

THE GLOBAL TAXONOMY INITIATIVE

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To date, 175 countries have signed on to the United Nations Convention on Biological Diversity (CBD). Like any large-scale, global initiative, the CBD grinds at a slow pace: identifying issues, planning carefully and thoroughly and eventually implementing well-meaning actions, in six official languages. At its fourth meeting, the parties to the CBD agreed that there was a taxonomic impediment in their work to help countries conserve, sustainably use and equitably share the benefits of biological diversity. In other words, without proper taxonomic expertise the "sound management of biodiversity" was not possible (1). Based on recommendations that they received from a group of experts, the so called Darwin Declaration (2), the CBD decided that concentrated action would be needed in the form of the Global Taxonomy Initiative (GTI) (3). Following that decision there was much analysis and planning and eventually the approval of a program of work (4, 5). What is in the program of work, how that relates to the CBD and what that means for Canada is the subject of this essay.

It is generally recognized that there is a dwindling number of taxonomic experts world-wide. At the same time, there is also a persistent, high demand for taxonomic expertise to maintain and understand the value of the irreplaceable record of biological diversity that is kept in an orderly, hopefully accessible fashion in the world's museums, botanical gardens and zoos some 3 billion specimens (6, 7). Making sure that specimen collections are developed and cared for are two of the main "front end" curatorial tasks of taxonomic experts. Additionally, our thirst for digital information has created an ongoing need for authoritative collection information to be accessible via the Internet. The obvious role for taxonomists is to ensure that information is correct (8, 9, 10, 11).

The lack of taxonomic expertise creates the most serious problem in developing countries, regions of the world with the greatest biological diversity (12). Even though there are observations that great numbers of students are trained as taxonomists in some of those countries, there is little or no opportunity for employment of these young experts (13). The trend toward a lack of employment opportunities is not unique to developing countries. In Europe and North America there is a growing concentration of taxonomic expertise at museums and botanical gardens and a decrease at universities (14). The general shift to a smaller number of experts and away from academic institutions indicates a declining interest in the profession and a decreased capacity to generate new experts.

While taxonomic research is not always considered innovative by funding agencies, the results continue to be greatly needed, are fundamental to the life sciences and in many ways instruct how we conduct ourselves (15, 16, 17). These are the essential elements of the taxonomic shortfall facing the CBD.

The GTI program is intended to augment the many work initiatives of the Convention; for a complete list of thematic and cross-cutting issues go to the CBD website (18). In short, the Convention has a vast slate of activities that it

attempts to plan and implement towards its major milestone in 2010, to significantly decrease the loss of biodiversity. Within this mission, the role of the GTI is to provide a forum that promotes the importance of taxonomy and taxonomic tools and to facilitate cooperation between Parties to the Convention for taxonomic research.

More specifically, the five operational objectives of the GTI are for each member country to conduct a taxonomic needs assessment, contribute to capacity building, provide support for the CBD's thematic areas (e.g. forest biodiversity) and cross-cutting issues (e.g. alien invasive species), and improve access to information. The enhanced awareness for taxonomy and a greater sense of cooperation will improve the chances for collaborative funding initiatives, including those through the Global Environmental Facility (19).

The Convention Secretariat, as much as possible, supports a GTI Coordinator who organizes a program of work, writes a guidebook on the utility of the GTI (currently in draft format) and acts as a reference for the Focal Points of each country. The Canadian Focal Point is the Canadian Museum of Nature (Dr. Mark Graham is the contact person - mgraham@mus-nature.ca).

In Canada, the capacity to benefit from and contribute to the GTI is impeded because there is no coordination mechanism to link Canadian taxonomists. Although some attempts have been made to list taxonomists (20, 21), the experts remain scattered among government, university, museum and private organizations. There have been regional meetings of the GTI in Europe, Asia and Africa to understand what the program of work might mean to those places and how to address needs. In Canada it is difficult to both conduct a needs assessment and to understand how the country might be contributing to the program of work of the GTI.

Even with the logistical challenge in Canada, there are a few key recommendations that I can make as the Canadian Focal Point for the GTI. You will recognize these as cogent points with or without a GTI. First, regarding expertise, because of decreasing numbers of taxonomists in Canada there can be a feeling of a being a taxonomic have-not country; there are still a great many in comparison to other countries. There needs to be a continued capacity to train new taxonomic experts within our academic institutions, a trend that does seem apparent at the moment. That capacity, however, will only be viable if those emerging experts have employment opportunities, a trend that does not seem apparent at the moment. Our taxonomic experts need to engage in programs of research that help to serve the needs of Canada as well as those of other countries. Research findings need to be published in the scientific literature, an obvious point of survival for most science faculty members, and information about their collections (specimens, tissue and DNA), as well as the actual vouchers and types, need to be readily available. Eventually our national granting agency will recognize that providing funding for the proper housing of specimens and availability of related data is a legitimate component of taxonomic

research and make this process easier through access to funds. The Natural Sciences and Engineering Research Council of Canada already provides an excellent guideline on natural history collections, should funding become available from somewhere (22). Finally, when new research tools become available that might assist the scientific process, such as the continually emerging DNA techniques, taxonomists need to work as openly and constructively as possible to explore the utility of those methods (23, 24, 25, 26).

In summary, The GTI provides a broad, collaborative, international forum to raise awareness for the importance of taxonomy and to focus efforts. In the most immediate sense, it does that for the needs of the United Nation convention to conserve biological diversity, and in the long-term for sustained and appropriate levels of expertise. Canadian taxonomists have a role to play, to be aware of the activities of the GTI and most importantly to apply our expertise in Canada and abroad in research and training efforts. Further, to apply all reasonable effort to make valuable natural history specimens and specimen-based research accessible to others.

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