

Introduction to Ecology, BI271, Lecture B



Professor Christopher Moore
MWF 9:00–9:50, Lovejoy 215

Introductions: Sara Staffiere



- Senior Lab Instructor in Biology
- Teaches Labs A1 and C1
- Interests include:
 - ornithology,
 - community ecology, &
 - conservation biology



Introductions: Justin Becknell

- Assistant Professor of Environmental Studies
- Teaches Lecture A and Lab B1
- Interests include:
 - ecosystem ecology,
 - deforestation and reforestation in the tropics,
 - nutrient cycling,
 - the carbon cycle,
 - forests and climate change, &
 - temperate forest management



Introductions: Abby Pearson

- Environmental Studies
Laboratory Instructor II
- Teaches Labs A2 and B2
- Interests include:
 - natural history,
 - historical ecology, &
 - ecological restoration



Introductions: me

- Assistant Professor of Biology
- Teaches Lecture B and Lab C2
- Interests include:
 - population and community ecology,
 - species interactions,
 - mutualism,
 - theoretical and empirical ecology,
 - dispersal, &
 - natural history



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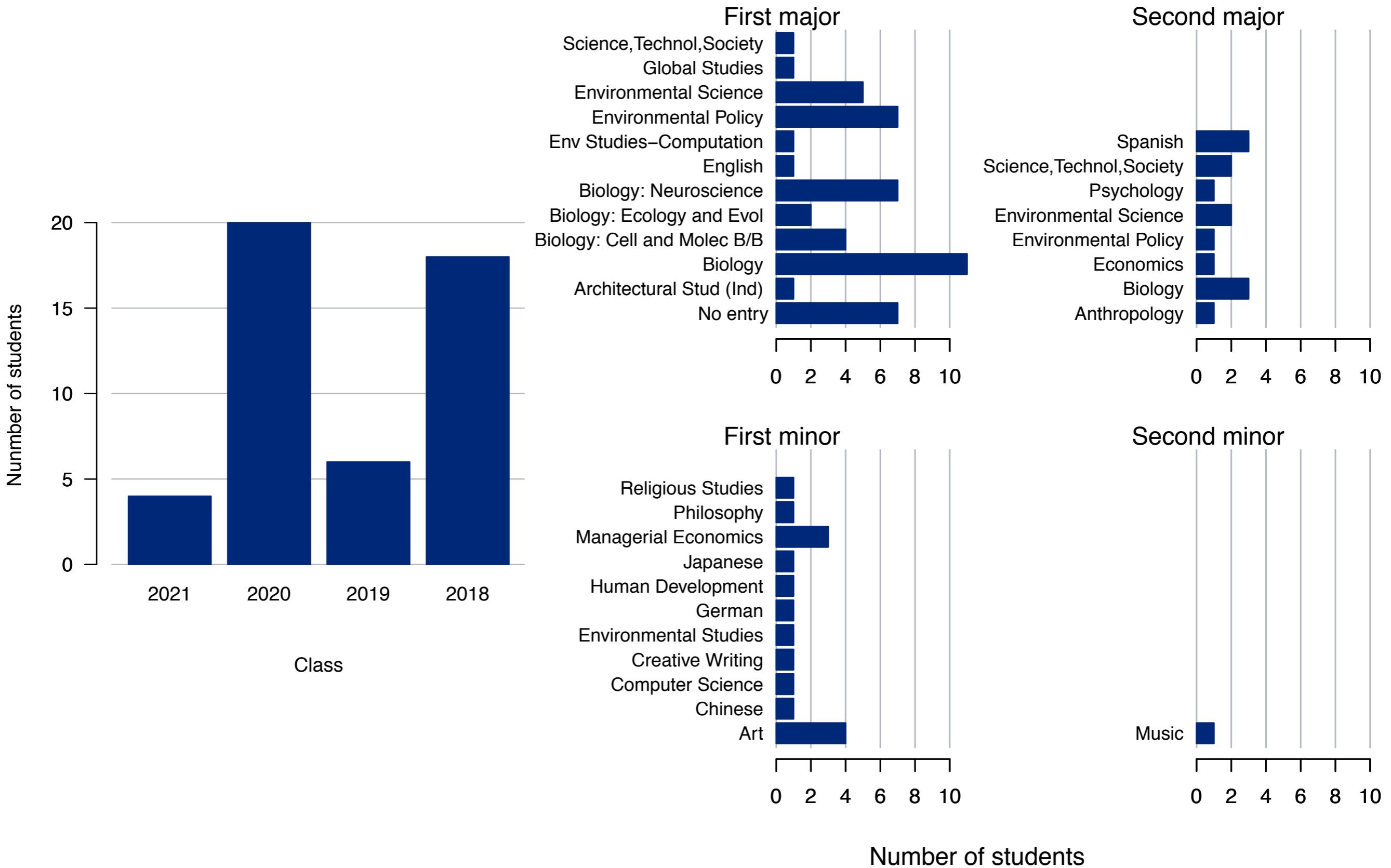
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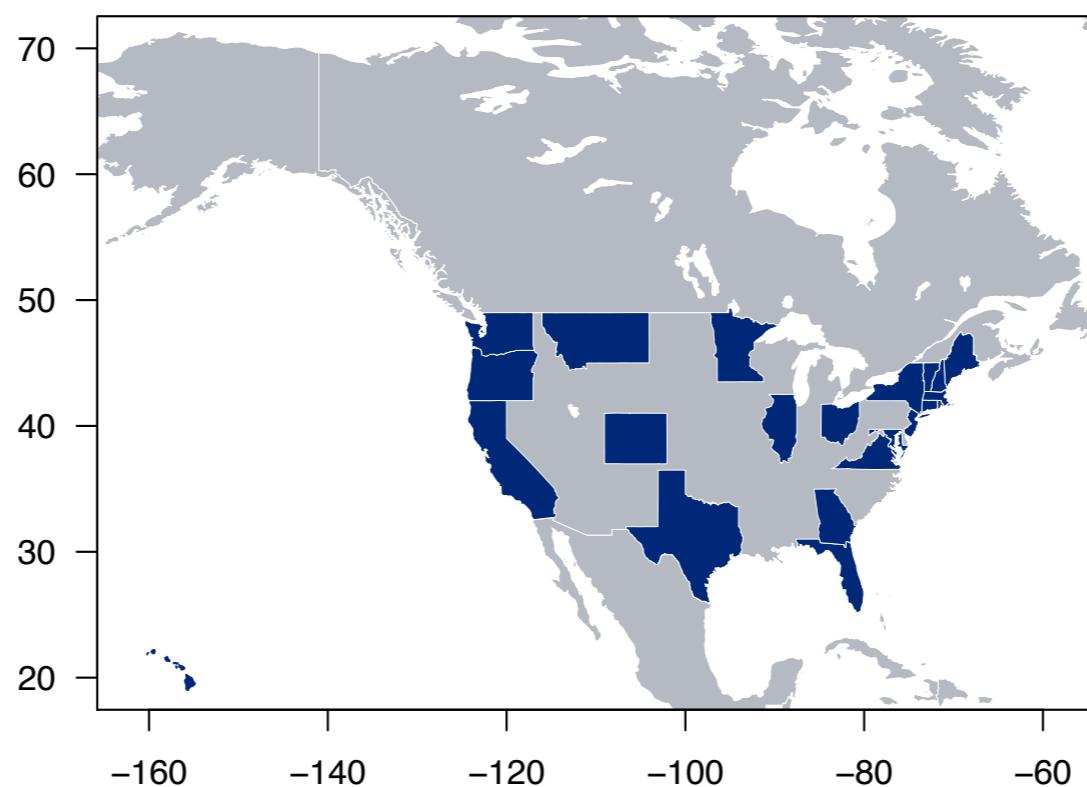
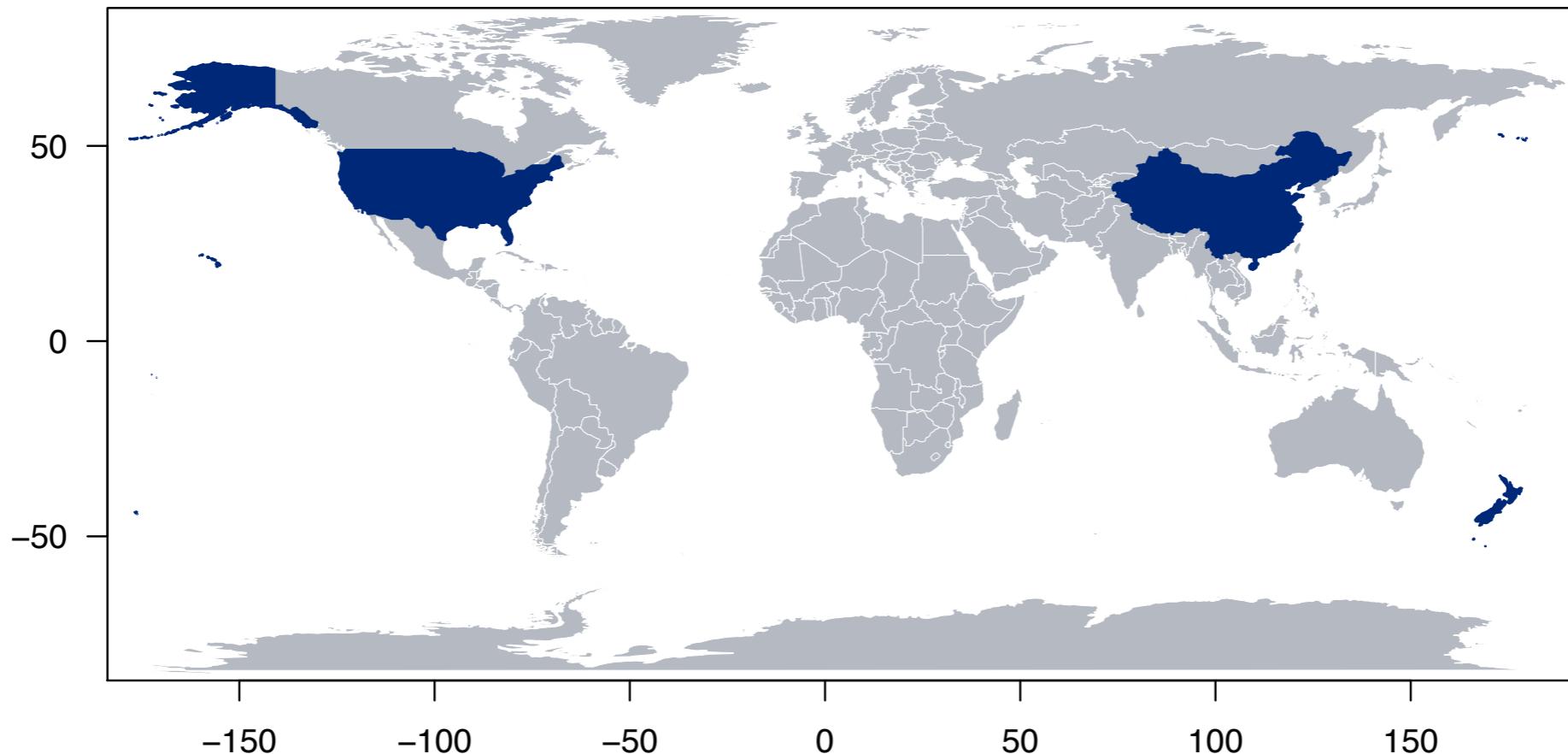


