



INDICATOR: Area under restoration and stewardship

Strategic Direction: Enhance Resilience

Target: 9. By 2025, priority restoration areas are identified and by 2030 efforts are underway to restore biodiversity to at least 30 percent of priority areas.

Theme: Conservation Response – Biodiversity Stewardship

Previous versions:

- [Observed change in land area with stewardship activities - 2021](#)
- [Observed change in land area with stewardship activities - 2015](#)

Background Information

Ontarians place huge demands on the province's natural resources which often have serious consequences for biodiversity as well as our quality of life and long-term economic prosperity. Similar to elsewhere in the world, biodiversity loss continues to be documented in Ontario. This includes an increase in the number of species being classified as vulnerable or critically imperiled and the continued decline in natural cover such as forests and wetlands, particularly in southern Ontario. To combat biodiversity loss, there is a growing call to rapidly scale up stewardship and guardianship activities, and the restoration of lost and degraded habitats and ecosystem services.

Ecosystem restoration is defined as 'the process of halting and reversing degradation, resulting in improved ecosystem services and recovered biodiversity; it encompasses a wide continuum of practices, depending on local conditions and societal choice (UNEP 2021).'

When done well, ecosystem restoration supports:

- the conservation of biodiversity,
- improvements in human health and well-being,
- food and water security,
- climate change mitigation and adaptation, and
- job creation, and economic prosperity.

Most of the land in southern Ontario, where ecosystem loss and degradation is highest, is in private ownership. Accordingly, restoration and stewardship activities in Ontario are increasingly coordinated by non-profit conservation organizations, in partnership with private landowners, and undertaken with limited financial support from provincial, federal, and international governments.

A wide variety of stewardship and restoration activities occur in Ontario. Examples include removing disturbances, habitat creation, reintroducing native plant, fish or wildlife species, planting trees, establishing buffers next to wetlands and riparian areas, managing invasive species, building fences to keep livestock away from waterways, and restoring degraded wetland and aquatic hydrology using water control structures, among others.



Data Analysis

This indicator presents an index of the amount of land area that is being actively restored and stewarded in Ontario based on data maintained by 7 conservation organizations (Nature Conservancy of Canada, Ducks Unlimited Canada, Ontario Nature, the Ontario Federation of Anglers and Hunters, Carolinian Canada, Watersheds Canada, Forests Canada), and various public bodies (the 36 conservation authorities in Ontario, Ministry of Natural Resources, and Ontario Power Generation). As such, this indicator does not reflect all restoration and stewardship activities occurring across Ontario. Recognizing that restoration and stewardship activities are often done in partnership, efforts have been taken to minimize double counting of efforts. Activities are included for the years 2002 to 2023.

This indicator replaces ‘Observed Change in Land Area with Stewardship Activities’. Based on the broad description of restoration activities provided by international bodies, it was determined that activities which fell under the previous indicator aligned with restoration.

The original version of this indicator compiled data from three conservation organizations (Nature Conservancy of Canada, Ducks Unlimited Canada, and the Ontario Federation of Anglers and Hunters) as well as three public bodies (36 conservation authorities in Ontario, the Ministry of Natural Resources, and Ontario Power Generation). This version of the indicator includes data provided by the original organizations as well as four newly added organizations (Ontario Nature, Carolinian Canada, Watersheds Canada, and Forests Canada). To avoid misleading increases, the annual area from the six historically included organizations was kept separate from data coming from the newly added organizations by using a stacked bar graph. The average annual area under restoration was broken down into 5-year intervals to better illustrate whether the number of hectares under restoration and stewardship has increased over time.

A one time survey related to the prioritization of areas for restoration was sent to each organization contributing to this indicator (Nature Conservancy of Canada, Ducks Unlimited Canada, Ontario Nature, the Ontario Federation of Anglers and Hunters, Carolinian Canada, Watersheds Canada, Forests Canada), and various public bodies (the 36 conservation authorities in Ontario, Ontario Power Generation).

The survey included the following questions:

1. Has your organization undertaken an exercise to identify priority restoration areas?
2. Do you use specific criteria to prioritize these sites?

Survey results were compiled and synthesized.

