



Standing Committee on Science and Research  
Sixth Floor, 131 Queen Street  
House of Commons  
Ottawa ON K1A 0A6, Canada  
E-mail: [SRSR@parl.gc.ca](mailto:SRSR@parl.gc.ca)

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Re: Submission re Study on Top Talent, Research and Innovation

Dear Members of the Standing Committee on Science and Research:

We are writing this brief as scientists from [Wildlife Conservation Society Canada](https://wcscanada.org) (WCS Canada) as a contribution towards your study on "Top Talent, Research and Innovation."

As representatives of civil society scientists working outside academic and government institutions, we are bringing attention to the need for equitable and inclusive recognition of what constitutes science for the public good. Our letter highlights the critical role of civil society scientists and the limited opportunities currently available to them through the Tri-Council pathways to advance science partnerships. We share some of the current opportunities and challenges we face in advancing scientific research to improve conservation outcomes that address government commitments and priorities for the environment and Indigenous Peoples. Finally, we provide recommendations on ways Canada can more fully integrate civil society science as crucial components of the "research ecosystem" in this country as a means of encouraging and retaining top talent on research and innovation.

### **Civil society science organizations in Canada**

Scientists at WCS Canada, and many other civil society science organizations in Canada, work within networks of academic and government scientists to produce practical scientific research. We synthesize and mobilize information and contribute knowledge that supports public policy, regulations, and decision-making about the environment. Many WCS Canada staff hold PhDs, publish actively in the peer-reviewed literature, have adjunct professor positions at Canadian universities, and are actively engaged in government and academic research partnerships including Mitacs. We have hosted a graduate research fellowship program<sup>1</sup> since 2009 that has supported the research of 85 Ph.D. and M.S. students in 21 institutions. There are many civil society scientists across Canada with similar credentials who work within non-government organizations, industry, museums, and consulting companies and make meaningful contributions to applied science and research.

### **The vital contributions of scientists in civil society to the advancement of science and research**

From the climate and biodiversity crises to human health, society faces an increasing number of critical decisions requiring science. Not only does the gathering and synthesis of this evidence fall on the shoulders of scientists, but they are equally responsible for translating, communicating, and applying the evidence to real-world decisions. The COVID-19 pandemic has brought the vital role of science into the spotlight, but there are many other ongoing issues that also require immediate attention. Public good is

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<sup>1</sup> <https://wcscanada.org/Fellowships.aspx>

an increasingly complicated, expensive, and urgent enterprise that requires novel solutions and more scientific capacity.

The traditional conception still held by many is that scientists and researchers are rather exclusively housed in academic and government institutions. As vital as these roles are, there are considerable gaps left unfilled. These include the ability of academic and government scientists to actively engage in policy development and test the efficacy of policy and practices. Civil society science is often in a better position to quickly address knowledge gaps where government is unable or unwilling to respond. And while academic scientists do of course contribute critical and relevant knowledge, their important focus on teaching can leave less time for ensuring the application of knowledge beyond publication.

Civil society science organizations are an overlooked research resource that purposefully bridge the gap between knowledge acquisition and its application. We work closely with local communities and engage diverse funding partners, from private philanthropy to academics to corporations. We work within nimble institutions that can quickly refocus research to new and emerging issues. We can act as catalysts to speed up and focus science to help answer urgent questions that can in turn inform more efficient and effective policies. We are also well-poised to lead and communicate long-term research and monitoring that would be unsuitable for shorter-term graduate degrees. This applied, solutions-focused science often provides novel perspectives to issues that require tractable solutions.

It is important to consider in the context of this study that the number of individuals pursuing graduate degrees has been increasing, and the majority of recent doctoral graduates are pursuing positions outside of academia. PhDs are becoming more aware of their career options and, increasingly, are searching for non-academic positions. In the US, for example, the National Science Foundation has long since recognized the diversity of career options that exist beyond graduate school<sup>2</sup>. However, alternate career paths do not tend to be sufficiently supported during graduate school<sup>3</sup>. Engaging with civil society scientists to learn more about policy, science communications and working with communities can help to prepare graduates to apply their science to pressing issues.

