



Convention on
Biological Diversity



Aichi Biodiversity Target 11 Country Dossier: CANADA

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GLOSSARY

AZEs	Alliance for Zero Extinction sites
CEPF	Critical Ecosystem Partnership Fund
EBSA	Ecologically or Biologically Significant Marine Area
EEZ	Exclusive Economic Zone
GCF	Green Climate Fund
GD-PAME	Global Database on Protected Area Management Effectiveness
GEF	Global Environment Facility
IBA	Important Bird and Biodiversity Area
ICCAs	Indigenous and Community Conserved Area Area (may also be referred to as territories and areas conserved by Indigenous peoples and local communities or “territories of life”)
IPLC	Indigenous Peoples and Local Communities
KBA	Key Biodiversity Area
MEOW	Marine Ecosystems of the World
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan
OECD	Other Effective Area-Based Conservation Measures
PA	Protected Area
PAME	Protected Area Management Effectiveness
PPA	Privately Protected Area
PPOW	Pelagic Provinces of the World
ProtConn	Protected Connected land indicator
SOC	Soil Organic Carbon
TEOW	Terrestrial Ecosystems of the World
WDPA	World Database on Protected Areas
WD-OECD	World Database on Other Effective Area-Based Conservation Measures



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This country dossier is compiled by the UNDP and SCBD from publicly available information. It is prepared, within the overall work of the Global Partnership on Aichi Biodiversity Target 11, for the purpose of attracting the attention of the Party concerned and other national stakeholders to facilitate the verification, correcting, and updating of country data. The statistics might differ from those reported officially by the country due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Furthermore, the suggestions from the UNDP and SCBD are based on analyses of global datasets, which may not necessarily be representative of national policy or criteria used at the national level. The analyses are also subject to the limits inherent in global indicators (precision, reliability, underlying assumptions, etc.). Therefore, they provide useful information but cannot replace analyses at a national level nor constitute a future benchmark for national policy or decision-making.

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EXECUTIVE SUMMARY

This document provides information on the coverage of protected areas (PAs) and other effective area-based conservation measures (OECMs), as currently reported in global databases (the World Database on Protected Areas ([WDPA](#)) and World Database on Other Effective Area-Based Conservation Measures ([WD-OECM](#))). It also includes details on the status of the other qualifying elements of Aichi Biodiversity Target 11 based on this data. These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage, differences in the base maps used to measure terrestrial and marine area of a country or territory, or if global datasets differ from the criteria and indicators used at the national level. Where available, data from national statistics for the elements of Target 11 are included alongside records from these global databases. This dossier also provides a summary of commitments made under Aichi Biodiversity Target 11, and a summary of potential opportunities regarding elements of the target for future planning.

The dossier has been developed in consultation with the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), which manages the [WDPA](#), [WD-OECM](#) and Global Database on Protected Area Management Effectiveness ([GD-PAME](#)). Parties to the CBD are requested to contact protectedareas@unep-wcmc.org with any updates to the information in these databases.

Aichi Biodiversity Target 11 Elements: Current status and opportunities for action

Coverage - Terrestrial & Marine

- **Status:** as of October 2021 (per the [WDPA](#) and [WD-OECM](#)), terrestrial coverage in Canada is 1,263,531 km² (12.7%) and coastal and marine coverage is 785,982 km² (13.8%); nationally, Canada reports 12.5% for terrestrial and freshwater areas and 13.8% for marine (as of the end of 2020).
- **Opportunities for action:** opportunities for the near-term include updating the [WDPA](#) and [WD-OECM](#) with any unreported PAs and OECMs. In the future, focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.

Ecological Representativeness— Terrestrial & Marine

- **Status:** nationally, Canada contains 31 ecozones and 215 ecoregions; of these, five terrestrial ecozones and three marine ecozones have more than 20% of their area covered by PAs and OECMs, and 55 ecoregions have at least 17% coverage.
- **Opportunities for action:** there is opportunity for Canada to increase protection in ecoregions and ecozones that have lower levels of coverage by PAs or OECMs.



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Areas Important for Biodiversity

- **Status:** Canada's national process for the identification of KBAs is underway but is not yet complete; IBAs are being re-evaluated prior to converting to KBAs, while 241 KBAs have been identified for taxa other than birds to date, but boundary discussions with stakeholders are ongoing.
- **Opportunities for action:** there is opportunity to complete the national process for the identification of KBAs, and to provide continued stewardship for identified sites.

Areas Important for Ecosystem Services

- **Status:** coverage of areas important for ecosystem services: in Canada, 12.3% of aboveground biomass carbon, 12.6% of belowground biomass carbon, 11.3% of soil organic carbon, 3.9% of carbon stored in marine sediments is covered by PAs and OECMs. Canada also contains a large portion of globally significant ecosystem values: it has the most wilderness of any nation in the world (26%), the world's largest supply of surface freshwater (26%), 11% of the global supply of continental shelf area, and approximately 15% of global soil carbon stores (second only to Russia).
- **Opportunities for action:** for carbon, there is opportunity for Canada to increase PAs, OECMs, or other forms of stewardship, in both marine and terrestrial areas with high carbon stocks. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.
- For water, there is opportunity to increase the area of the water catchment under protection by PAs, OECMs, or other forms of stewardship, or in cases where there are high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforestation would have benefits for improving water security.

Connectivity and Integration

- **Status:** Canada has created a Connectivity Toolbox, with examples of legislation, guidance, best practices, research, and conservation initiatives in Canada to help advance connectivity conservation in Canada. There are also numerous corridor initiatives in the country, that are grassroots or funded by various levels of government, these multi-sector and multi-scale efforts on corridors and restoration support conservation of key movement corridors. Work is also ongoing to mainstream across sectors; multiple avenues are being pursued.
- **Opportunities for action:** there is opportunity for the targeted designation of connecting PAs or OECMs and to focus on PA, OECM and corridor management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation. There is also opportunity to continue the ongoing work on the freshwater connectivity indicator framework, as well as continuing the ongoing work on mainstreaming across sectors.



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- As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

Governance Diversity

- **Status:** the most common governance type for PAs in Canada (by area) is: 78.57% under National Government. Canada's national tracking of protected and conserved areas (CPCAD) is in the process of being updated to align more closely with the WDPA schema and IUCN governance categories. The addition of OECMs to Canada's conserved areas portfolio has shifted governance towards sub-national and non-governmental governance (sub-national and collaborative governance makes up more than 20% of the area of OECMs).
- **Opportunities for action:** explore opportunities for governance types that have lower representation, for Canada this could relate to governance by Indigenous Peoples and/or local communities (IPLC), etc. Increase efforts to identify the governance types for the 0.7% of sites that do not have their governance type reported.
- There is also opportunity for Canada to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

Protected Area Management Effectiveness

- **Status:** 26.2% of terrestrial PAs and 1.4% of marine PAs have completed Protected Area Management Effectiveness (PAME) assessments reported.
- **Opportunities for action:** the 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for both terrestrial and marine PAs to achieve the target.
- There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g., through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.



INTRODUCTION

The Strategic Plan for Biodiversity 2011-2020 was adopted at the tenth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) held in Nagoya, Aichi Prefecture, Japan from 18-29 October 2010. The vision of the Strategic Plan is one of “Living in harmony with nature” where *“By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people”* (CBD, 2010). In addition to this vision, the Strategic Plan is composed of 20 targets, under five strategic goals. Aichi Biodiversity Target 11 states that *“By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.”*

With the conclusion of the Aichi Biodiversity Targets in 2020, Target 11 on area-based conservation has seen success in the expansion of the global network of protected areas (PA) and other effective area-based conservation measures (OECMs). The negotiation of the post-2020 Global Biodiversity Framework (GBF) and its future targets provide an essential opportunity to further improve the coverage of PAs and OECMs, to improve other aspects of area-based conservation, to accelerate progress on biodiversity conservation more broadly, while also addressing climate change, and the Sustainable Development Goals. This next set of global biodiversity targets are to be adopted at the fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity. These new targets must aim to build upon lessons learned from the last decade of progress to deliver transformative change for the benefit of nature and people, to realize the 2050 Vision for biodiversity.

The United Nations Development Programme (UNDP) and the Secretariat of the Convention on Biological Diversity have developed the Aichi Biodiversity Target 11 Country Dossiers, which provide countries with an overview of the status of Target 11 elements, opportunities for action, and a summary of commitments made by Parties over the last decade. Each dossier can support countries in assessing their progress on key elements of Aichi Biodiversity Target 11 and identifying opportunities to prioritize new protected areas and OECMs.

This dossier provides an overview of area-based conservation in Canada. Section I of the dossier presents data on the current status of Canada’s PAs and OECMs. The data presented in Section I relates to each element of Target 11. Section I also presents the PA and OECM coverage for two critical ecosystem services: water security and carbon stocks. In addition, the dossier presents potential opportunities for action for Canada, in relation to each Target 11 element. The analyses present options for improving Canada’s area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on Canada’s existing PA and OECM commitments as a summary of existing efforts towards achieving Target 11. This gives focus not only to national policy and actions but also voluntary commitments to the UN. Furthermore, where

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data is available, this dossier provides information on potential OECMs, Indigenous and Community Conserved Areas (ICCAs; also, often referred to as territories and areas conserved by Indigenous peoples and local communities or “territories of life”) and Privately Protected Areas (PPAs) and the potential contribution they will have in achieving the post-2020 targets.

The information on PAs and OECMs presented here is derived from the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM). These databases are joint products of UNEP and IUCN, managed by UNEP-WCMC, and can be viewed and downloaded at www.protectedplanet.net. Parties are encouraged to provide data on their PAs and OECMs to UNEP-WCMC for incorporation into the databases (see e.g., Decisions 10/31 and 14/8). The significant efforts of Parties in updating their data in the build up to the publication of the Protected Planet Report 2020 (UNEP-WCMC and IUCN, 2021) were greatly appreciated. UNEP-WCMC welcomes further updates, following the data standards described here (www.wcmc.io/WDPA_Manual), and these should be directed to protectedareas@unep-wcmc.org. The statistics presented in this dossier are derived from the May 2021 WDPA and WD-OECM releases, unless explicitly stated otherwise. Readers should consult www.protectedplanet.net for the latest coverage statistics (updated monthly).

