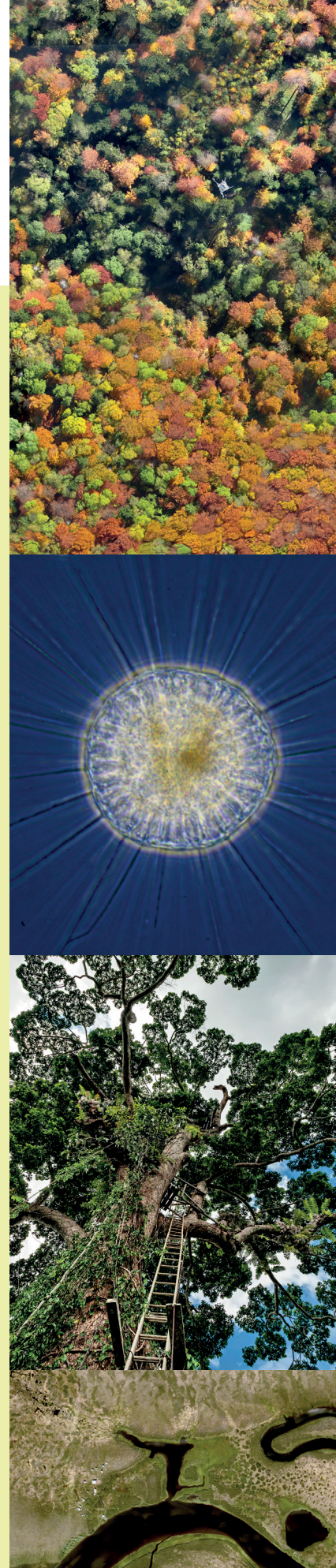




Universität
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Faculty of Science



MORE INFORMATION

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Global Change and Biodiversity

Integrating Mechanisms
of Interactions, Feedback
and Scale

Biodiversity is both a response variable affected by global change drivers and a factor modifying ecosystem processes and services that are essential to human well-being. Many of the key challenges that face humanity this century are due to the impacts of global change on biodiversity and on the functioning and stability of ecosystems and the natural services they provide. This is a two-way relationship in which biodiversity can also affect environmental conditions via biotic feedbacks.

INTERDISCIPLINARY AND VISIONARY
The University Research Priority Program (URPP) Global Change and Biodiversity aims to improve the capability to predict the consequences of global change and their different drivers for biodiversity, ecosystem services and ultimately human well-being.

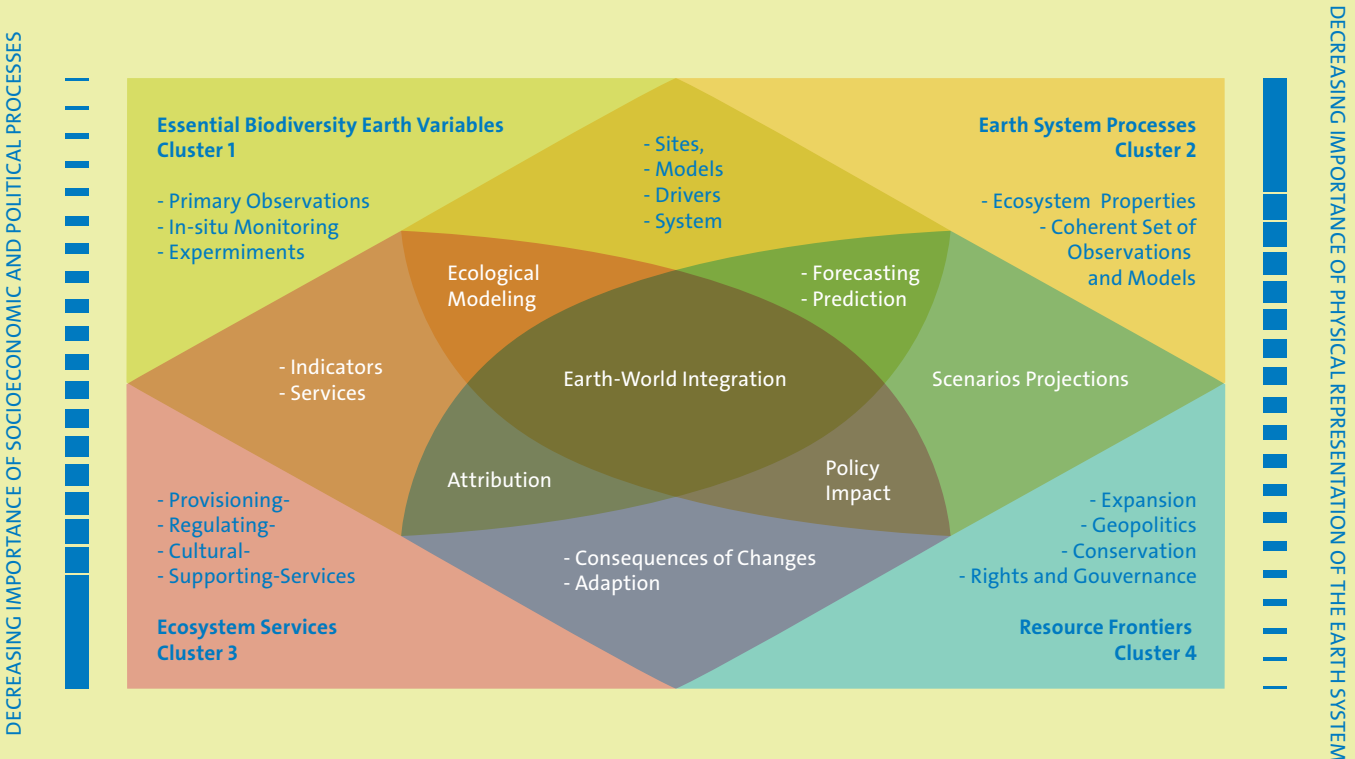
We use a clustered approach stimulating interdisciplinary collaboration to address issues beyond the reach of single disciplines. Central to the approach is the integration of the physical representation of the **Earth** with stakeholder and ethical views of our **World**. Each Cluster covers a key focus area of the program, with substantial synergies between cluster activities.