### **Limitations of the current Tri-Council model of science and research delivery in Canada**

We echo others who have come before your Standing Committee to say that Canada is falling behind in the science and research needed to tackle important challenges; our federal, provincial, and territorial budgets are insufficient to advance science and research in this country. But we also see the Tri-Council's traditional model as limited in its perspective and potential impact, given the relative exclusion of civil society scientists.

Scientists from outside academia are not commonly invited to participate on advisory committees or as peer reviewers, and the Tri-Council research funding system is almost exclusively oriented towards support of academic scientists, making it difficult for those outside such institutions to fully participate in research partnerships (e.g., Innovate programs). WCS Canada has had to fight to be recognized in the calculation of NSERC's contributions in the future Research Partnerships Program<sup>4</sup>. The current model still depends on us coming to the table with all our own funding. This can severely limit our ability to

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<sup>2</sup> Examples: <https://www.nsf.gov/pubs/2021/nsf21013/nsf21013.jsp>; <https://www.nsf.gov/crssprgm/advance/>

<sup>3</sup> <https://www.nature.com/articles/d41586-022-00162-y>

<sup>4</sup> See WCS Canada letter to NSERC on its Research Partnership Program review in 2018:

<https://wcscanada.org/DesktopModules/Bring2mind/DMX/API/Entries/Download?EntryId=34481&PortalId=96&DownloadMethod=attachment>

participate in new initiatives. For example, in the last year alone, we have been invited by our academic partners to participate in three NSERC Alliance partnership proposals, in recognition of our key intellectual and/or data collection contributions. Yet the lack of any mechanism to enable funding from NSERC to directly support our activities as part of the partnership means we must come to the table fully funded. Such self-funding is often not possible, especially if we did not initiate the project, thereby limiting our participation. Multi-sectoral partnerships that aim to mobilize research, leverage efforts and draw on all relevant and available expertise can only help increase the impact of research investments for the benefit of all Canadians.

### **A new model to include scientists in civil society as top talent in Canada**

A significant and important portion of Canada's great science and research is happening outside our traditional institutions. Advancing science in Canada will require that all scientists and researchers be equally able to access resources such as funding, data, and relationships. Most importantly, as the environmental crisis escalates, there needs to be an acknowledgement of the constraints that all science institutions face and a realization that collaboration is our best approach for solving problems.

Academic and government scientists benefit greatly from science organisations like WCS Canada. To enhance these natural partnerships and help propel the scientific enterprise in Canada to serve the public good within society as a whole, we offer the following recommendations:

- Develop a screening mechanism for scientists from civil society organizations to be recognized as producers of novel and reputable science for the purpose of inclusion in federal funding and federal advisory committees, including Tri-Council review panels.
- Expand qualified applicants for Tri-Council partnership funding (though not Discovery grants) to include scientists outside academia, and not be restricted to "industry partners" that must provide matching funding in order to participate.
- Create Research Chairs or Coalitions for knowledge-building outside government and academia that fills knowledge gaps of relevance to issues addressed by civil society. It seems there is already a model in medical institutes, which fill knowledge gaps that are the cause of groups like the Cancer Society, Kidney Foundation, etc.
- Develop Tri-Council programs that foster STEM talent in non-traditional scientific careers.

Fostering the integration of science generated by those of us outside traditional STEM institutions would lead to meaningful improvements in the research ecosystem and the generation and retention of top talent in Canada. We would be more than happy to discuss any of these ideas further.

Sincerely,

Justina Ray, Ph.D.  
Cheryl Chetkiewicz, Ph.D.  
Hilary Cooke, Ph.D.

Stephen Insley, Ph.D.  
Dan Kraus  
Cori Lausen, Ph.D.

Chrystal Mantyka-Pringle, Ph.D.  
Constance O'Connor, Ph.D.  
Ciara Raudsepp-Hearne  
Donald Reid, Ph.D.