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Introductions: you



Introductions: you



Syllabus

<http://mutualismecology.com/Teaching/IntroEco>

Introduction to Ecology: a definition

**The study of the distribution
and abundance of organisms,
including the causes and
consequences**

Sheiner and Willig, *The Theory of Ecology*, 2013

Introduction to Ecology: big questions



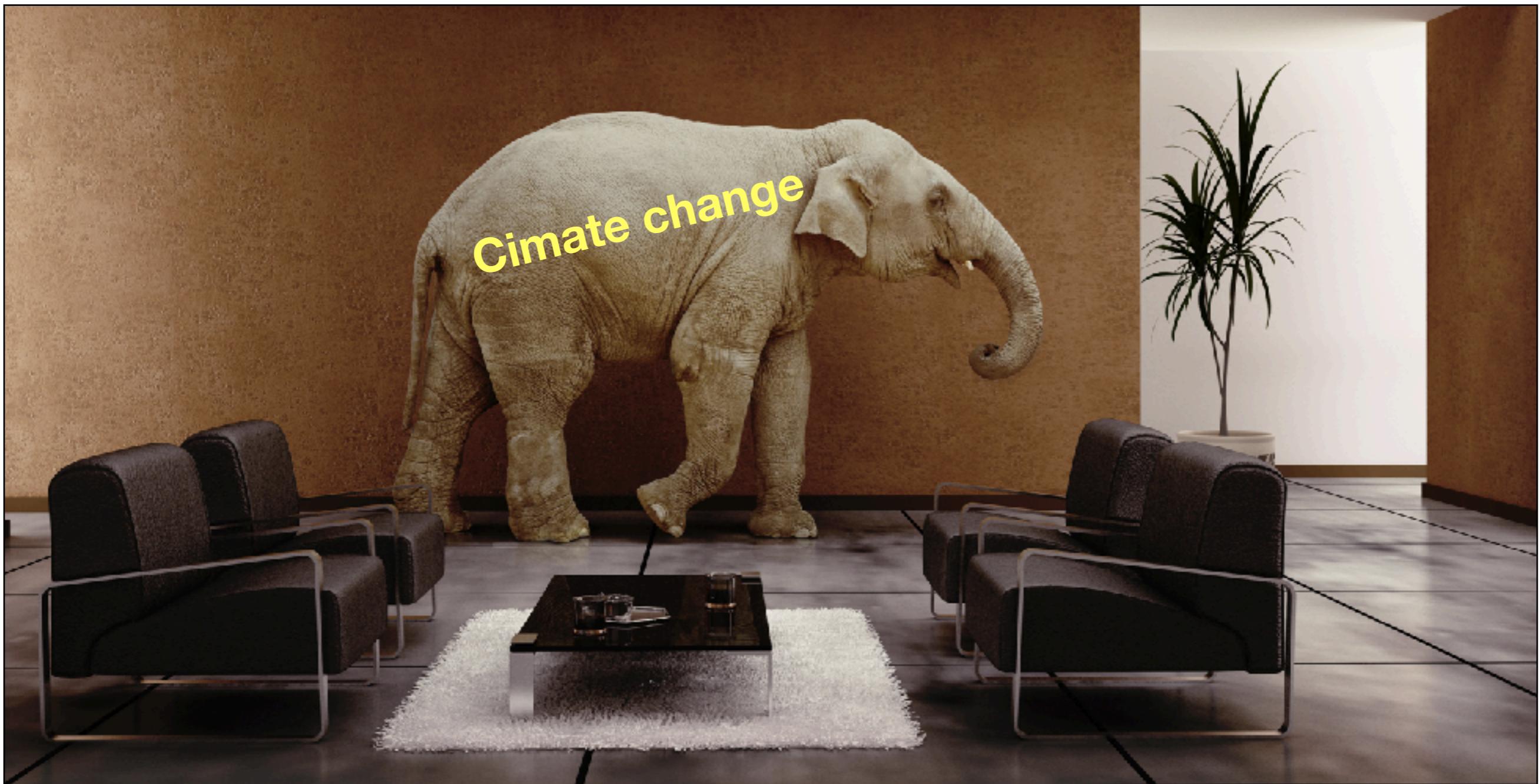
Introduction to Ecology: big questions



Peter Oehlkers, <http://smilingpond.blogspot.com/>