Some data from the WDPA and WD-OECM are not made publicly available at the request of the data-provider. This affects some statistics, maps, and figures presented in this dossier. Statistics provided by UNEP-WCMC (terrestrial and marine coverage) are based upon the full dataset, including restricted data. All other statistics, maps, and figures are based upon the subset of the data that is publicly available.

Where data is less readily available, such as for potential OECMs, ICCAs and PPAs, data has also been compiled from published reports and scientific literature to provide greater awareness of these less commonly recorded aspects. These data are provided to highlight the need for comprehensive reporting on these areas to the WDPA and/or WD-OECM. Parties are invited to work with indigenous peoples, local communities and private actors to submit data under the governance of these actors, with their consent, to the WDPA and/or WD-OECM.

Overall, PAs and OECMs are essential instruments for biodiversity conservation and to sustain essential ecosystem services that support human well-being and sustainable development, including food, medicine, and water security, as well as climate change mitigation and adaptation and disaster risk reduction. The data in this dossier, therefore, aims to celebrate the current contributions of PAs and OECMs, whilst the gaps presented hope to encourage greater progress, not just for the benefit of biodiversity and the post-2020 GBF, but also to recognize the essential role of PAs and OECMs to the Sustainable Development Goals and for addressing the climate crisis.



SECTION I: CURRENT STATUS

Aichi Biodiversity Target 11 refers to both protected areas (PAs) and other effective area-based conservation measures (OECMs). This section provides the current status for all elements of Aichi Biodiversity Target 11 where indicators with global data are available. Statistics for all elements are presented using data on both PAs and OECMs (where this data is available and reported in global databases like the WDPA and WD-OECM). It is recognized that statistics reported in the WPDA and WD-OECM might differ from those reported officially by countries due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Details on UNEP-WCMC's methods for calculating PA and OECM coverage area available [here](#). The global indicators adopted here for presenting the status of other elements of Target 11 may also differ from those in use nationally. Where available, results from national reporting are also included.



COVERAGE - TERRESTRIAL & MARINE

As of October 2021, Canada has 9,000 protected areas¹ reported in the World Database on Protected Areas (WDPA). 16 UNESCO-MAB Biosphere Reserves are not included in the following statistics (see details on UNWP-WCMC's methods for calculating PA and OECM coverage [here](#)).

As of October 2021, Canada has **130** OECMs reported in the world database on OECMs (WD-OECM).

Current total coverage for Canada (from WDPA/WD-OECM):

- 12.7% terrestrial (8,605 PAs, 1,185,787 km² and 80 OECMs, 77,743 km²)
- 13.8% marine (935 PAs, 504,723.4 km² and 58 OECMs, 281,259 km²)

According to Canada's national reporting² (at the end of 2020):

- Coverage for *terrestrial and freshwater* protected and conserved areas is **12.5%** (11.7% or 1,172,342 km² for terrestrial PAs alone)
- Coverage for *marine* areas is **13.8%** (with 8.9% in marine protected areas)

Some noted differences between Canada's national reporting and the figures presented in the WDPA/WD-OECM:

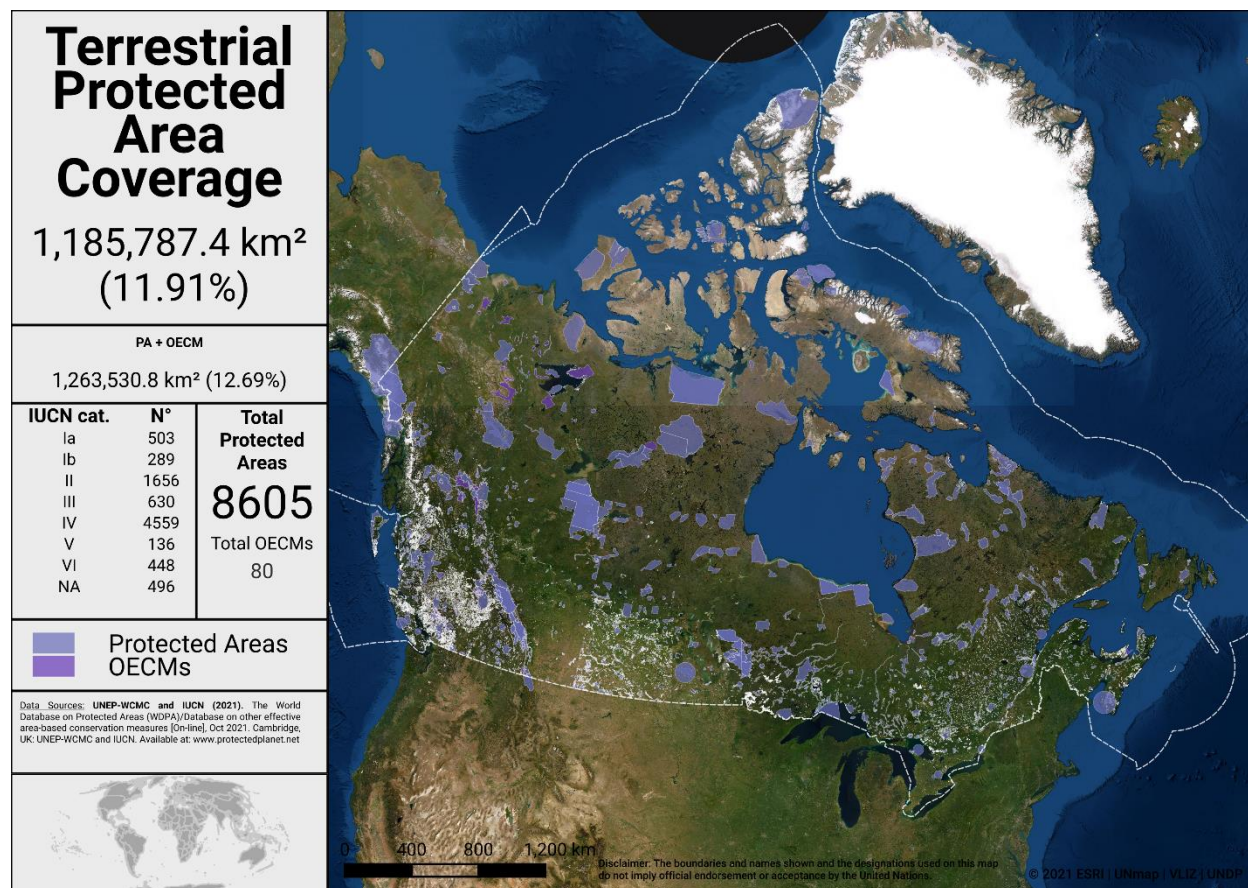
- Division between terrestrial and marine coverage: In Canada, marine and terrestrial areas are labelled by the reporting jurisdiction and this information is used for analyses; for the WCMC analyses, polygons are divided into marine and terrestrial categories using mapped coastlines. This causes differences in the marine/terrestrial split, where marine coastal areas in Canada may be classified as terrestrial.
- Projections and base layers: The global and national analyses use different map projections and geographic base layers, as appropriate to the scale of the analyses. These cause differences in the estimated area of protected and conserved areas as well as in the baseline areas for terrestrial and marine territory.

¹ Canada chooses to restrict some data on PAs and OECMs. As a result, data on 356 protected areas and 3 OECMs is not publicly available. While these sites are included in the coverage statistics presented above, all other statistics (e.g., number of protected areas; breakdown by governance type etc.) are based upon the publicly available data only.

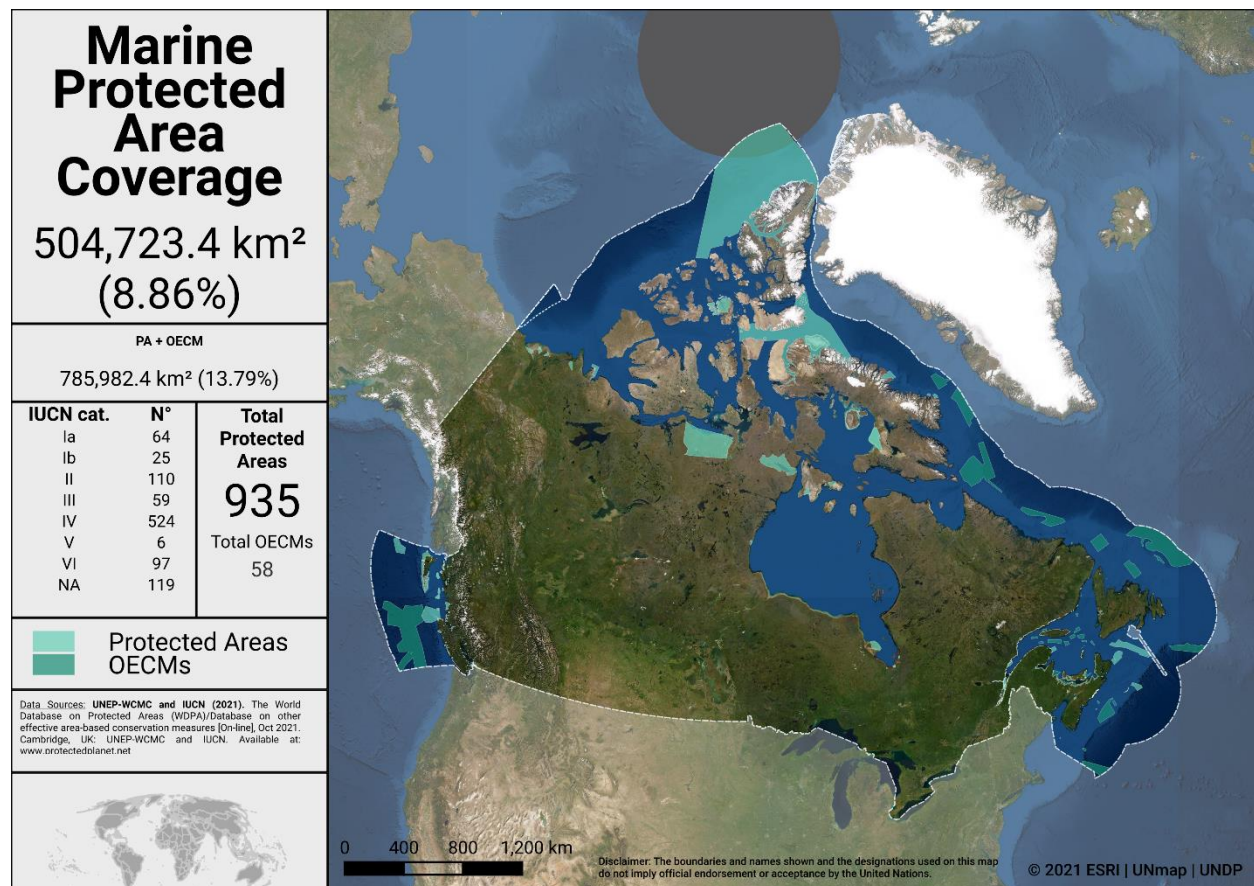
² For details per the Canadian Environmental Sustainability Indicators (CESI) at : <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/conserved-areas.html> (which uses the most recent data from the Canadian Protected and Conserved Areas Database (CPCAD), available at: <https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/protected-conserved-areas-database.html>)

