

Advances in Ecological Research Volume 43

Integrative Ecology: From Molecules to Ecosystems

Reversed, or Why There Need To Be So Many Species

Robert Placnik, Stefanie D. Moorjani and Helmut Hillebrand

When Microscopic Organisms Inform General Ecological Theory

Julia Reiss, Jack Forster, Fernanda Cassio, Claudia Pascual, Rebecca Stewart and Andrew G. Hirst

Systems Biology for Ecology: From Molecules to Ecosystems

Kevan J. Pardy, Paul T. Haul, Jordi Moya-Laraño, Mark Trimmer, Brian R. Oakley and Guy Woodward

Assessing the Contribution of Micro-Organisms and Macrofauna to Biodiversity-Ecosystem Functioning Relationships in Freshwater Microcosms

Julia Reiss, R. A. Bailey, Fernanda Cassio, Guy Woodward and Claudia Pascual

Environmental Warming and Biodiversity-Ecosystem Functioning in Freshwater Microcosms: Partitioning the Effects of Species Identity, Richness and Metabolism

Daniel M. Perkins, Brendan G. McKie, Björn Malmqvist, Steven G. Gilmore, Julia Reiss and Guy Woodward

Individual-Based Food Webs: Species Identity, Body Size and Sampling Effects

Guy Woodward, Julia Blanchard, Rasmus B. Lauenstein, Francois K. Edwards, J. Aaron Jones, David Figueroa, Philip H. Warren and Owen L. Petchey

The Temperature Dependence of the Carbon Cycle in Aquatic Ecosystems

Gabriel Yoon-Daewon, Andrew P. Allen, Jose M. Montoya, Mark Trimmer, and Guy Woodward

Cover image: Multispecies systems, as represented by the food web on the right, are constructed from populations of individuals (depicted by the spheres) and their respective genomes (depicted by the 3-D DNA structure within each sphere). Understanding and predicting the dynamics and structure of the higher levels of biological organisation necessitates an understanding of the lower levels and the links across levels – from molecules to ecosystems.

Cover image constructed by Guy Woodward and Murray S.A. Thompson. DNA structure: images courtesy of Maxim Imakaev and Leonid A. Mirny.

For details see Lieberman-Aiden, van Berkum et al. Comprehensive mapping of long-range interactions reveals folding principles of the human genome. *Science* 2009 Oct 9;326(5950):289-93. PMID:19815776. More images at http://www.seas.harvard.edu/news-events/DNA_fold_images. Photo: Alexander Mustard www.alexmustard.com. Weddell Sea food web: image courtesy of Ute Jacob, produced with FoodWeb3D, written by R.J. Williams and provided by the Pacific Ecoinformatics and Computational Ecology Lab (www.foodwebs.org). Yoon, I., R.J. Williams, E. Levine, S. Yoon, J.A. Dunne, and N.D. Martinez. (2004) Webs on the Web (WoW): 3D visualization of ecological networks on the WWW for collaborative research and education. *Proceedings of the Island/ISPE Symposium on Electronic Imaging, Visualization and Data Analysis* 5295,124-132.



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