Results

Trend: Mixed Data Confidence: Medium Geographic Extent: Provincial

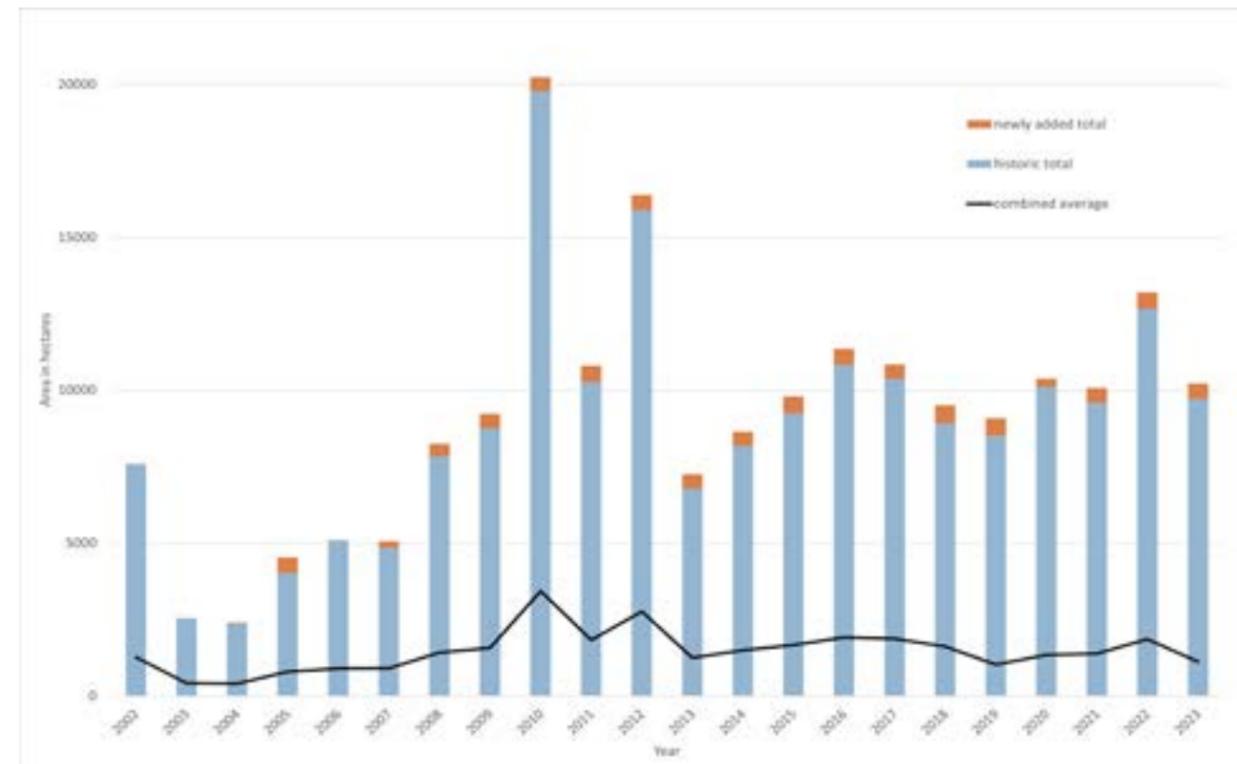


Figure 1. Annual total and average area (in hectares) being restored by all organizations each year under restoration and stewardship in Ontario between 2002–2023 (Source: Ducks Unlimited Canada, Nature Conservancy of Canada, Ontario Federation of Anglers and Hunters, Conservation Ontario, Ontario Power Generation and Ontario Ministry of Natural Resources’ Stewardship Program, Ontario Nature, Carolinian Canada, Watersheds Canada, Forests Canada).

Notes: Data for the Ontario Ministry of Natural Resources Stewardship Program was only available for the years 2004–2012. Data for the Ontario Federation of Anglers and Hunters was only available for the years 2010–2023.

Trend analysis

There is high variability in the number of hectares under restoration and stewardship between years. In part, this is likely due to the inconsistent availability of data since tracking began in 2002. This means that assessing trends should be done with caution.