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- Data Inclusion: Canada's national reporting uses interim protected areas in the calculation of protected area coverage, whereas the global estimates do not. Canada's national reporting does not currently include World Heritage Site and Ramsar data



Terrestrial Protected and Conserved Areas in Canada (based on WDPA and WD-OECM, Oct 2021)

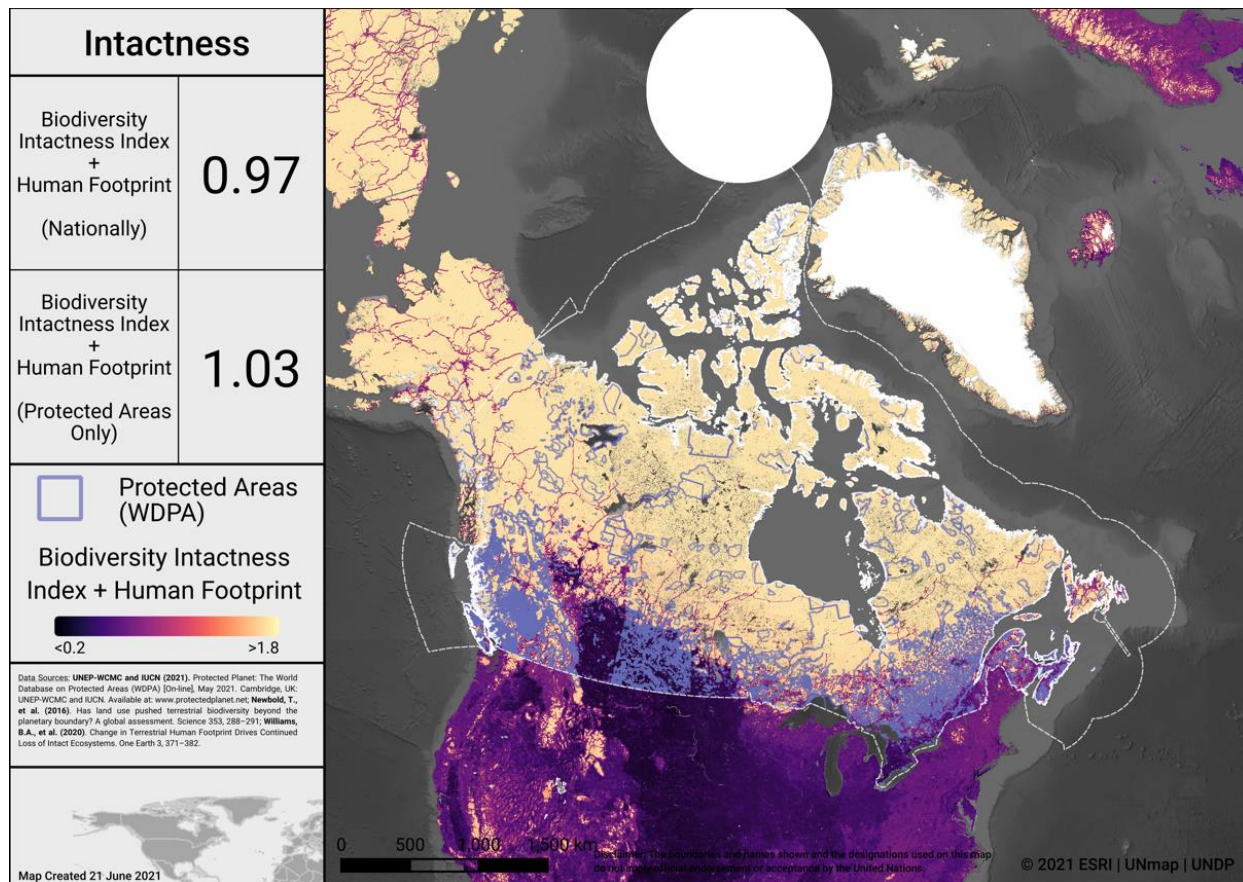


Marine Protected and Conserved Areas in Canada (based on WDPA and WD-OECM, Oct 2021)

Opportunities for action

Opportunities for the near-term include updating the WDPA and WD-OECM with any unreported PAs or OECMs. In the future, as Canada considers where to add new PAs and OECMs, the map below identifies areas in Canada where intact terrestrial areas are not currently protected. Focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.

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Intactness in Canada

To explore more on intactness visit the UN Biodiversity Lab: map.unbiodiversitylab.org.

ECOLOGICAL REPRESENTATIVENESS – TERRESTRIAL & MARINE

Ecological representativeness is assessed, globally, based on the PAs and OECMs coverage of broad-scale biogeographic units. Globally, ecoregions have been described for terrestrial areas (Dinerstein et al, 2017), marine coastal and shelf ecosystems (to a depth of 200m; Spalding et al 2007) and surface pelagic waters (Spalding et al 2012).

Due to Canada's tremendous landscape and vegetation community diversity, Canada has developed its own ecoregion framework that offers finer resolution than the global framework. According to the Canadian Environmental Sustainability Indicators program (CESI),³ Canada has 31 ecozones and 215 terrestrial ecoregions.

Of the 31 ecozones in Canada:

- Five (5) terrestrial ecozones (the Tundra Cordillera, the Pacific Maritime, the Montane Cordillera, the Arctic Cordillera and the Southern Arctic), have more than 20% of their area conserved (by PAs and OECMs)
- Three (3) marine ecozones (the Arctic Basin, the Offshore Pacific and the Eastern Arctic), have more than 20% of their area conserved (by PAs and OECMs)
- 13.3% of the Canadian area of the Great Lakes is conserved

Of the 215 ecoregions in Canada,

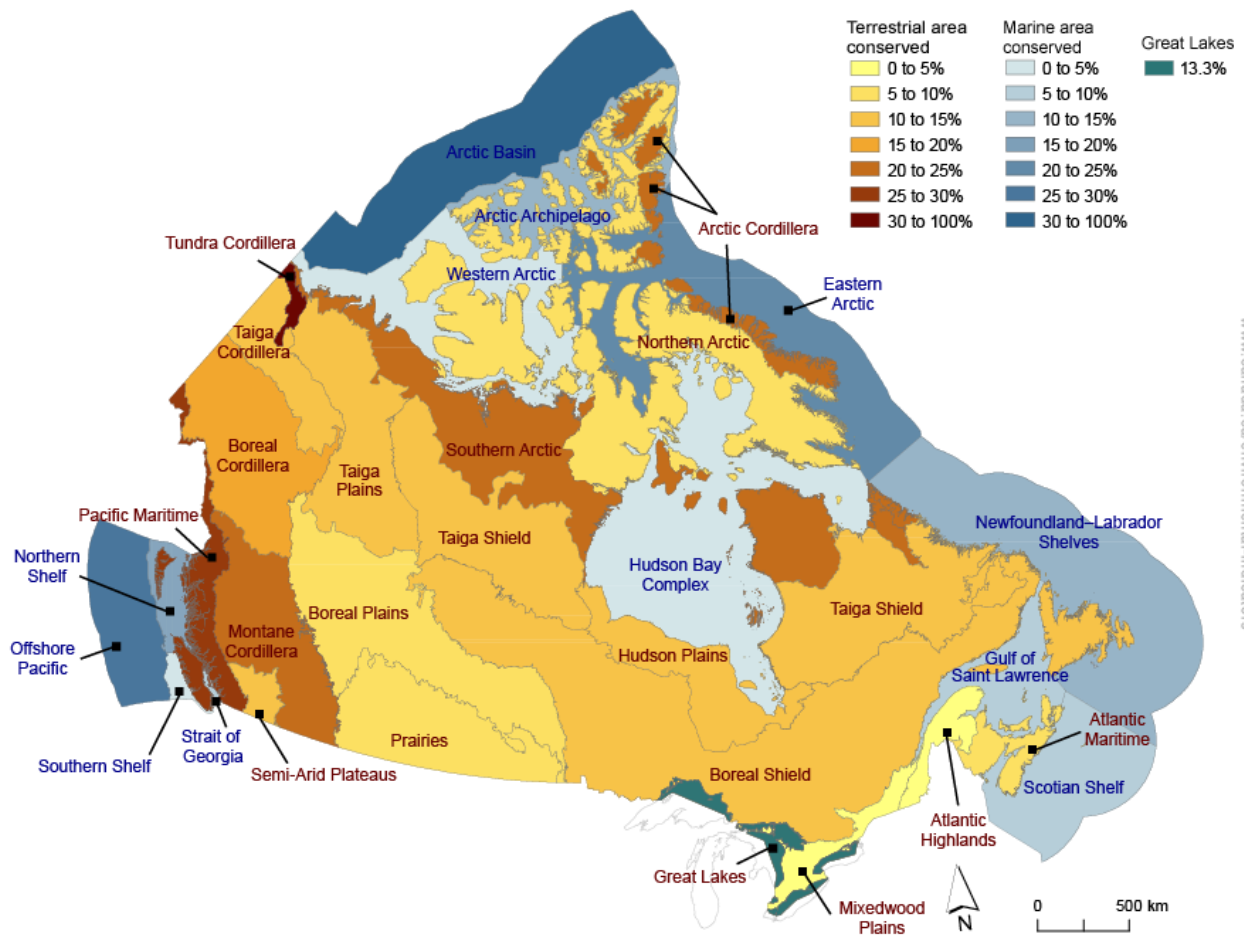
- 75% (160 ecoregions) have less than 17% of their area conserved
- 10% (22 ecoregions) have between 17% and 30% of their area conserved
- 15% (33 ecoregions) have more than 30% of their area conserved

³ See <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/conserved-areas.html>; the entire list of Canadian ecozones and ecoregions we use can be found on the Ecological Areas tab of this page (expanding "Data table for long description").

