



Council of Canadian Academies
Conseil des académies canadiennes

News Release

Expert Panel on Biodiversity Science Calls for a Bold Vision

For Immediate Release

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Ottawa (November 18th) – Canada needs a bold vision to fully understand its biodiversity resources. This is a central finding of a group of 14 eminent experts brought together by the Council of Canadian Academies to assess the state and trends of taxonomy (the science that discovers, distinguishes, classifies and documents living things) in Canada. Their report, released today, observes that failure to understand Canadian biodiversity could have significant consequences for ecosystems, the economy, innovation potential and society.

“Taxonomy is the foundation for the biodiversity sciences, as advances are built upon the discovery and accurate identification of species,” said Dr. Thomas E. Lovejoy, chair of the Expert Panel. “Canada has a proud history of world class contributions to taxonomic research and although critical gaps do exist within the Canadian system, there is an opportunity for Canada to provide international leadership and move forward with a major initiative in taxonomy.”

The first step is ensuring the expertise is in place to address environmental challenges such as invasive species. In recent years, species such as zebra mussels, and the emerald ash borer, have cost North Americans billions of dollars. Strong taxonomic capacity is essential for intercepting and eradicating these species before they establish themselves. Moreover, taxonomic research contributes to economic development in the renewable resource sector and the emergent field of bioproducts (e.g. biofuels, biofibres).

Today, the evidence suggests that training and job opportunities are limited and research funding has stagnated. As a result, we have seen a decline in Canada’s international contribution to new species descriptions falling from 6th in the 1980s to 14th in the 2000s. The Expert Panel also observed that although Canada has impressive biodiversity collections and a strong digital infrastructure, most information is trapped in cabinets rather than being accessible on the internet. As a result, Canada’s data sharing efforts compare poorly internationally. Approximately 80 per cent of Canada’s online biodiversity information is being held outside Canada.

Within Canada, collections house over 50 million specimens, conservatively valued at over a quarter of a billion dollars. However, inadequate curatorial capacity, aging facilities and the lack of a national strategy or standards, have placed Canada at risk of losing long-term information essential to understanding changes in biodiversity. This information is critical for making informed policy and management decisions.

“The Expert Panel’s report is the most comprehensive and up-to-date assessment of Canada’s taxonomic expertise and biodiversity collections available,” said Elizabeth Dowdeswell, President of the Council of Canadian Academies. “I look forward to a discussion of the findings when we host Dr. Lovejoy in Ottawa on November 29th, for a workshop on the future of

Canadian taxonomy. This event will initiate an important conversation regarding the opportunities and challenges identified in the Panel's report, including a vision for Canada.”

For more information, or to download a free copy of the report in English or French please visit www.scienceadvice.ca/biodiversity.

About the Council of Canadian Academies

The Council of Canadian Academies is an independent, not-for-profit corporation that began operation in 2005. The Council supports evidence-based, expert assessments (studies) to inform public policy development in Canada. Assessments are conducted by independent, multidisciplinary panels of experts from across Canada and abroad. The Council's blue-ribbon panels serve free of charge and many are Fellows of the Council's Member Academies: the RSC: The Academies of Arts, Humanities and Sciences of Canada; the Canadian Academy of Engineering; and the Canadian Academy of Health Sciences. The Council's reports are published and made available to the public free of charge in English and French. For information please visit the Council's website at www.scienceadvice.ca.

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Media Backgrounder

Report of the Expert Panel on Biodiversity Science
Canadian Taxonomy: Exploring Biodiversity, Creating Opportunity

In 2009 the Minister of Canadian Heritage, on behalf of the Canadian Museum of Nature, posed the following question to the Council of Canadian Academies: ***What are the state and trends of biodiversity science in Canada? Are we equipped to understand the challenges of our biodiversity resources?***

The Council assembled a multidisciplinary group of 14 Canadian and international experts, chaired by Dr. Thomas E. Lovejoy, Biodiversity Chair at the Heinz Center for Science, Economics and the Environment. The Panel met over the course of 12 months to produce a comprehensive, evidence-based report entitled, *Canadian Taxonomy: Exploring Biodiversity, Creating Opportunity*.

