biodiversity and its importance to our health and well-being.

Although there have been continued improvements in many areas, charitable giving to environmental and conservation causes has decreased, and the number of volunteers for biodiversity efforts is assessed as no change since 2015.







Pressures on Biodiversity

At the global level, human activities over the last 50 years have changed ecosystems rapidly and have resulted in significant and largely irreversible losses in the Earth's biodiversity. These changes have supported economic development, but have negatively affected the ecosystems and related ecosystem services that support life. Ontario's Biodiversity Strategy identifies six main threats to biodiversity that are the result of human actions: habitat loss; invasive species; population growth; pollution; unsustainable use; and climate change. This theme area includes indicators that assess trends in the main threats to Ontario's biodiversity.

Indicator	Related target	Status	Trend
Consumption – Ecological Footprint	9	Ontario's Ecological Footprint has been reduced since 2005 but it is still larger than biocapacity.	
Habitat Loss – Land Cover	n/a	Natural cover continues to decrease in southern Ontario. The Ontario Shield ecozone had a slight increase in natural terrestrial cover.	
Habitat Loss – Terrestrial Fragmentation	n/a	Terrestrial fragmentation is highest in the southwestern portion of the province. While still baseline, this trend appears to be deteriorating, based on available data.	
Invasive Species – Alien Species in Great Lakes	7	Four new alien species have been discovered in the Great Lakes since 2010 – the lowest number in over 5 decades.	
Pollution – Release of Major Pollutants	8	Harmful pollution has decreased over the past 20 years.	
Pollution – Ground-level Ozone	8	Between 1980 and 2017 seasonal means of ground-level ozone increased, while annual peak concentration decreased.	
Pollution – Water Quality in Inland Lakes	8	94% of sampled lakes had phosphorus, pH, and calcium within acceptable limits. 3% of the sampled lakes had critically low calcium levels.	
Climate Change – Greenhouse Gas Emissions	6	Total GHG emissions continue to decline in Ontario. However, emissions from certain sectors including the transportation and building sectors continue to increase.	
Climate Change – Afforestation/Deforestation	6	Afforestation rates have remained relatively constant from 2008-2018. Deforestation has increased in southern Ontario, resulting in a slight net loss of forest of 38,003 ha.	
Climate Change – Great Lakes Ice Cover	6	Ice cover on the Great Lakes has been in decline since 1973 when recordings began.	
Climate Change – Changes in Vegetative Phenology	6	Growing seasons are getting longer and more variable, especially in the two northern ecozones.	

Ecosystems & Species

Ontario is a vast province that covers more than 1,000,000 km² of the Earth's surface. Despite its large human population, much of the landscape remains dominated by natural systems. These forests, wetlands, lakes, streams and other ecosystems provide the foundation that sustains Ontario's biodiversity. More than 30,000 species are known to reside in Ontario. Although most of these species are secure, some are of conservation concern due to their rarity or because their populations have declined in response to various threats. Genetic diversity within each species represents a third level of biodiversity that allows species to survive and cope with changing environmental conditions. This theme area includes indicators that assess the state and trends of ecosystems and species.

Indicator	Related target	Status	Trend
Ecosystems – Forest Cover	n/a	66% of Ontario's landbase is forested. Forest cover continues to decline in southern Ontario, in spite of afforestation efforts.	
Ecosystems – Wetland Cover	n/a	0.7% of Southern Ontario's wetlands were lost between 2011-2015, which is an increased rate of loss since 2011.	
Ecosystems – Rare Ecosystems	10	21% of alvars, 62% of prairies and 79% of coastal dune ecosystems are legally protected (up 7%, 1% and 4% respectively since 2015). More than 85% of the area of these rare ecosystems continues to be ranked as good or high quality.	
Ecosystems – State of Great Lakes	n/a	Despite successful restoration efforts and improvement in some areas, the cumulative impacts of many pressures continue to threaten the Great Lakes.	
Species – Species at Risk Status Changes	10	Most Species at Risk that were reassessed by COSSARO showed no change, while 20% moved to a higher risk category and 14% were moved to a lower risk category.	
Species – Species of Conservation Concern	10	Most Species of Conservation Concern showed no change in general status, however more species moved to higher risk categories than lower risk categories.	

Trends



Improvement



Deterioration



No change



Mixed



Baseline

Conservation Response

While there are serious threats and challenges to conserving Ontario's biodiversity, there is a strong and vital network of individuals and organizations working hard to reverse these trends. From the establishment of protected areas and conservation lands to the stewardship of private lands, Ontarians care and are committed to conserving the province's biodiversity. This theme area includes indicators that assess the conservation response of both individuals and organizations to the loss of Ontario's biodiversity.










Indicator	Related target	Status	Trend
Stewardship – Stewardship Area	11	The amount of land with stewardship activities in Ontario increased by 19% between 2002 and 2018.	
Stewardship – Volunteer Efforts	3	Between 2006 and 2018, the number of people who volunteered to conserve Ontario's biodiversity appeared to increase by 32% with changes likely due to improved data collection.	
Stewardship – Tax Incentive Programs	3	Between 2002 and 2020, the number of properties participating in CLTIP and MFTIP increased. The area under MFTIP had an overall increase of 6% and the area conserved by CLTIP increased by 43%.	
Sustainable Management – Sustainable Agriculture	3	An estimated 41,000 farms have participated in the Environmental Farm Plan program since 1992 (an additional 4,700 farms since 2015).	
Sustainable Management – Forest Certification	n/a	In 2020 77% of Ontario's managed forests are certified, a 1% increase since 2015.	
Financing Conservation – Biodiversity Funding	n/a	Between 2001-2020 expenditures of the biodiversity-related provincial ministries increased by 39% and by conservation authorities increased by 100%. Charitable donations for environmental activities decreased between 2014-2018.	
Education – Elementary/ Secondary Curricula	1	Biodiversity has been integrated into the elementary and secondary school curricula and opportunities to learn about biodiversity have increased in revised curriculum since the last SOBR indicator update in 2015.	
Education – Post-Secondary Curricula	1	Biodiversity has been integrated into some postsecondary curricula in Ontario, including schools of business with very little change between 2015 and 2020.	
Awareness – Public Awareness of Biodiversity	2	74% of respondents were aware of the term biodiversity. 82% agreed that biodiversity plays an important role in their health and well-being, an increase of 9% since the 2014 survey.	



Photo: Forests Ontario

What's next?

Indicators are updated online at www.sobr.ca as new information becomes available. Having access to the most recent and best data helps conservationists, government, and other partners to better understand, conserve and protect biodiversity.

The next State of Ontario's Biodiversity report will be produced in 2025. It will detail progress on meeting the updated targets that will be included in the next version of Ontario's Biodiversity Strategy, which is being renewed by the Ontario Biodiversity Council in 2022.

For additional information about the state of Ontario's biodiversity, and Ontario's Biodiversity Strategy visit:

ontariobiodiversitycouncil.ca

Recommended citation:

Ontario Biodiversity Council. 2021. State of Ontario's Biodiversity 2020: Summary. A report of the Ontario Biodiversity Council, Peterborough, ON.



State of Ontario's Biodiversity 2015
Summary

Ontario Biodiversity Council