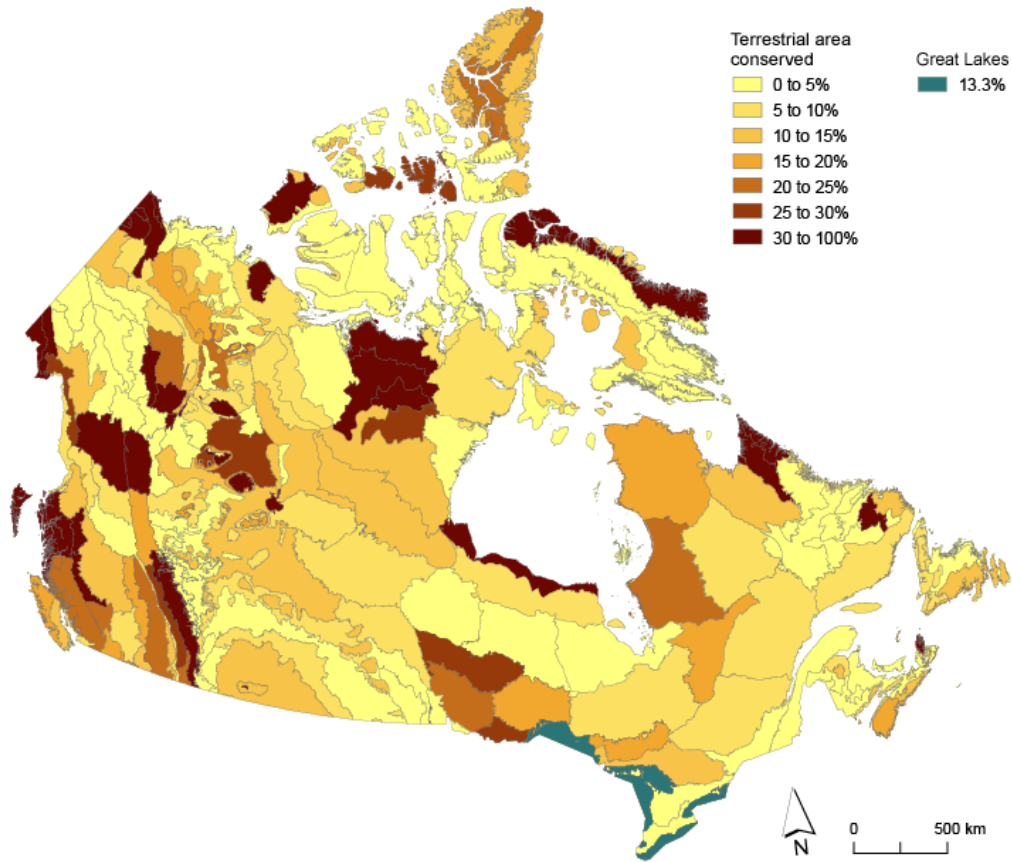
See further details, including finer-scale classifications in the nested hierarchy, here: <https://sis.agr.gc.ca/cansis/nsdb/ecostrat/hierarchy.html>



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Conserved areas, by ecozone (data are current as of December 31, 2020)



www.canada.ca/environmental-indicators

Conserved areas by ecoregion (data are current as of December 31, 2020)

Opportunities for action

There is opportunity for Canada to increase protection in ecoregions and ecozones that have lower levels of coverage by PAs and OECMs.

AREAS IMPORTANT FOR BIODIVERSITY

Key Biodiversity Areas (KBAs)

Protected area and OECM coverage of Key Biodiversity Areas (KBAs) provide one proxy for assessing the conservation of areas important for biodiversity at national, regional and global scales. KBAs are sites that make significant contributions to the global persistence of biodiversity (IUCN, 2016). The KBA concept builds on four decades of efforts to identify important sites for biodiversity, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and KBAs identified through Hotspot ecosystem profiles supported by the Critical Ecosystem Partnership Fund. Incorporating these sites, the dataset of internationally significant KBAs includes Global KBAs (sites shown to meet one or more of 11 criteria in the Global Standard for the Identification of KBAs, clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability), Regional KBAs (sites identified using pre-existing criteria and thresholds, that do not meet the Global KBA criteria based on existing information), and KBAs whose Global/Regional status is Not yet determined, but which will be assessed against the global KBA criteria within 8-12 years. Regional KBAs are often of critical international policy relevance (e.g., in EU legislation and under the Ramsar Convention on Wetlands), and many are likely to qualify as Global KBAs in future once assessed for their biodiversity importance for other taxonomic groups and ecosystems. To date, nearly 16,000 KBAs have identified globally, and information on each of these is presented in the World Database of Key Biodiversity Areas: www.keybiodiversityareas.org.

This country has established a Key Biodiversity Area (KBA) National Coordination Group which brings together a wide range of stakeholders, from government agencies, NGOs, academia and wider society. The group oversees and coordinates the identification, delineation, monitoring and promotion of conservation of KBAs, and is currently undertaking a national assessment of KBAs across all taxonomic groups and ecosystems for which data exist, building on the existing network of KBAs in the country.

Canada's terrestrial KBA identification (according to international KBA standards) is currently incomplete.⁴ Many additional KBA sites have been identified above and beyond what is listed globally⁵ but these KBAs are not yet finalized. Further, it is challenging to have a national dossier rely on a global dataset that is not recognized nationally due to concerns around stakeholder agreement with delineation of boundaries. Some boundaries will likely change between global and national KBAs.

⁴ See the current national data in the Canadian Key Biodiversity Area (KBA) Dashboard here: <https://gis.natureserve.ca/portal/apps/opsdashboard/index.html#/ad84def2aef04ecabb3b38982764f59e>

⁵ Globally, there are 327 KBAs identified for Canada (as of 2021).

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In Canada, IBAs are being re-evaluated prior to converting to KBAs, 241 KBAs have been identified for taxa other than birds to date but boundary discussions with stakeholders are ongoing. The complete set of Canadian KBAs may not be known for several more years. As a result, Canada's KBA data is patchy.

Additionally, Canada does not support the use of the indicator using protected KBAs as a measure of the conservation of “areas important for biodiversity”—KBAs are not, and should not be targets for protection, but rather for continued stewardship.

Opportunities for action

There is opportunity to complete the national process underway for the identification of KBAs, and to provide continued stewardship for these nationally identified sites.



AREAS IMPORTANT FOR ECOSYSTEM SERVICES

There is no single indicator identified for assessing the conservation of areas important for ecosystem services. For simplicity, two services with available global datasets are assessed here (carbon and water). In future, other critical ecosystem services could be explored.

Canada, as the second largest country in the world, contains a large portion of globally significant ecosystem values;⁶ for example:

- Canada has the most wilderness of any nation in the world (26%)
- Canada has the world's largest supply of surface freshwater (26%), as well as 10% of the world's glacier-stored water
- Canada has 11% the global supply of continental shelf area (which is productive for both biodiversity and human use)
- Canada contains approximately 15% of global soil carbon stores (second only to Russia); Canada contains extensive wetlands and peatlands, which contribute significant amounts of carbon storage.⁷
- Canada is one of six nations that span more than 20° in latitude (“extent of latitude within a country provides a measure of the availability of climatic gradients with the potential to support biodiversity redistribution”)

