

Adaptive Ecosystem Based Approaches to Monitoring in the Arctic

Session organizers:

Rolf A. Ims, Dorothee Ehrich, Virve T. Ravolainen

John-Andre Henden & Nigel G. Yoccoz



Motivation I:

Ecological monitoring has emerged as a proper scientific discipline

⇒ Philosophy, Theory, Approaches, Methods and a vivid scientific debate

⇒ Focus on **Adaptive & Ecosystem-Based Approaches**

Option

Adaptive monitoring: a new paradigm for long-term research and monitoring

David B. Lindenmayer¹ and Gene E. Likens^{1,2}

¹Former School of Environment and Society, The Australian National University, Canberra, ACT 0200, Australia
²Cornell Institute of Ecosystem Studies, Millbrook, NY 12545, USA



Review: Adaptive and Ecological Research

Monitoring does not always count

Lee McWhorter¹, Bruce W. L. Turner², Richard B. Patten³, Gene E. Likens⁴, Steven L. Garon⁵, Joseph W. Tomlinson⁶ and Hugh H. Pridmore⁷

Option

TRENDS in Ecology and Evolution Vol.21 No.12

Monitoring for conservation

James D. Nichols^a and Byron K. Williams^b

ECOSYSTEMS

Direct Measurement Versus Surrogate Indicator Species for Evaluating Environmental Change and Biodiversity Loss

David B. Lindenmayer¹ and Gene E. Likens^{1,2}

Contents lists available at ScienceDirect

ELSEVIER

Biological Conservation

journal homepage: www.elsevier.com/locate/biocon

Review

The science and application of ecological monitoring

David B. Lindenmayer^{a,*}, Gene E. Likens^{ab}

Global Change Biology

Global Change Biology (2009) 15, 2770–2778, doi: 10.1111/j.1365-2486.2009.01971.x

Long-term ecological sites: musings on the future, as seen (dimly) from the past

H. H. JANZEN

Agriculture and Agri-Food Canada, Lethbridge, AB, Canada T1J 4B1

Monitoring of biological diversity in space and time

Nigel G. Woods, James B. Nichols and Thierry Bouvier

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ELSEVIER

Forest Ecology and Management

journal homepage: www.elsevier.com/locate/foreco

Accessible ecology: synthesis of the long, deep, and broad

Oliver P.C. Feiler

A new approach to forest biodiversity monitoring in Canada

Stan Boutin^{a,*}, Diane L. Haughland^a, Jim Schieck^{a,b}, Jim Herbers^b, Erin Bayne^a

Arctic Biodiversity Assessment

Status and trends in Arctic biodiversity



CAFF
Cooperation of Arctic Forum and States



Motivation II: ABA synthesis chapter

..ecosystem based monitoring efforts are needed to support biodiversity conservation..

..comprehensive ecosystem-based approaches to research and monitoring can reveal how biodiversity may be affected by stressors and disturbances...

BUT

...very few dedicated programs that maintains integrated ecosystem-based approaches to research and monitoring in the Arctic



Session aim I:

To gather representatives from those few ongoing or planned long-term research/monitoring programs in the Arctic that appears to apply an Ecosystem-based Approach

Norway – COAT Svalbard/Varanger Peninsula

Greenland – Zackenberg

Alaska – Toolik Lake

Canada – Bylot Island

Canada – CHARS Cambridge Bay

Session aim II:

To address and discuss the following questions regarding how ecosystem-based monitoring /research is done:

- **What defines EBM and what are optional approaches?**
- **What is the EBM approach adopted in the different programs?**
- **Are adaptivity and management options included... and eventually how?**
- **To what extent do the ongoing programs reflect site-specific idiosyncrasy versus biome-scale generality?**
- **What are the key insights gained so far?**



Program:

Five presentations (10-12 minutes each):

Åshild Ø. Pedersen: Norway – COAT Svalbard/Varanger Peninsula

Niels Martin Schmidt: Greenland – Zackenberg

Laura Gough: Alaska – Toolik Lake

Dominique Berteaux: Canada – Bylot Island

Donald McLennan: Canada – CHARs

General discussion (30 minutes)