Essential Biodiversity Variables focuses on identifying variables essential for the study and management of biodiversity changes. Variables include both drivers and their responses

Earth System Processes focuses on understanding Earth System processes and properties by generating a coherent set of harmonized observations and models as well as ecosystem properties. This will prepare for research on forecasting biodiversity and ecosystem response to multiple drivers of global change.

Ecosystem Services studies the benefits from ecosystem services for human livelihoods focusing on the scope of provisioning, regulating, cultural and supporting services, across multiple spatial scales, from local sites to global patterns.

Resource Frontiers studies the social, economic and political dynamics and patterns of transformation in regions where radical land use changes have led to environmental degradation, habitat and biodiversity loss.



SELECTED PUBLICATIONS

Complete publication list available online:
<http://www.gcb.uzh.ch/services/Publications.html>

Petchey, O. L., Pontarp, M., Massie, T. M., Kéfi, S., Ozgul, A., Weilenmann, M., Palamara G. M., **Altermatt F.,** Matthews B., Levine J. M., Childs D. Z., McGill B. J., **Schaepman M. E., Schmid B.,** Spaak P., Beckerman A. P., Pennekamp F. & Pearse, I. S. (2015) The Ecological Forecast Horizon, and examples of its uses and determinants. Ecology Letters 18, 597-611.

Skidmore, A.K., Pettorelli, N., Coops, N.C., Geller, G.N., Hansen, M., Lucas, R., Mùcher, C.A., O'Connor, B., Paganini, M., Pereira, H.M., **Schaepman, M.E.,** Turner, W., Wang, T., & Wegmann, M. (2015) Environmental science: Agree on biodiversity metrics to track from space. Nature 523, 403-405.

Zuppinger-Dingley, D., Schmid, B., Petermann, J. S., Yadav, V., De Deyn, G. B., & Flynn, D. F. (2014) Selection for niche differentiation in plant communities increases biodiversity effects. Nature 515, 108-111.

O'Brien, M. J., Leuzinger, S., Philipson, C. D., Tay, J. & Hector, A. Drought survival of tropical tree seedlings enhanced by non-structural carbohydrate levels. Nature Climate Change 4, 710-714.

Garonna, I., Jong R., de Wit A. J. W., Mùcher C. A., **Schmid B. & Schaepman M. E.** (2014) Strong contribution of autumn phenology to changes in satellite-derived growing season length estimates across Europe (1982–2011). Global Change Biology 20, 3457-3470.

Kobayashi, M. J., Takeuchi, Y., Kenta, T., Kume, T., Diway, B., **Shimizu, K. K.** (2013) Mass flowering of the tropical tree Shorea beccariana was preceded by expression changes in flowering and drought-responsive genes. Molecular Ecology 22, 4767-4782 .

and will prepare and defend a M.Sc. thesis. It is anticipated that the CMS graduates will enter an appropriate Ph.D. program upon completion of their M.Sc. degree.

NETWORK AND OUTREACH

WHO WE ARE
We are an interdisciplinary and transdisciplinary collaboration of **14 Research Groups** within **five Departments**:

- Department of Evolutionary Biology, and Environmental Studies
- Department of Geography
- Institute of Mathematics,
- Institute of Plant Biology
- Zurich University Centre for Ethics at the University of Zurich.

GLOBAL CHANGE AND BIODIVERSITY
Global Change and Biodiversity theory, experiments, simulation, and modeling performed at 6 research sites along a latitudinal gradient.

