

CONNECTING PEOPLE WITH NATURE: INNOVATIVE APPROACHES BY CANADA'S NATIONAL MUSEUM

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Biography

Dr. Mark Graham has been involved with the scientific profession for thirty years. His scientific career demonstrates a life-long interest in natural history, in particular aquatic biology. He has been an active researcher in the laboratory and the field with numerous primary publications on a wide range of topics. In the past twenty-one years, he has combined his passion for science with his administrative abilities to bring together large-scale efforts to ensure scientific findings are more accessible.

Mark has worked at two of Canada's premiere facilities, the Vancouver Aquarium and Science Centre, and the Canadian Museum of Nature. At both museums, he has been instrumental in the organization and implementation of a broad range of museum programming, and he has taken leadership positions in organizations and initiatives that promote environmental awareness and conservation.

In the past twelve years he has been the Director of Research at the Canadian Museum of Nature, Canada's national museum.

Introduction

Sustainable use of natural resources¹ and most recently the United Nations effort to bring attention to biological diversity or biodiversity², are movements that are well known, at least by name. Coming to terms with the wide range of actions necessary to conserve biodiversity is a different level of complexity that involves awareness, understanding and action from all parts of society and from all regions of the globe.

These initiatives are further complicated by our relatively poor understanding of the extent and function of biodiversity³. Because museums are so well placed in communities and directly engage the public, it is expected that all will have a role in this global effort. The goal of this paper is to summarize some of the new, novel and innovative approaches taken by the Canadian Museum of Nature, Canada's national natural history museum.

Research

A serious impediment to the conservation of biodiversity is the decrease in number of taxonomic experts, resource needs for collection infrastructure and access to information about biodiversity. This impediment has been recognized broadly⁴ and has stimulated a global initiative called the Global Taxonomy Initiative (GTI)⁵.

Natural history museums have roles to play in this initiative; for example the Canadian Museum of Nature (CMN) is the Canadian Focal Point for the GTI and shares information broadly and participates with the International Coordination Mechanism. More and more it is recognized that taxonomic experts are not being employed or trained by universities. Museums are becoming more important as centres of expertise in taxonomy and should do as much as possible to include taxonomic experts on their staffs, use them to train new experts and to provide understandable scientific information to their peers, the public and decision makers.

The CMN has developed a partnership with the University of Ottawa (Canada) that includes a practical model for co-staffing a faculty position for a taxonomic expert. We have used this model and currently support Dr. Julian Starr, a botanist. The CMN ensures the importance of taxonomic experts, facilities and biodiversity informatics are represented and understood by including our experts as part of local, national and international initiatives.

Of particular interest to the Museum of Nature are the technological advances that may help to address our gap in taxonomic expertise. Natural history museums need to be aware of these initiatives, such as the Barcodes of Life (BoL)⁶, and appreciate how they may assist. Even though the BoL is technologically demanding and costly, there is a role for all natural history museums, either in assessing the genetic information or in storing and giving access to the valuable voucher specimens.

Collections

A core strength of a museum is its collection. The CMN is a member of the Alliance of Natural History Museums of Canada⁷ and based on the strength and breadth of this partnership, the Alliance is creating a national collection development strategy. This will identify the extent of the collection, the strength and priorities of each institution, and any gaps.

The Alliance also organized an assessment of Canada's capacity in biodiversity science through the newly formed Council of Canadian Academies⁸. The report from this authoritative scientific body will be informative and influential.

Of equal importance is the campaign by the Alliance to gain access to federal science funding; currently only available to university workers. The Alliance is working with the National Sciences and Engineering Research Council⁹ to explore the steps to open new funding streams for museums and museum-based research.

Also related to museum collections is the dedication of CMN in making information about the specimens freely available to everyone through digitization (in-house) and through international programs to enhance distribution of the databases. Specifically, the CMN has a close involvement with the Global Biodiversity Information Facility (GBIF)¹⁰ and has worked with others to ensure Canada's sustained involvement. Canada's involvement in GBIF has assisted the fostering of national initiatives that are necessary for our participation in a global distribution network of information. The CMN has worked to build and participate in a federal group of partners that are biodiversity stakeholders. This Federal Biodiversity Information Partnership¹¹ has activities that support national initiatives and ultimately contribute to international programs through GBIF.

Outreach

The Museum has taken a different approach to permanent exhibitions with two new projects. The Water Gallery uses a theme that every person has a relationship with and that all life on Earth is dependent upon. In this non-traditional approach for a natural history museum we will highlight the wonders of life in water, the water resources in Canada and the natural history features that are related to it. In addition to the Water Gallery, there is a developing concept for a Human Gallery that will explore the natural history of our species and discuss our relationship with other features of the natural world.

Knowing the popularity of the CMN Website and the need for more “deep content”, the museum explored the use of technology that uses large-scale touch-screens in our galleries and also shares the same information via the World Wide Web¹². This continues the connection with our galleries after a personal visit or gives preliminary information before.

Continuing with our exploration of technology and trying to have an impact on audiences across a large country, the CMN has engaged in an educational video-conferencing program. The program is aimed at high school students, provides pre- and post-conference teacher resources and puts students in “direct” contact with science experts in one of their laboratories¹³.

The CMN has developed a model of community-based research for aquatic biodiversity monitoring. The model is based on an extensive 3-year project (the Rideau River Biodiversity Project¹⁴), and was recently used in Saskatchewan (the Frenchman River Biodiversity Project¹⁵). This multi-partner initiative pulls together resources from communities, businesses, land owners, schools, provincial and national museums, academics from local universities and conservation organizations. The work is reported, there is a better local awareness of biodiversity issues, a connection between the community and experts, and an organized interest group has been established to sustain interest.

Another outreach program involves monitoring the monarch butterfly, a champion migratory species that requires specific habitats over huge distances.¹⁶ This ambassador species is used in school classes so students can witness its life history transformations. It also allows students to participate directly in population studies by marking individual butterflies with identification tags, and to become aware of conservation issues in Canada, the United States and Mexico. The monarch program included exchanges of students and teachers in immersion experiences between Mexico and Canada, as well as work with officials to draft policy for habitat protection.

Finally, it is essential for the CMN to work in partnership. This is not a new concept. Finding new kinds of partners that broaden audiences, interest and impacts is a challenge and a good practice. The CMN works with a dynamic initiative called Students on Ice¹⁷, that provides an outdoor classroom in both polar regions, usually with the help of an ice breaker and a broad range of experts. The real phenomenon of climate warming is a threat to biological diversity and its effects are most graphically seen in the polar regions. These science and cultural experiences have a long-lasting impact on the students.

Conclusions

There is an ever-increasing expectation for museums to be more integrated with civil society. It is also recognized that biodiversity conservation is an important element to the health of ecosystems and ultimately to humans. Museums have a role in making the issues better known and understood, and to inspire interest for action.

References

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