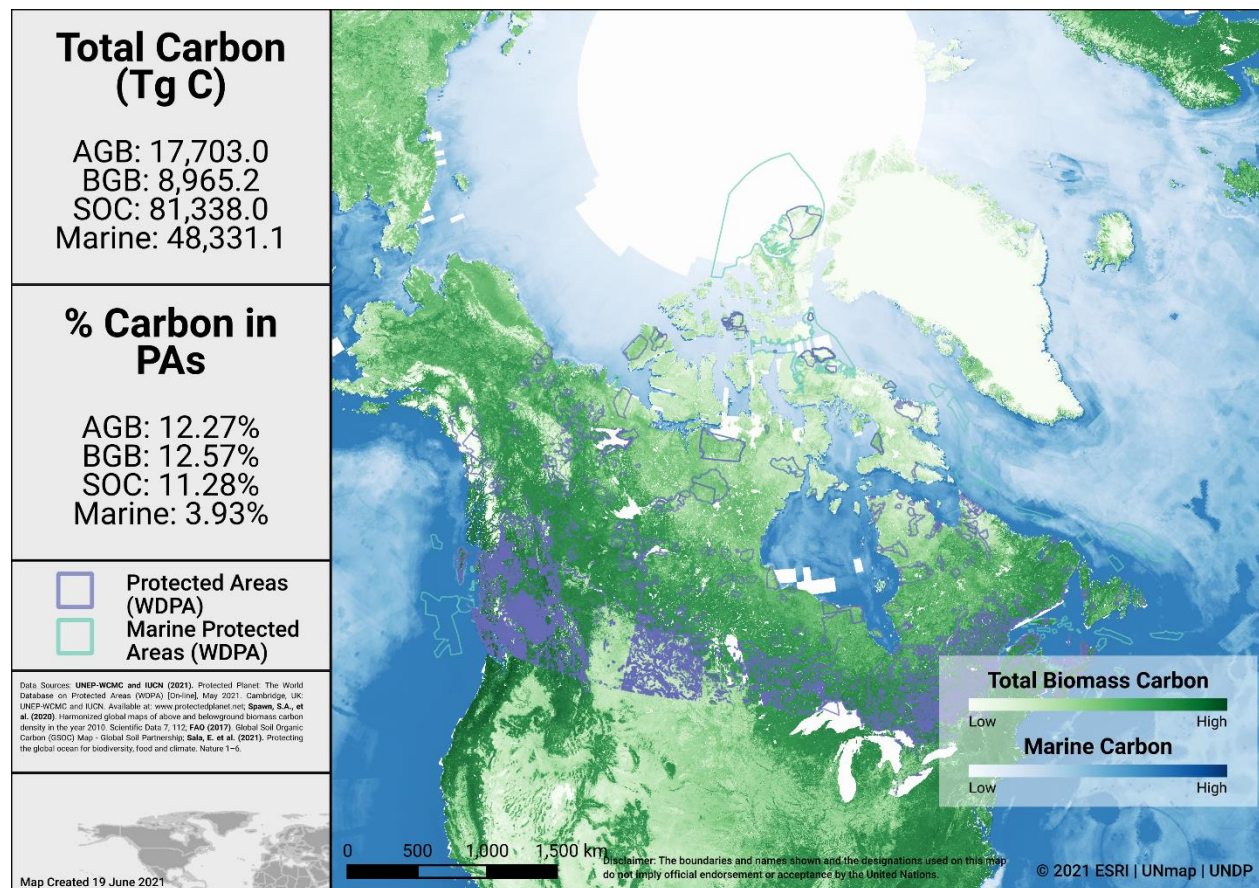
Carbon

Data for biomass carbon comes from temporally consistent and harmonized global maps of aboveground biomass and belowground biomass carbon density (at a 300-m spatial resolution); the maps integrate land-cover specific, remotely sensed data, and land-cover specific empirical models (see Spawn et al., 2020 for details on methodology). The Global Soil Organic Carbon Map present an estimation of SOC stock from 0 to 30 cm (see FAO, 2017). Data is also presented from global maps of marine sedimentary carbon stocks, standardized to a 1-meter depth (see Sala et al., 2021, and Atwood et al., 2020).

The map below presents the total carbon stocks in Canada and the percent of carbon in protected and conserved areas. The total carbon stocks is 17,703.0 Tg C from aboveground biomass (AGB), with 12.3% in protected and conserved areas; 8,965.2 Tg C from below ground biomass (BGB), with 12.6% in protected and conserved areas; 81,338.0 Tg C from soil organic carbon (SOC), with 11.3% in protected and conserved areas; and 48,331.0 Tg C from marine sediment carbon, with 3.9% in protected and conserved areas.

⁶ See further details in Cristine et al 2019

⁷ As a large nation, there is high variability – and in general lower carbon in the south, with significantly higher carbon stores across the boreal and north



Carbon Stocks in Canada ('Protected Areas' include both PAs and OECMs)

Water

Forests support stormwater management and clean water availability, especially for large urban populations. Research that has examined the role of forests for city drinking water supplies shows that of the world's 105 largest cities, more than 30% (33 cities) rely heavily on the local protected forests, which provide ecosystem services that underpin local drinking water availability and quality (Dudley & Stolton, 2003).

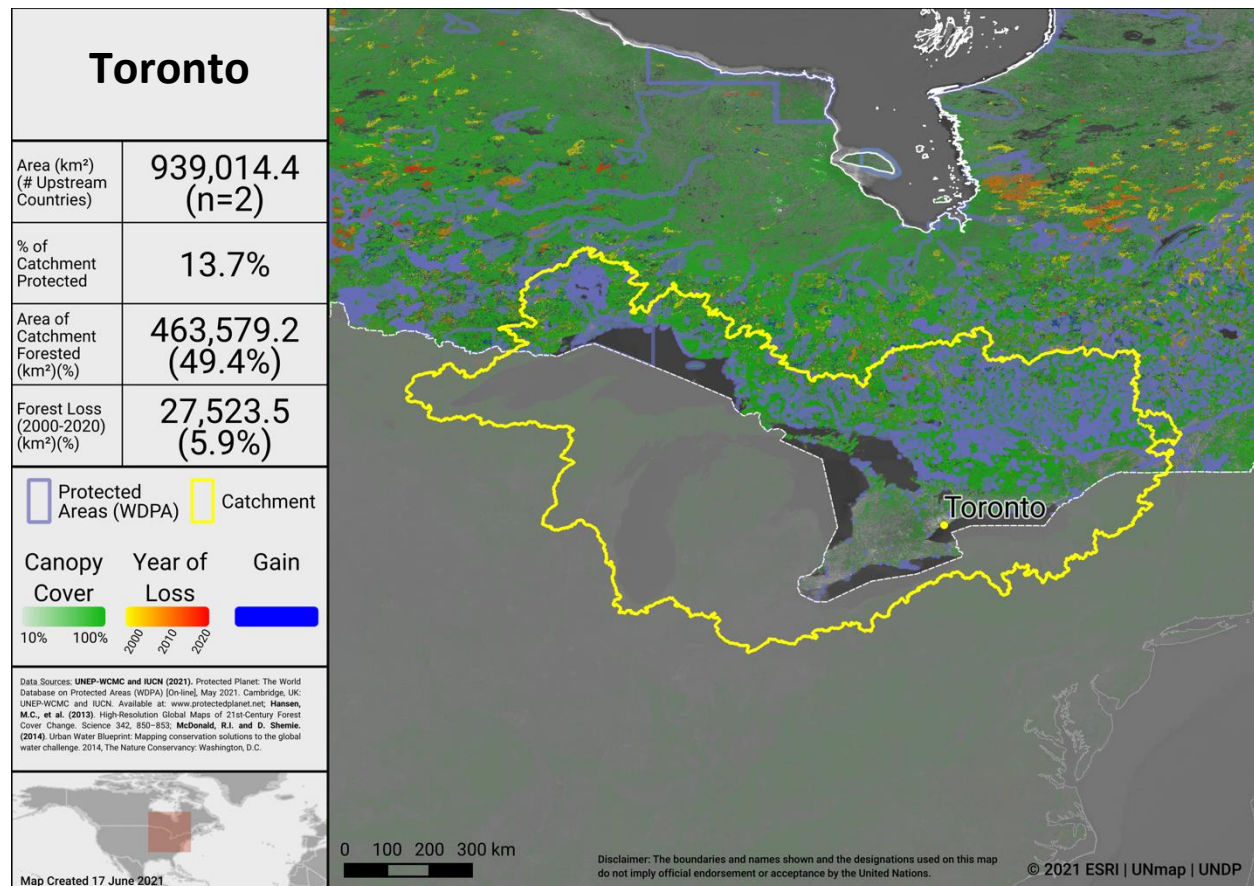
Information on the water sources for 534 cities is available via the City Water Map (CWM) and provides details on the catchment area of the watershed that supplies these cities (see McDonald et al., 2014 for details on methodology).

Drinking water supplies for cities in Canada may similarly depend on protected forest areas within and around water catchments. The maps below show the percentage forest cover and the forest loss from 2000-2020 in the most heavily populated water catchments of Canada. Intact catchments can support more consistent water supply and improved water quality.

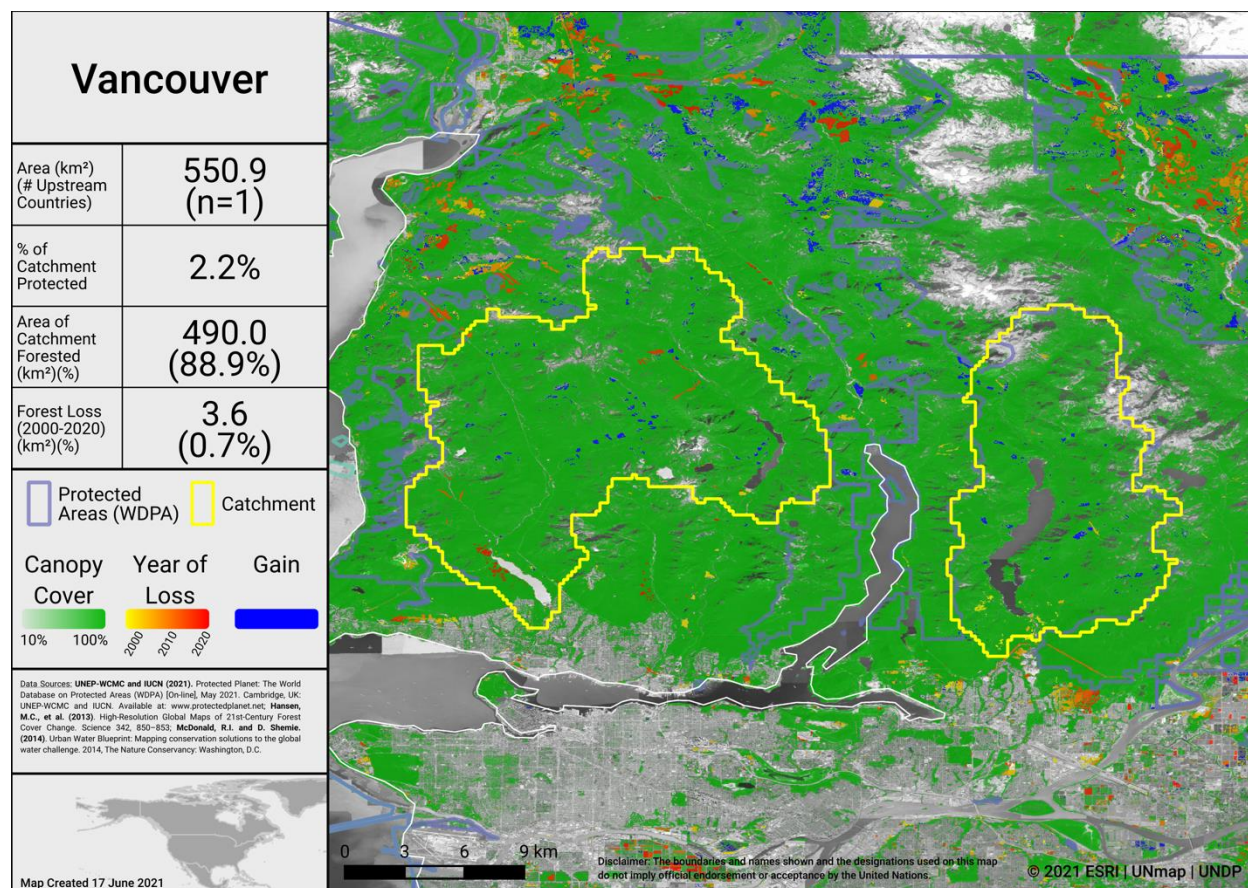
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It is also worth noting that Canada does not rely on storm catchment alone. Canada contains 26% of the global freshwater supply (waterbodies + glacier), greater than any other nation. As a result, strong water management policies (e.g., around wastewater treatment, management during drought) may be more influential.

