



Forest to Landscape

Course Outline

Module 2.4: Explain and apply the concept and measures of diversity

Standard 2 - Forest To Landscape: Structure, Function and Dynamics
Demonstrable Competency: 4) Explain and apply the concept and measures of diversity

Course Description

Overall objectives of Module 2.4 are to enhance students' knowledge and comprehension of measures of diversity and their application to forest ecosystems at multiple spatial scales. Key topics include distinctions among measures of alpha-, beta-, and gamma-biodiversity and their applications, land mosaics and associated patch dynamics, island biogeography theory, genetic diversity as a function of patch size and distribution, and patch size effects on ecosystems.

Specific objectives are to enable participants to: Describe the relationship between diversity and ecosystem structure and function; Describe the interaction between forests, fish, and wildlife; and Describe various measures of diversity at different spatial scales.

Course Schedule

This course involves a combination of recorded lectures, readings, assignments and participation in semi-synchronous online discussion forums and synchronous tutorials with instructors and other participants over an **8-week period**:

- **Week 1**
 - **Introductory lectures**
 - "Introduction to Standard 2"
 - **Core Lectures**
 - "Ontario's Far North – Part 1 historic forest cover, forest cover today, boreal forest, fragmentation, human footprint, forest loss to fire, peatlands, watersheds, human impacts, conservation challenges, wildlife, historical human impacts and legacies, land claims, First Nations treaties; Part 2 Boreal forest conservation, economic context,

development (mineral resource potential, exploration e.g. Ring of Fire, water power potential), Climate change, recent legislation, Land use Decisions Policy Framework, community-based land-use planning”

- **Core readings**
 - Marcot, Bruce G. Eight Key Lessons of Biodiversity. Pages 96-105 of 1997. *Creating a Forestry for the 21st Century: The Science of Ecosystem Management*. Edited by K.A. Kohm and J.F. Franklin. Island Press, Washington, D.C., 475 p.
 - Noss, R.F.1990. Indicators for monitoring biodiversity: a hierarchical approach. *Conservation Biology* 4(4):355-364
 - Noss, R.F. 1999. Assessing and monitoring forest biodiversity: A suggested framework and indicators. *Forest Ecology and Management*. 115:135-146.

- **Week 2**
 - **Core readings**
 - Forward (by E.O. Wilson) and Preface, Text Part 1[supplemental] and Text Part 2 Patch Size and number. Foreman, R.T. 1997. *Land Mosaics: The Ecology of Landscapes and Regions*. Cambridge University Press, Cambridge, UK. 656 p.
 - **Online discussion forum**

- **Week 3**
 - **Online tutorial with instructor**
 - Discuss content to-date and assignment 1
 - **Introduction to assignment #1**
 - Calculating diversity (assignment provided online)

- **Week 4**
 - **Online discussion Forum**
 - **Continue to work on Assignment #1**

- **Week 5**
 - **Assignment #1 due (submit online)**
 - **Online tutorial with instructor**
 - Discuss content to date and assignment #2
 - **Introduction to assignment #2**
 - Describe the interaction between forests fish and wildlife in one of Ontario’s three forest regions, with particular attention to interactions at multiple spatial scales. How are these interactions moderated by the passing of time, both with and without forest management activities taking place and affecting the interactions at the spatial scales under consideration? Please make use of some specific examples and cite related studies and or sources for information that you incorporate in your final paper on these subjects.

- **Week 6**
 - **Submit proposal for final paper**
- **Week 7-8**
 - **Continue to work on Assignment #2**
 - **Assignment #2 due end of week 8 (submit online)**

Grading

- Discussion forum posts: 20%
- Participation in tutorials: 10%
- Assignment 1: 20%
- Final paper proposal: 5%
- Assignment 2 - final paper: 45%



Bridge Training Program for Foresters

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