Introduction to Ecology: big questions



<http://www.elephantsinthelivingroom.org/>

Introduction to Ecology: big answers

PROCEEDINGS
—OF—
THE ROYAL
SOCIETY **B**

Proc. R. Soc. B (2005) **272**, 1195–1202

doi:10.1098/rspb.2004.3046

Published online 15 June 2005

Review

Models of foot-and-mouth disease

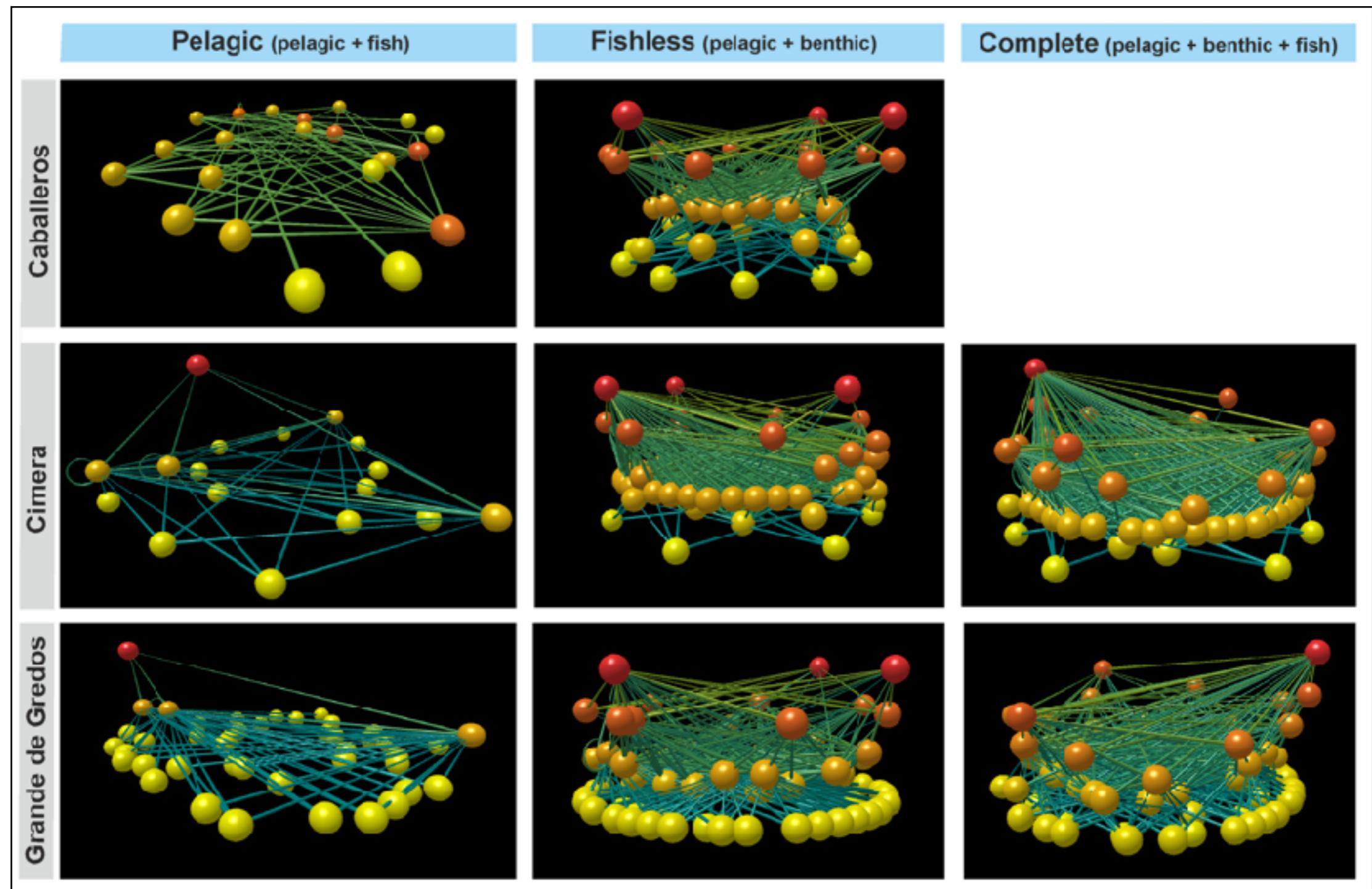
Matt J. Keeling*

Department of Biological Sciences and Mathematics Institute, University of Warwick, Gibbet Hill Road, Coventry CV4 7AL, UK