A simple linear regression of the annual average number of hectares under restoration and stewardship revealed a positive slope which suggests an increasing trend over time. The analysis produced a statistically significant r^2 value of 0.2366 which suggests a low to moderate relationship between the area under restoration and stewardship (in hectares) and time (2002 to 2023) (see Figure 2). In other words, there has been an increase in the annual total number of hectares under restoration and stewardship in Ontario since 2002, based on the information provided by the tracked organizations. When years 2010 and 2012 are removed from the analysis, the r^2 value is 0.71. During each of these years, there was a significant increase in funding provided through the Ontario Ministry of Natural Resources Stewardship Program.

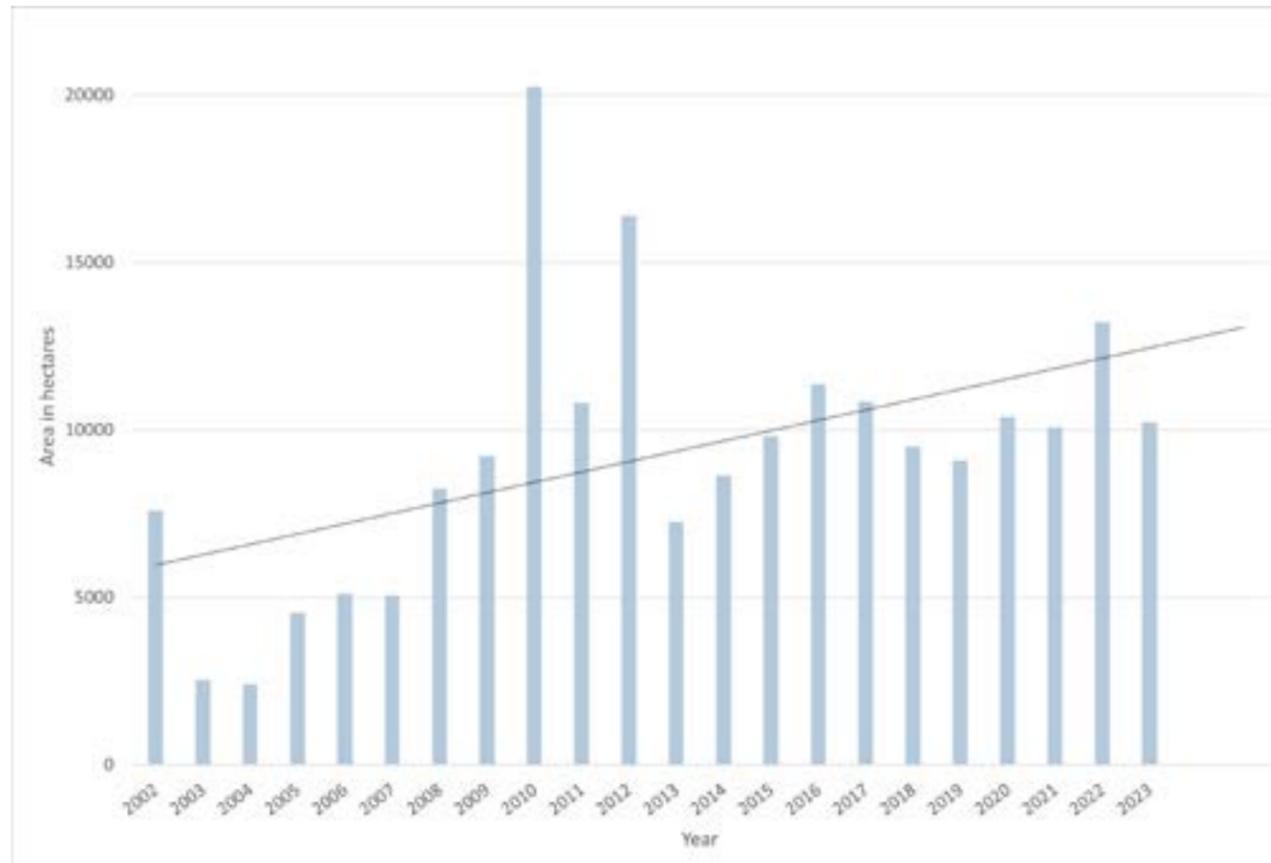


Figure 2. Total annual area under restoration and stewardship in hectares over years with trend line.