Further, cities and towns in Canada are spread out. Selecting the top populated indicates where pressure is highest, but provides a biased view of Canada's overall management of forest cover in water catchments. Small towns and cities may generally have far better management of forests in catchments.



Water catchment for Toronto



Water catchment for Vancouver

The watershed for Vancouver (and Victoria) are in fact OECMs and encompass 78,520 hectares.

Opportunities for action

For carbon, there is opportunity for Canada to increase PAs, OECMs, or other forms of stewardship, in both marine and terrestrial areas with high carbon stocks, as identified in the map above. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

For water, there is opportunity to increase the area of the water catchment under protection by PAs, OECMs, or other forms of stewardship, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

CONNECTIVITY & INTEGRATION

Two global indicators, the Protected Connected land indicator (ProtConn; EC-JRC, 2021; Saura et al., 2018) and the PARC-Connectedness indicator (CSIRO, 2019), have been proposed for assessing the terrestrial connectivity of PAs and OECMs networks. To date there is no global indicator for assessing marine connectivity, though some recent developments include proposed guidance for the treatment of connectivity in the planning and management of MPAs (see Lausche et al., 2021).

Note: these global indicators may not accurately represent connectivity in Canada's protected and conserved areas.

Protected Connected Land Indicator (Prot-Conn)

As of January 2021, as reported in the Joint Research Centre of the European Commission's Digital Observatory for Protected Areas (DOPA) (JRC, 2021), the coverage of protected-connected lands (a measure of the connectivity of terrestrial protected area networks, assessed using the ProtConn indicator) in Canada was 2.43%.

PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in Canada is 0.47. This represents no significant change from 2010.

National connectivity indicators

Canada has adopted an indicator to measure freshwater connectivity from the perspective of protected and conserved areas.⁸ The Canadian Wildlife Federation, with financial support from the Government of Canada, is leading an effort to develop a national aquatic barriers database that identifies and maps barriers to fish, such as weirs and dams.⁹ Once complete, this database will be used for an analysis with the freshwater connectivity indicator.

Canada created a Connectivity Toolbox, with examples of legislation, guidance, best practices, research, and conservation initiatives in Canada to help advance connectivity conservation in Canada. This toolbox is currently available in an excel file¹⁰ and will be available in an online version in early 2022, along with an interactive map.

Corridor initiatives

Canada has a number of corridor initiatives that are grassroots or funded by various levels of government, including:

- Algonquin to Adirondack

⁸ Available upon request via connectivityworkinggroup@ec.gc.ca

⁹ See https://cwf-fcf.org/en/resources/research-papers/CABD_briefing-document_2-2.pdf

¹⁰ See <https://www.conservation2020canada.ca/connectivity>

- Yellowstone to Yukon
- Boreal Songbird Initiative
- Two Countries One Forest
- Corridor Appalachien
- P'tit train du nord
- Kootenay Connect
- Atlantic Ecosystem Initiatives
- Okanagan Collaborative Conservation Program and South Okanagan Similkameen Conservation Program
- And many other provincial, territorial, pan-Canadian, and regional initiatives

These multi-sector and multi-scale efforts on corridors and restoration support conservation of key movement corridors.

Integration into the wider landscape and seascape

Work is ongoing to mainstream across sectors. Multiple avenues are being pursued including:

- Development of land use planning across many provinces and territories in Canada with a particular emphasis in the north
- Canada's Greening Government Strategy which mainstreams biodiversity and conservation efforts across government
- Federal Sustainable Development Strategy, Sustainably managed lands and forests; Healthy coasts and oceans, etc.¹¹
- The Municipal Natural Assets Initiative (MNAI) provides scientific, economic and municipal expertise to support and guide local governments in identifying, valuing and accounting for natural assets in their financial planning and asset management programs, and in developing leading-edge, sustainable and climate resilient infrastructure.
- The adoption of OECMs, which support inclusion of a broader array of governing authorities including across sectors such as forestry and agriculture
- The development of tools to support identification of high priority areas for conserving biodiversity and sequestration and storage of carbon
- The emphasis on blue and green infrastructure
- The implementation of Nature-Based Solutions to Climate Change.

Opportunities for action

There is opportunity for the targeted designation of connecting PAs or OECMs and to focus on PA, OECM and corridor management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

¹¹ See <http://www.fsds-sfdd.ca/index.html#/en/detail/all/goal:G08>

There is also opportunity to continue the ongoing work on the freshwater connectivity indicator framework, as well as continuing the ongoing work on mainstreaming across sectors.

As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).



GOVERNANCE DIVERSITY

There is a lack of comprehensive global data on governance quality and equity in PAs and OECMs. Here, we provide data on the diversity of governance types for reported PAs and OECMs.

As of October 2021, PAs in Canada reported in the WDPA have the following governance types by number of sites (% of governance types by area, not accounting for potential overlaps, included in brackets):

- 82.7% (62.8%) are governed by **governments**
 - 2.8% (33.2%) by federal or national ministry or agency
 - 79.9% (29.6%) by sub-national ministry or agency
- 3.7% (18.6%) are under **shared** governance
 - 3.5% (18.6%) by collaborative governance
 - 0.2% (0.004%) by joint governance
- 12.8% (0.07%) are under **private** governance
 - 0.3% (0.0004%) by individual landowners
 - 12.5% (0.07%) by non-profit organisations
- 0.03% (0.24%) are under **IPLC** governance
 - 0.03% (0.24%) by Indigenous Peoples
 - 0.0% by local communities
- 0.7% (18.3%) **do not** report a governance type
 - (Most of which are international designations)

Canada's national tracking of protected and conserved areas in CPCAD is based on different governance categories. CPCAD is in the process of being updated to more closely align with the WDPA schema and IUCN governance categories.

Below are the categories CPCAD currently uses for PA governance types (which does not account for overlaps):

- National Government: 68,994,906.3 ha (40.43%)
- Sub-national Government: 61,561,604.77 ha (36.08%)
- Collaborative Governance: 38,536,289.6 ha (22.58%)
- Joint Governance: 8,898.2 ha (0.005%)
- Individual Landowners: 742.9 ha (0.0004%)
- Non-profit Organizations: 144,860.1 ha (0.08%)
- Indigenous Government: 408,994.4 ha (0.24%)
- Indigenous Peoples: 97,682.3 ha (0.057%)
- Not Reported: 880,737.1 ha (0.52%)

The addition of OECMs to Canada's conserved areas portfolio has shifted governance towards sub-national and non-governmental governance.



OECS

As of October 2021, there were **133** OECS in Canada reported in the WD-OECM, with the following governance types by number of sites (% of governance types by area, not accounting for potential overlaps, included in brackets):

- 54.9% (89.1%) by **governments**
 - 47.4% (78.5%) Federal or national ministry or agency
 - 7.5% (10.6%) sub-national ministry or agency
- 44.4% (10.9%) are under **shared** governance (under collaborative governance)
- 0.8% (0.01%) are under **private** governance (by individual landowners)
- 0.0% are under **IPLC** governance
- 0.0% **do not** report a governance type

Below are the categories CPCAD currently uses for OECM governance types (which does not account for overlaps):

- Collaborative Governance: 3,918,284.3 ha (10.87%)
- Individual Landowners: 2,217.95 ha (0.01%)
- National Government: 28,309,968.0 ha (78.57%)
- Sub-national Government: 3,800,558.0 ha (10.55%)

Privately Protected Areas (PPAs)

From the country reviews presented in Stolton et al (2014):

- 516 PPAs have been established or recognized.
 - These PPAs cover 1,268.1 km².

Territories and areas conserved by Indigenous Peoples and local communities (ICCAs)

From Kothari et al., (2012) potential ICCAs (or similar designation) in Canada include:

- 30 coastal 'conservancies' (covering total 6.4 mil ha)
 - 'Conservancies' are technically co-managed, but some are de facto ICCAs
- 3 tribal parks (covering ~150,000 ha)
- 5 Aboriginal PAs (covering 1.147 mil ha)

Other Indigenous lands

Lands managed and/or controlled by Indigenous Peoples cover an area of 613,057.0 km², of which 585,479.0 km² falls outside of formal protected areas. Indigenous lands with a human footprint less than 4 (considered as 'natural landscapes') cover an area of 580,746.0 km² (for details on analysis see Garnett et al., 2018).



For Canada, evidence for the presence of Indigenous Peoples comes from: Indigenous Work Group on Indigenous Affairs. Indigenous World 2017 (Indigenous Working Group on Indigenous Affairs, 2017).

Boundaries of the lands Indigenous Peoples manage or have tenure rights over come from: Natural Resources Canada. Aboriginal Lands product (edition 2.74).

<http://geogratis.gc.ca/api/en/nrcan-rncan/ess-sst/815dd99d-4fbd-47cc-be02-7ad4b03a23ec.html> (2016).

Opportunities for action

Explore opportunities for governance types that have lower representation, for Canada this could relate to governance by Indigenous Peoples and/or local communities (IPLC), etc. Increase efforts to identify the governance types for the 0.7% of sites that do not have their governance type reported.