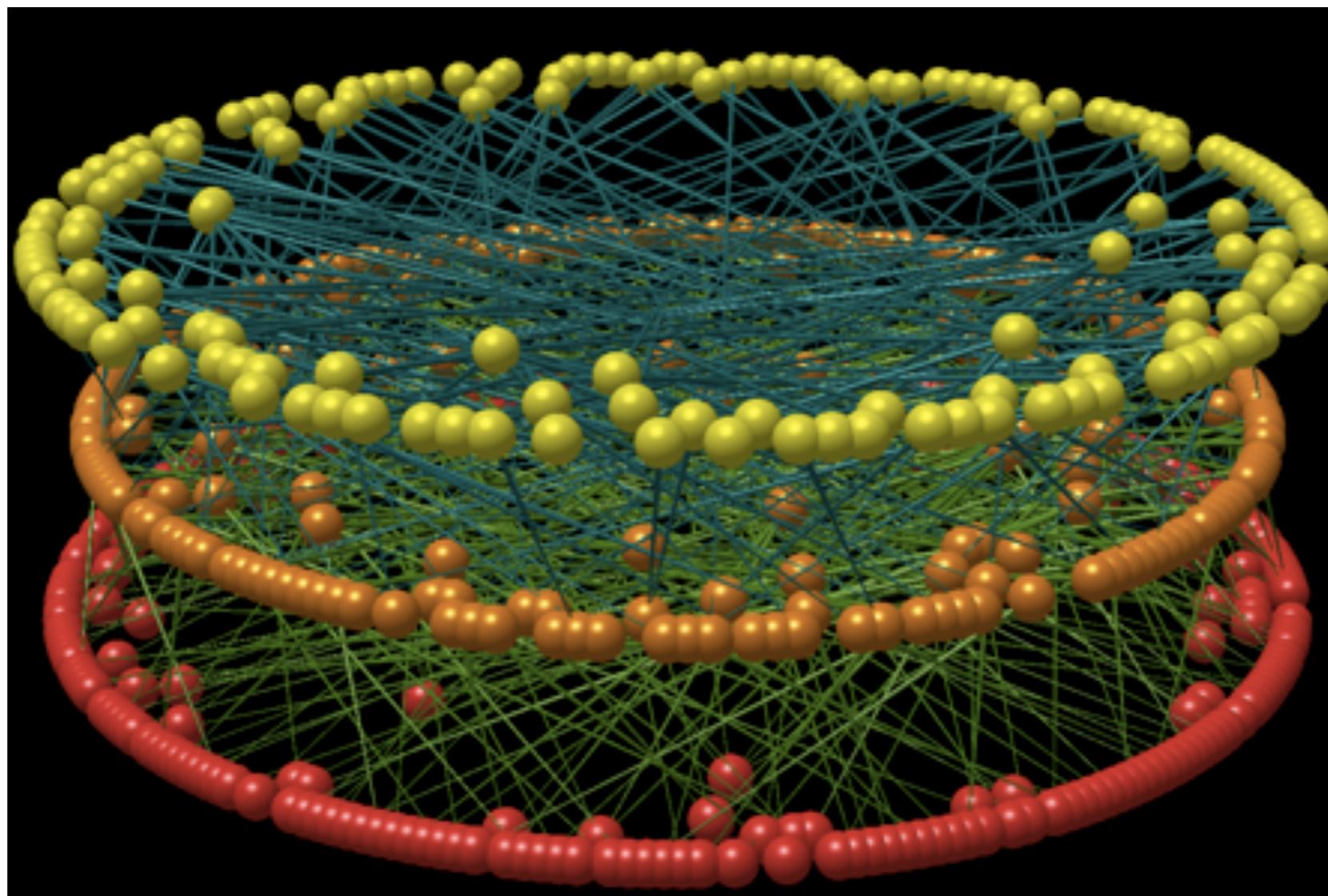
During the 2001 foot-and-mouth disease outbreak in the UK, three very different models were used in an attempt to predict the disease dynamics and inform control measures. This was one of the first times that models had been used during an epidemic to support the decision-making process. It is probable that models will play a pivotal role in any future livestock epidemics, and it is therefore important that decision makers, veterinarians and farmers understand the uses and limitations of models. This review describes the utility of models in general before focusing on the three foot-and-mouth disease models used in 2001. Finally, the future of modelling is discussed, analysing the advances needed if models are to be successfully applied during any subsequent epidemics.

