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Introduction

All areas of biology rely upon our ability to identify organisms. However, Canada's capacity to identify and describe its biota has decreased dramatically over the past 25 years. This decreased capacity has occurred at a time when taxonomy has become critically important for the study of biodiversity and extinctions, the management of invasive species, the development of conservation biology and the investigation of organisms of agricultural, forestry and medical interest.

Simultaneously, there is phenomenal growth in the potential for innovative presentation of taxonomic work and extraction of information from biological collections through web based delivery of results and powerful analytical tools. Biological collections are replete with geospatial, temporal, numerical and historical information that can be used for determining species and ecosystem-level responses to climate change and other environmental disturbances, to biological invasions, and to agricultural and forestry practices. This information is crucial for the understanding and proper management of Canadian biodiversity and sustainable development.

Canadensys¹, operated from the Montréal Biodiversity Centre², is a Canada-wide effort to unlock the biodiversity information held in biological collections. In its initial phase, the network focuses on data from three of the most diverse, ecologically and economically important groups of organisms: plants, insects and fungi. The latter two represent some of the most poorly understood and inventoried organisms world-wide.



University collections

- Acadia University
- McGill University
- Université de Montréal
- Université Laval
- University of Alberta
- University of British Columbia
- University of Guelph
- University of Manitoba
- University of Saskatchewan
- University of Toronto
- York University

Other collections

- Agriculture and Agri-Food Canada
- Cercle des mycologues de Montréal
- Montréal Insectarium
- Royal Ontario Museum

Botanical gardens

- Devonian Botanic Garden
- Harriet Irving Botanical Gardens
- Memorial University Botanical Garden
- Montréal Botanical Garden
- UBC Botanical Garden

- ACAD
- LEMQ, MTMG
- QMOR, MT
- QFA
- UAMH, UASM, ALTA-CP, ALTA-VP
- UBCZ, UBC
- DEBU, OAC
- JBWM, WIN
- SMCD, SASK
- TRTE
- Bee Collection

- DAOM
- CMMF
- IMQC
- TRTC, TRT



List 1. Participating collections

Community

Canadensys is a network of 11 universities, five botanical gardens and two museums (List 1), which collectively house over 13 million specimens. Participating researchers, from multiple disciplines and renowned for their expertise in a diversity of taxonomic groups, tools and approaches, are cooperating to digitize, georeference and share 3 million records in the next five years. Expertise, discussions and best practices are shared via workshops and an online forum³.

Data

Data will be shared via a network of distributed databases (Fig. 1), compatible with other biodiversity information networks like CBIF⁴ and GBIF⁵. Canadensys will use and promote TDWG⁶ standards like Darwin Core⁷, TAPIR⁸ and GUIDs and collection managers will publish their data using the GBIF Integrated Publishing Toolkit⁹. A central web portal will allow access to the network's specimen data (including images and geospatial information) in combination with data from other sources like the Database of Canadian Vascular Plants (VASCAN) and the Catalogue of Life¹⁰. By providing these baseline data, Canadensys will allow for their synergistic cross-analysis with geospatial and environmental models. This will enhance our understanding of global environment issues and inform the development of sound biodiversity and sustainable development policies across the country.

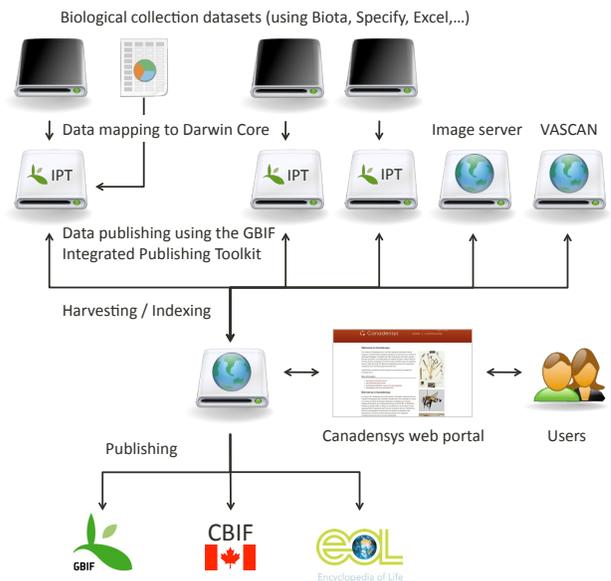


Figure 1. Canadensys data network architecture

References

- 1 <http://www.canadensys.net>
- 2 <http://www.biodiversitycanada.ca>
- 3 <http://groups.google.ca/group/canadensys>
- 4 <http://www.cbif.gc.ca>
- 5 <http://www.gbif.org>
- 6 <http://www.tdwg.org>
- 7 <http://www.tdwg.org/activities/darwincore>
- 8 <http://www.tdwg.org/activities/tapir>
- 9 <http://ipt.gbif.org>
- 10 <http://www.catalogueoflife.org>

www.canadensys.net

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