There is also opportunity for Canada to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. Examples of existing tools and methodologies include: Governance Assessment for Protected and Conserved Areas (Franks & Brooker, 2018), Social Assessment of Protected Areas (Franks et al 2018), and Site-level assessment of governance and equity (IIED, 2020). As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

Equator Prize Projects

The Equator Initiative brings together the United Nations, governments, civil society, businesses and grassroots organizations to recognize and advance local sustainable development solutions for people, nature and resilient communities. The Equator Prize projects provide examples of unique and locally based governance of natural resources. Canada has the following Equator Prize winners that showcase examples of local, sustainable community action:



Organization	Year	Project Description
Łutsël K'e Dene First Nation	2020	After 40 years of advocacy, the Łutsël K'é Dene First Nation achieved the vision of protecting their land and waters for future generations in 2019 by signing agreements with national and territorial governments to officially create Thaidene Nënë, a 26,000 square kilometer protected area between the Canadian boreal forest and the arctic tundra. This intact landscape features some of the cleanest freshwater in the world and provides habitat for grizzly bears, wolves, moose, wolverine and some of the last herds of barren-ground caribou. It is also a globally significant carbon sink. This Indigenous-led conservation model is made possible through the use of an innovative conservation finance mechanism called the Thaidene Nënë Trust, which is critical to the long-term conservation and lasting stewardship of this protected area. The Trust and Indigenous local leadership lay the groundwork for this model of effective co-management.



PROTECTED AREA MANAGEMENT EFFECTIVENESS

This section provides information on the coverage of PAs and OECMs with completed protected area management effectiveness (PAME) assessments as reported in the global database (GD-PAME). The proportion of terrestrial and marine PAs with completed PAME assessments is also calculated and compared with the 60% target agreed to in COP-10 Decision X/31. Information is also included regarding changes in forest cover nationally within PAs and OECMs.

Protected area management effectiveness (PAME) assessments

As of October 2021, Canada has 9,000 PAs reported in the WDPA; of these PAs, 62 (0.7%) with management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

- 3.1% (310,530 km²) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
 - 26.2% of the area of terrestrial PAs have completed evaluations.
- 0.1% (6,980 km²) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
 - 1.4% of the area of marine PAs have completed evaluations.

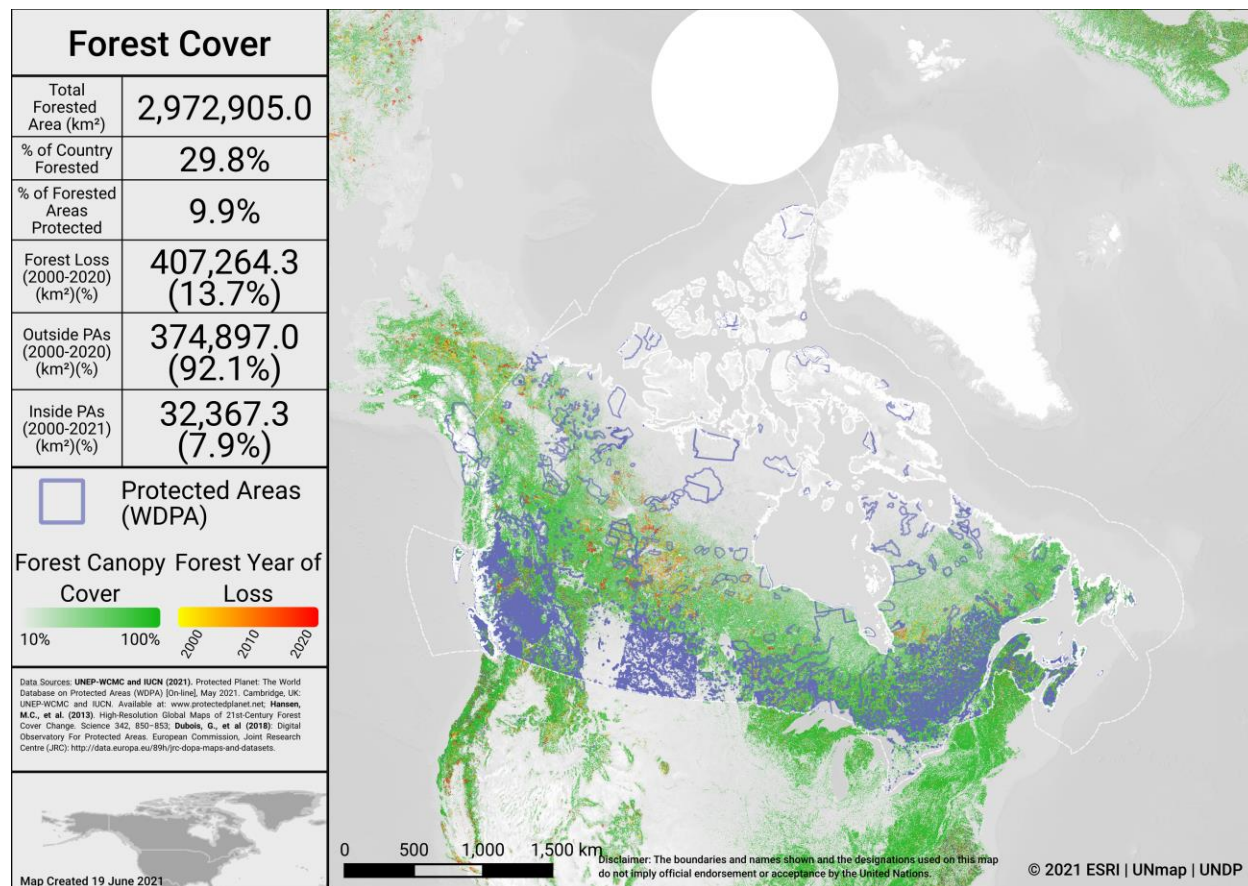
The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs.

As of October 2021, there are 130 OECMs in Canada reported in the WD-OECM, but to date, no information reported on their management effectiveness.

Changes in forest cover in protected areas and OECMs

Forested areas in Canada cover approximately 29.8% of the country, an area of 2,972,905.0 km². Approximately 9.9% (293,555.8 km²) of this is within the protected and conserved area estate of Canada. Over the period 2000-2020 loss of forest cover amounted to over 407,264.3 km², or 4.1% of the country (13.7% of forest area), of which 32,367.3 km² (7.9% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in Canada from 2000-2020 both inside and outside of terrestrial PAs and OECMs. This can indicate how effective PAs and OECMs are in reducing forest cover loss.





Forest Cover and Forest Loss in Canada ('Protected Areas' include both PAs and OECMs)

Opportunities for action

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for both terrestrial and marine PAs to achieve the target.

There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS

UN OCEAN CONFERENCE VOLUNTARY COMMITMENTS

Voluntary commitments for the UN Ocean Conference are initiatives voluntarily undertaken by governments, the UN system, non-governmental organizations, among other actors—individually or in partnership—that aim to contribute to the implementation of SDG 14 (here we focus in particular on SDG 14.5). The registry of commitments was opened in February 2017, in the lead up to the first UN Ocean Conference (5 to 9 June 2017).

Ocean Actions improving MPA or OECM coverage:

#OceanAction19183: Future protection of large areas in the offshore Pacific bioregion under Canada's Oceans Act, by Canada (Government).

- Action is ongoing. There is an existing OECM established in the offshore Pacific bioregion, however an Oceans Act MPA is not yet in place.
- Further details available at:
<https://oceanconference.un.org/commitments/?id=19183>.

#OceanAction19138: Designation of the Anguniaqvia Niqiyuam Marine Protected Area, by Canada (Government).

- Area to be added: 0 km² (**action completed**)
- Progress report: No progress report submitted (as of March 2021).
- Further details available at:
<https://oceanconference.un.org/commitments/?id=19138>.

#OceanAction19158: Designation of the Hecate Strait - Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area, by Canada (Government).

- Area to be added: 0 km² (**action completed**)
- Progress report: No progress report submitted (as of March 2021).
- Further details available at:
<https://oceanconference.un.org/commitments/?id=19158>.

#OceanAction20492: Designation of St. Ann's Bank as a Canada Oceans Act Marine Protected Area, by Canada (Government).

- Area to be added: 0 km² (**action completed**)
- Progress report: No progress report submitted (as of March 2021).
- Further details available at:
<https://oceanconference.un.org/commitments/?id=20492>.



#OceanAction20772: Identification of fisheries area closures that meet Canada's guidance and criteria for other effective area-based conservation measures, by Canada (Government).

- Area to be added: 0 km² (**action completed**)
- Progress report: No progress report submitted (as of March 2021).
- Further details available at:
<https://oceanconference.un.org/commitments/?id=20772>.

#OceanAction19188: Development of Canada's Operational Guidance for Identifying Other Effective Area-Based Conservation Measures in Canada's Marine Environment, by Canada (Government).

- **Action complete**: Operational Guidance for Identifying "Other Effective Area-Based Conservation Measures" in Canada's Marine Environment was developed in 2016¹² and is being updated in 2021, in alignment with the 2018 voluntary Guidance adopted by Parties to the CBD, and to implement the Government's 2019 protection standard for marine OECMs.¹³ Both 2016 Guidance and the updated Guidance follow science advice provided by the Canadian Science Advisory Secretariat (CSAS).¹⁴
- Further details available at:
<https://oceanconference.un.org/commitments/?id=19188>.

#OceanAction16619: Protecting Canada's Marine and Coastal Environment: A collaborative plan towards meeting and exceeding 10% protection by 2020, by Ecology Action Centre (Non-governmental organization (NGO)).

- Area to be added: 0 km² (**action completed**)
- Progress report: Yes (last update Nov 2017). Overall status: On track.
- Further details available at:
<https://oceanconference.un.org/commitments/?id=16619>.

#OceanAction16178: Protecting 1 million sq kms through the \$15 million WCS Marine Protected Area Fund, by Wildlife Conservation Society (Non-governmental organization).

- Area to be added: 30,000 km².
 - 2 MPAs for marine mammals in priority regions of the Bering Strait and Viscount Melville Sound, around Banks Island, adding ~30,000 km² of protection in each MPA (in USA and Canada). See details on WCS Arctic Beringia Program, in country profiles at: <https://mpafund.wcs.org/>.
- Progress report: Yes (2019), status=On Track.
- Further details available at:
<https://oceanconference.un.org/commitments/?id=16178>.

¹² See <https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/guidance-eng.html>

¹³ See <https://www.dfo-mpo.gc.ca/oceans/mpa-zpm/standards-normes-eng.html>

¹⁴ See https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_002-eng.html

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

Canada has submitted an NBSAP during the Strategic Plan for Biodiversity 2011-2020 (most recent NBSAP is available at: <https://www.cbd.int/nbsap/search/>).