Keywords: livestock disease; mathematical models; control

Introduction to Ecology: big concepts



Introduction to Ecology: big concepts



food web.org

Introduction to Ecology: big concepts



Metropolitan Museum of Art, Fredric Church. *Heart of the Andes*

Introduction to Ecology: big concepts



Cleveland Museum of Art, Fredric Church, *Twilight in the Wilderness*

Introduction to Ecology: big concepts

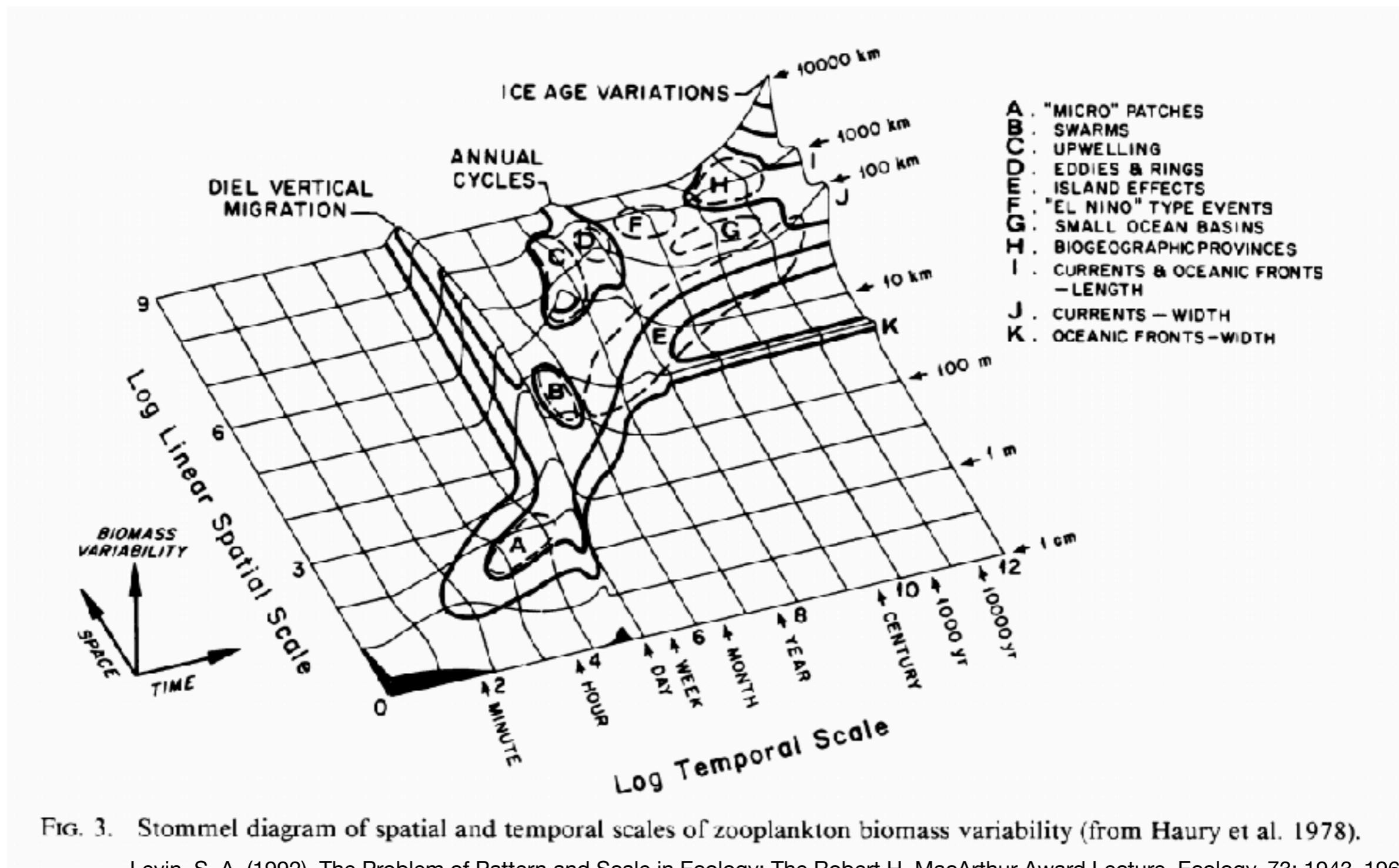


FIG. 3. Stommel diagram of spatial and temporal scales of zooplankton biomass variability (from Haury et al. 1978).

Levin, S. A. (1992), The Problem of Pattern and Scale in Ecology: The Robert H. MacArthur Award Lecture. *Ecology*, 73: 1943–1967.