Mongolian Journal of Biological Sciences 2006 Vol. 4(1): 55-59

[Notes from the Field]

An International Workshop on Lake Hövsgöl Area Ecosystem Modeling

Bazartseren Boldgiv[1] and Clyde E. Goulden[2]

[1]Department of Biology, University of Pennsylvania, Philadelphia, PA 19104-4207, USA, Present address: Department of Ecology, National University of Mongolia, Ulaanbaatar 210646, Mongolia, E-mail: boldgiv@sas.upenn.edu
[2]Hövsgöl GEF/WB Project, Geo-Ecology Institute-301, Baruun Selbe-13, Ulaanbaatar 211238, Mongolia and the Institute for Mongolian Biodiversity and Ecological Studies, Academy of Natural Sciences of Philadelphia, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103, USA, E-mail: cgoulden@acnatsci.org

Introduction

A ten-day international workshop on Lake Hövsgöl area ecosystem modeling was held at Hustai National Park May 14 - May 23, 2006. The workshop was organized by and for the Dynamics of Biodiversity Loss and Permafrost Melt in Lake Hövsgöl National Park, Mongolia Project (hereafter Hövsgöl GEF/WB Project, http://www.hovsgolecology.org) with the aim to develop a functional ecosystem model that can be used for addressing research and management questions studied by the project. The goal of the Hövsgöl GEF/WB Project is to identify impacts of climate change, permafrost dynamics, grazing and forest cutting on the ecosystem dynamics, including forest, steppe, riparian zones and streams, and to determine the sustainable resource use practices. The Hövsgöl GEF/WB Project conducts its research in six stream valleys at the northeastern corner of Lake Hövsgöl National Park. It is the first program for the Mongolian Long Term Ecological Research (MLTER) Network.

In a modeling effort, relationships among components of the ecological system need to be found by statistical analyses of data. Then, the system components and their relationships can be brought together with simplifying assumptions about the ecosystem to develop an integrated ecosystem model. The Hövsgöl GEF/WB Project has placed a great deal of emphasis on appropriate experimental design and statistical analysis in all its research efforts. Developing an ecosystem model was the next logical step not only for scientific and management purposes, but also for evaluating potential consequences of future management policy changes and possibly predicting environmental changes that will have significant impact on local and national economy.

During the workshop, scientists and experts from national and international institutions worked together to develop an ecosystem model consisting of an array of submodels that would facilitate our understanding of the ecosystem function. This workshop was the second half (Phase II) of a two-phase ecosystem modeling workshop organized by the Hövsgöl GEF/WB Project. Phase I was held as a one-week model formulation workshop in April 2005. In these two phases of the workshop, Hövsgöl GEF/WB Project researchers worked through a 16-step modeling process starting from modeling issues, identifying key factors (a.k.a. system drivers), determining spatial and temporal resolutions, identifying system performance indicators, and formulating conceptual models in Phase I to submodel designs and development; then in Phase II testing submodels as stand-alone models, and synthesis of submodels based on an information flow matrix defining interactions among model compartments.

Participants. The main forces in the workshop were all Hövsgöl GEF/WB Project researchers. The workshop was coordinated and run by Dr. Martyn Murray, Director of MGM Environmental Solutions Ltd., Edinburgh, Scotland, UK and Dr. Julian F. Derry, Research Fellow at the School of Biological Sciences, University of Edinburgh, Edinburgh, Scotland, UK. Dr. Anthony Whitten (Biodiversity Specialist of the World Bank) and the Hövsgöl GEF/WB Project Director Dr. J. Tsogtbaatar (Director of Geoecology Institute, Mongolian Academy of Sciences) were present. Managerial supports for organizing the workshop were provided by Munhtuya Goulden. Other international advisors on model development included Dr. Clyde E. Goulden (International Consultant for the Hövsgöl GEF/WB Project and Director of Institute for Mongolian Biodiversity and Eco-

http://dx.doi.org/10.22353/mjbs.2006.04.07