The Panel's specific focus was on the state of taxonomy in Canada. Taxonomy discovers, distinguishes, classifies and documents living things. As such, taxonomy is central to biodiversity research and to understanding the world around us.

The Expert Panel's report examines three key areas: Canada's taxonomic expertise; the state of biodiversity collections; and Canada's strength in data sharing. After examining the evidence in each of these areas the Expert Panel concluded that Canada is not yet equipped to fully understand the challenges of its biodiversity resources.

Taxonomic Expertise - The Panel's findings suggest that despite Canada's history of world class contributions to taxonomic research there is reason for concern, particularly as taxonomic expertise is being lost due to fewer training opportunities, limited job openings, and stagnating research funds. However, an interest remains amongst students to learn about and pursue careers in taxonomy. If the expertise gap continues to widen, Canada risks the misidentification of invasive species and inaccurate information about their spread and potential for harm. Canada may also become incapable of assessing decline in certain native species.

State of Collections - There are over 50 million specimens in Canadian collections and the Expert Panel suggests that a conservative estimate of their value is over a quarter of a billion dollars. The Panel believes that Canada is at risk of losing long-term information essential to understanding changes in biodiversity and the ability to make informed policy decisions because of the conditions of some Canadian biological collections and the lack of a national collections strategy and standards.

Data Sharing - Although Canada has impressive specimen collections and a strong digital infrastructure, most information is trapped in cabinets and not available on the internet. Canada's data sharing efforts compare poorly internationally, as evidenced by its low participation in the Global Biodiversity Information Facility. Approximately 80 per cent of Canada's online biodiversity information is being held outside Canada. This data gap means that Canada risks making policy decisions related to the management of biodiversity resources

on the basis of inadequate data, with potentially enormous impacts for the economy and the well-being of Canadians.

The Panel believes the report is the most comprehensive and up-to-date assessment of Canada's taxonomic expertise and biodiversity collections currently available. The Panel came to its findings through a series of meetings, a public call for evidence, research, and surveys on taxonomic expertise and biodiversity collections. Like all Council reports, this assessment followed a strict process to ensure its independence. The sponsor (the Canadian Museum of Nature) did not participate in the assessment process, review drafts of reports, or propose any changes prior to publication. This report did undergo a formal report review by expert peers to assure quality and objectivity.

The Panel's report can be downloaded in English and French from the Council's website, www.scienceadvice.ca.

Expert Panel on Biodiversity Science

Thomas E. Lovejoy (Chair), Biodiversity Chair, Heinz Center for Science, Economics and the Environment, Washington, D.C.

Luc Brouillet, Professor and Curator of the Marie-Victorin Herbarium, Institut de recherche en biologie végétale, Université de Montréal, Quebec

W. Ford Doolittle, FRSC, Professor, Dalhousie University, Halifax, Nova Scotia

Andrew Gonzalez, Professor and Canada Research Chair in Biodiversity Science, and Director of the Quebec Centre for Biodiversity Science, McGill University, Montréal, Quebec

David M. Green, Professor and Director of the Redpath Museum, McGill University, Montréal, Quebec

Peter Hall, Honourary Research Associate (retired), Agriculture and Agri-Food Canada, Ottawa, Ontario

Paul Hebert, FRSC, Professor and Director, Biodiversity Institute of Ontario, University of Guelph, Ontario

Thora Martina Herrmann, Professor and Canada Research Chair in Ethnoecology and Biodiversity Conservation, University of Montréal, Quebec

Douglas Hyde, Executive Director, NatureServe Canada, Ottawa, Ontario

Jihyun Lee, Environmental Affairs Officer, Marine and Coastal Biodiversity and Ecosystems Approach, United Nations Environment Programme/Secretariat of the Convention on Biological Diversity, Montréal, Quebec

Wayne P. Maddison, Professor and Canada Research Chair in Biodiversity and Systematics, and Director of the Beaty Biodiversity Museum, University of British Columbia, Vancouver

Sarah P. Otto, FRSC, Professor and Director of the Biodiversity Research Centre, University of British Columbia, Vancouver

Felix Sperling, Professor and Curator of the E.H. Strickland Entomological Museum, University of Alberta, Edmonton

R. Paul Thompson, Professor, University of Toronto, Ontario