The degree of change in annual average hectares over time is shown in Figure 3 as the average number of hectares in 5-year intervals. The average hectares for the 5-year time period of 2002 to 2006 is 758.36 while the average annual hectares in the most recent period of 2022 to 2023 is 1490.30. This is an increase of 732.24 hectares (equivalent to approximately 684 Canadian football fields), which is an increase of nearly double.

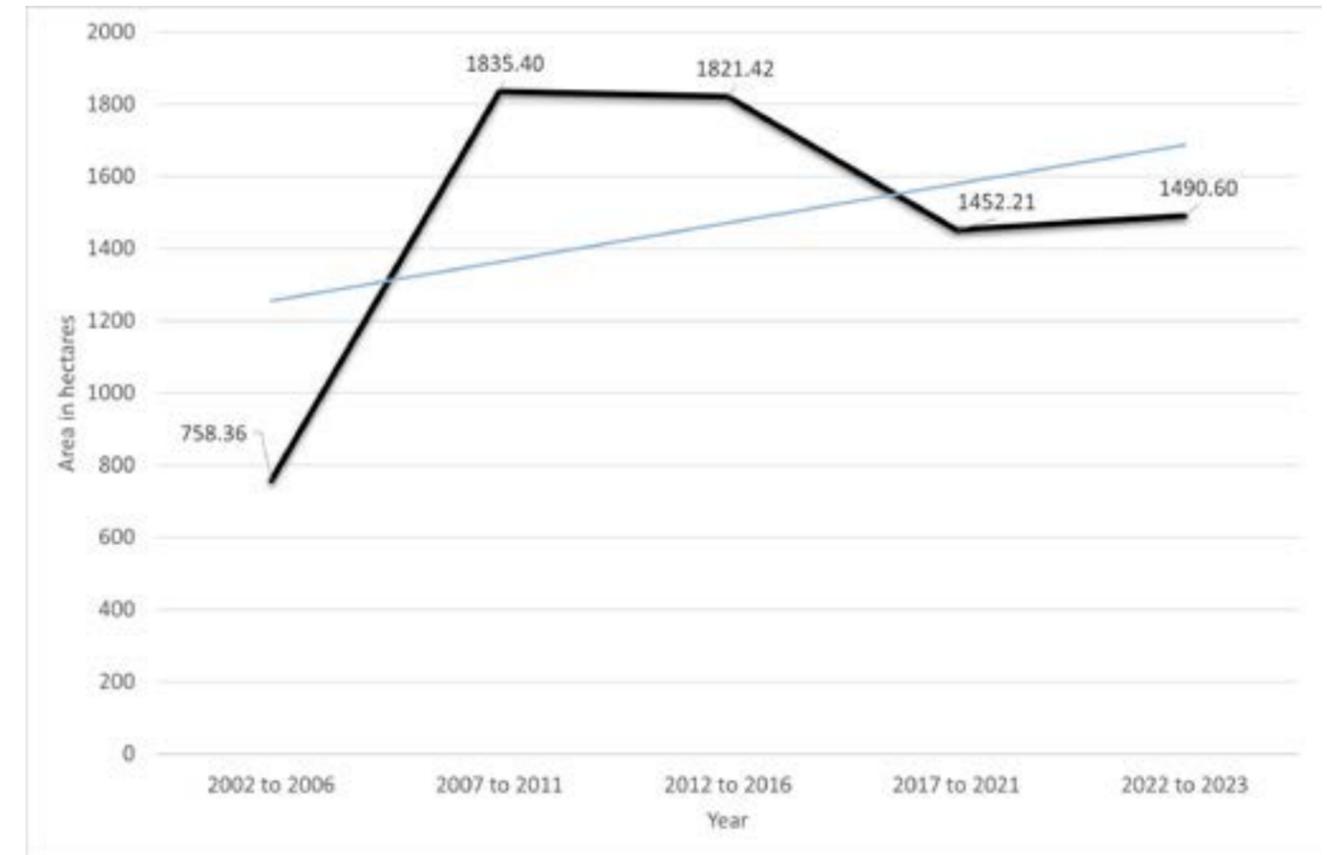


Figure 3. Average hectares per 5-year interval.