National Target 1: By 2020, at least 17 percent of terrestrial areas and inland water, and 10 percent of coastal and marine areas, are conserved through networks of protected areas and other effective area-based conservation measures.

This NBSAP **did** include a quantitative target for **marine** protected areas or OECMs.

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **YES**

This NBSAP **did** include a quantitative target for **terrestrial** PAs or OECMs.

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **NO**

In 2018, Canada funded partners under A Nature Legacy for Canada to support attainment of Aichi Target 11. Funds under this program contribute to the integration of conservation into the broader landscape and seascape. These partner-initiated efforts took time to establish and encountered delays due to the global pandemic. Results from these partner projects are expected by 2023 and the cumulative efforts comprise the difference between Canada's current status and 17%.



OTHER ACTIONS/COMMITMENTS

Leaders' Pledge for Nature

Canada **has** signed onto the Leaders' Pledge for Nature.

Political leaders participating in the United Nations Summit on Biodiversity in September 2020, representing 88 countries from all regions and the European Union, have committed to reversing biodiversity loss by 2030. By doing so, these leaders are sending a united signal to step up global ambition and encourage others to match their collective ambition for nature, climate, and people with the scale of the crisis at hand.

High Ambition Coalition for Nature and People

Canada **has** joined the High Ambition Coalition for Nature and People.

The High Ambition Coalition for Nature and People (HAC) is an intergovernmental group, co-chaired by France and Costa Rica [currently including 65 countries and the European Commission]. Its objective is to support the adoption of a target aiming to protect 30% of the planet's land and 30% of its oceans by 2030 (30x30 target), within the future global framework of the Convention on Biological Diversity (CBD) for the protection of biodiversity, which is to be adopted at the next COP in China this autumn.

Global Ocean Alliance

Canada **has** joined the Global Ocean Alliance: 30by30 initiative.

The Global Ocean Alliance 30by30 is a UK led initiative [currently containing 53 countries as signatories]. Its aim is to protect at least 30% of the global ocean as Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measures (OECMs) by 2030.



REFERENCES

- Atwood, TB, Witt, A, Mayorga, J, Hammill, E, & Sala, E. (2020). Global patterns in marine sediment carbon stocks. *Frontiers in Marine Science*.
<https://doi.org/10.3389/fmars.2020.00165>
- BirdLife International (2021). World Database of Key Biodiversity Areas. Available at:
<http://www.keybiodiversityareas.org>
- CBD (2010). Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting. Decision X/2. Strategic plan for biodiversity 2011–2020. Retrieved from <https://www.cbd.int/doc/decisions/cop-10/cop-10-dec02-en.pdf>.
- Coristine, L.E., et al. (2019). National contributions to global ecosystem values. *Conservation Biology*, 33(5), 1219-1223.
- CSIRO (2019). Protected area connectedness index (PARCconnectedness).
<https://www.bipindicators.net/indicators/protected-area-connectedness-index-parconnectedness>
- Dinerstein, E., et al. (2017). An ecoregion-based approach to protecting half the terrestrial realm. *BioScience* 67(6), 534-545.
- Donald et al., 2019, The prevalence, characteristics and effectiveness of Aichi Target 11's "other effective area-based conservation measures" (OECMs) in Key Biodiversity Areas. *Conservation Letters*, 12(5).
- EC-JRC (2021). DOPA Indicator factsheets: <http://dopa.jrc.ec.europa.eu/en/factsheets>
- FAO (2017). Global Soil Organic Carbon (GSOC) Map - Global Soil Partnership [WWW Document]. URL <http://www.fao.org/global-soil-partnership/pillars-action/4-information-and-data/global-soil-organic-carbon-gsoc-map/en/>.
- Franks, P and Booker, F (2018). Governance Assessment for Protected and Conserved Areas (GAPA): Early experience of a multi-stakeholder methodology for enhancing equity and effectiveness. IIED Working Paper, IIED, London. <https://pubs.iied.org/17632IIED>
- Franks, P. et al. (2018). Social Assessment for Protected and Conserved Areas (SAPA). Methodology manual for SAPA facilitators. Second edition. IIED, London.
<https://pubs.iied.org/14659iied>
- Garnett et al. (2018). A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, 1(7), 369.
- Global Environment Facility (GEF-5 and GEF-6); all projects can be found online at:
<https://www.thegef.org/projects>
- Gloss, L. et al. (2019). International Outlook for Privately Protected Areas: Summary Report. International Land Conservation Network (a project of the Lincoln Institute of Land

Policy) and United Nations Development Programme. Summary report, and individual country profiles, available at: <https://nbsapforum.net/knowledge-base/resource/international-outlook-privately-protected-areas-summary-report>

Hansen, M.C., Potapov, P.V., Moore, R., Hancher, M., Turubanova, S.A., Tyukavina, A., Thau, D., Stehman, S.V., Goetz, S.J., Loveland, T.R., Kommareddy, A., Egorov, A., Chini, L., Justice, C.O., Townshend, J.R.G., (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. *Science* 342, 850–853. <https://doi.org/10.1126/science.1244693>

Hilty, J et al. (2020). Guidelines for conserving connectivity through ecological networks and corridors. Best Practice Protected Area Guidelines Series No. 30. Gland, Switzerland: IUCN. <https://portals.iucn.org/library/sites/library/files/documents/PAG-030-En.pdf>

IIED 2020. Site-level assessment of governance and equity (SAGE) <https://www.iied.org/site-level-assessment-governance-equity-sage>.

IUCN (2016). A Global Standard for the Identification of Key Biodiversity Areas, Version 1.0. First edition. Gland, Switzerland: IUCN. <https://portals.iucn.org/library/sites/library/files/documents/2016-048.pdf>

IUCN-WCPA (2017). IUCN-WCPA Task Force on OECMs collation of case studies submitted 2016-2017. <https://www.iucn.org/commissions/world-commission-protected-areas/our-work/oecms/oecm-reports>

Joint Research Centre of the European Commission (JRC) (2021), The Digital Observatory for Protected Areas (DOPA) Explorer 4.1 [On-line], [Apr/2021], Ispra, Italy. Available at: <http://dopa-explorer.jrc.ec.europa.eu>

Kothari, A., et al. (Eds) (2012). Recognising and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies. Secretariat of the CBD, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64.

Lausche, B., Laur, A., Collins, M. (2021). *Marine Connectivity Conservation 'Rules of Thumb' for MPA and MPA Network Design*. Version 1.0. IUCN WCPA Connectivity Conservation Specialist Group's Marine Connectivity Working Group.

McDonald, R.I., Weber, K., Padowski, J., Flörke, M., Schneider, C., Green, P.A., Gleeson, T., Eckman, S., Lehner, B., Balk, D., Boucher, T., Grill, G., Montgomery, M., (2014). Water on an urban planet: Urbanization and the reach of urban water infrastructure. *Global Environmental Change* 27, 96–105. <https://doi.org/10.1016/j.gloenvcha.2014.04.022>

National Biodiversity Strategy and Action Plan (NBSAPs); most recent NBSAP is available at: <https://www.cbd.int/nbsap/search/>

Newbold, T., Hudson, L.N., Arnell, A.P., Contu, S., Palma, A.D., Ferrier, S., Hill, S.L.L., Hoskins, A.J., Lysenko, I., Phillips, H.R.P., Burton, V.J., Chng, C.W.T., Emerson, S., Gao, D., Pask-Hale, G., Hutton, J., Jung, M., Sanchez-Ortiz, K., Simmons, B.I., Whitmee, S., Zhang, H., Scharlemann, J.P.W., Purvis, A., (2016). Has land use pushed terrestrial biodiversity beyond the planetary

boundary? A global assessment. *Science* 353, 288–291.
<https://doi.org/10.1126/science.aaf2201>

Sala, E. et al. (2021). Protecting the global ocean for biodiversity, food and climate. *Nature*, 592(7854), 397-402. <https://doi.org/10.1038/s41586-021-03496-1>

Saura, S. et al. (2018). Protected area connectivity: Shortfalls in global targets and country-level priorities. *Biological Conservation*, 219, 53-67.

Saura, S. et al (2017). Protected areas in the world's ecoregions: How well connected are they? *Ecological Indicators*, 76, 144-158.

Spalding, M.D., et al. (2012). Pelagic provinces of the world: a biogeographic classification of the world's surface pelagic waters. *Ocean & Coastal Management* 60, 19–30.

Spalding, M.D., et al. (2007). Marine ecoregions of the world: a bioregionalization of coastal and shelf areas. *BioScience* 57(7): 573–583.

Spawn, S.A., Sullivan, C.C., Lark, T.J., Gibbs, H.K., (2020). Harmonized global maps of above and belowground biomass carbon density in the year 2010. *Scientific Data* 7, 112.
<https://doi.org/10.1038/s41597-020-0444-4>

Stolton, S. et al. (2014). *The Futures of Privately Protected Areas*. Gland, Switzerland: IUCN.

UNEP-WCMC and IUCN (2021) *Protected Planet Report 2020*. UNEP-WCMC and IUCN: Cambridge UK; Gland, Switzerland.

UNEP-WCMC and IUCN (2021), *Protected Planet: The Global Database on Protected Area Management Effectiveness (GD-PAME)* [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), *Protected Planet: The World Database on Protected Areas (WDPA)* [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), *Protected Planet: The World Database on Other Effective Area-based Conservation Measures (WD-OECM)* [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UN Ocean Conference Voluntary Commitments, available at:
<https://oceanconference.un.org/commitments/>

Williams, B.A., Venter, O., Allan, J.R., Atkinson, S.C., Rehbein, J.A., Ward, M., Marco, M.D., Grantham, H.S., Ervin, J., Goetz, S.J., Hansen, A.J., Jantz, P., Pillay, R., Rodríguez-Buriticá, S., Supples, C., Virnig, A.L.S., Watson, J.E.M., (2020). Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems. *One Earth* 3, 371–382.
<https://doi.org/10.1016/j.oneear.2020.08.009>

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