Identification of priority restoration areas

A priority restoration area can be described as an ecosystem or area that has been degraded or destroyed and its restoration would provide significant enhancement of local or regional biodiversity and/or increase the supply of necessary ecosystem services. The identification of a priority area is most often linked to a specific outcome for a site, project, program or region which are most often defined by a landowner or organization.

Several conservation organizations in Ontario have undertaken restoration area prioritization exercises to support on-the-ground efforts. Of the organizations included in this indicator, most have performed some type of prioritization exercise to help guide decision-making related to their conservation work and the remaining organizations indicate that they generally work with partners who have established priorities.



While the prioritization criteria provided were varied, there was overlap and all could be placed in one of two general categories:

- 1) improvements for species and ecosystems, and
- 2) improvements for people.

The criteria were synthesized into twelve overarching categories (Table 1).

Table 1. Twelve synthesized criteria categories and the number of organizations (out of a possible 7) that indicated a criteria that fell within the overarching category.

Criteria	# of organizations using criteria
Enhancement of ecological connectivity	4
Cost effectiveness	4
Ecological significance and sensitivity	3
Motivation / engagement of landowners	3
Species specific	3
Land ownership	3
Potential to recover biodiversity	4
Proximity to other natural areas	1
Mitigation of adverse effects	1
Climate resilience	3
Current land use and policy frameworks	3
Suitability of area	1

Several tools have been developed to support the identification of priority restoration areas within Ontario. One of these tools is showcased as feature story: priority restoration identification tool developed by Dr. Richard Feldman (Ministry of Natural Resources).

Note: This indicator replaces 'Observed Change in Land Area With Stewardship Activities' as the stewardship activities identified within this indicator are now scoped as restoration activities.



Status

- There has been an increase in the area under restoration and stewardship in Ontario through the time period of 2002 and 2023. The degree of this increase is low to moderate.
- There has been annual variability over time in the amount of land being restored and stewarded in Ontario. This variation is likely influenced by many different factors (e.g., funding, resources, priorities, information, incentives, etc.).
- Most organizations surveyed for this indicator (6 out of 7) have undertaken a restoration area prioritization exercise or have embedded priorities within their overarching goals and objectives.
- Information and tools to support planning and prioritization of restoration areas in Ontario are being developed.

Links

Web Links

- Conservation Ontario <https://conservationontario.ca/>
- Carolinian Canada www.caroliniancanada.ca
- Ducks Unlimited Canada <https://ducks.ca>
- Forests Canada www.forestscanada.ca
- Nature Conservancy of Canada <https://natureconservancy.ca/en/>
- Ontario Biodiversity Council. 2020 State of Ontario's Biodiversity www.sobr.ca
- Ontario Federation of Anglers and Hunters <https://ofahfoundation.org>
- Ontario Power Generation <https://opg.com/about-us/our-commitments/protecting-the-environment/>

Glossary

Degradation refers to a persistent reduction in the capacity to provide ecosystem services. Degraded land includes natural ecosystems which have included a loss of ecosystem functions and services and transformed ecosystems (CBD, 2024).

Degraded ecosystem is an ecosystem where, due to any process or activity, the viability of ecosystem functions and processes, and hence biodiversity, have been removed or lessened (Dunster and Dunster, 1996)

Resources

- CBD (2024, March 26). The Biodiversity Plan – For Life on Earth. Target 2. [http:// Target 2 \(cbd.int\)](http://Target2(cbd.int))
- IUCN, 2022. IUCN Restoration Intervention Typology for Terrestrial Ecosystems. [https:// iucn_ restoration_ intervention_ typology.pdf](https://iucn_restoration_intervention_typology.pdf)
- United Nations Environment Programme (2020). The United Nations Decade on Ecosystem Restoration: Strategy. <https://wedocs.unep.org/20.500.11822/31813>.

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Ontario Biodiversity Council. 2025. State of Ontario's Biodiversity [web application]. Ontario Biodiversity Council, Peterborough, Ontario. [Available at: <http://ontariobiodiversitycouncil.ca/sobr> (Updated: May 15, 2025)].