CLE Newsletter 2021

To our, any probably everybody else's surprise was COVID-19 influencing our work more than we had anticipated back in 2020. Restructuring the work in our MigSoKo project was unavoidable and led to a critical reflection of how place-based research is conducted (see below). But also the defences of Lukas' and Lisanne's PhD theses took place in an unusual, virtual setting. We continued learning a lot to optimize our work (not to apply optimization tools for studying landscapes' dynamics) under these circumstances and we will continue doing so. Stay safe!

New junior research group "AgriScape"

Agriculture contributes significantly to the degradation of ecosystem services and the persistent loss of biodiversity in agricultural landscapes. Therefore, a social and political goal is the transformation of agriculture towards ecological sustainability. The junior research group "AgriScape: Trade-offs on the way towards multifunctional agricultural landscapes" will deal with trade-offs in the context of the transformation of agriculture (German "Agrarwende") against the background of climate and structural change. For this purpose, conflicting goals will be identified and analysed on both a biophysical and a socio-economic level in order to determine relevant and socially acceptable transformation pathways for a successful agricultural turnaround. The junior group will be funded with 2.67 m. € by BMBF (call: inter- and transdisciplinary junior groups in socio-ecological research – SÖF). The project will run for five years starting in mid-2022. Andrea Kaim (CLE) and Bartosz Bartkowski (ÖKON) will lead the group which will further include three PhD students.

New CLE member

Dr. Tuanjit Sritongchuai

Postdoc since Aug 2021

Tuanjit Sritongchuay completed her PhD at the Prince of Songkla University in Thailand studying landscape-level effects on pollination networks and fruit-set of crops in tropical small-holder agroecosystems. She is interested in looking at pollinator ecology from a conservation and agricultural sustainability perspective. In particular, how land use management can impact pollinator communities, plant-pollinator networks, and ecosystem services.

Contact at CLE: tuanjit.sritongchuay@ufz.de

MigSoKo Workshop

In October 2020, MigSoKo hosted an interactive online workshop titled "Place-based social-ecological research in times of covid-19". Together with about 20 participants from a range of social-ecological research fields and various institutions we exchanged experiences and ideas about strategies to cope with the current challenges of the pandemic. Based on this, we published a paper in GAIA (30/2 2021) and a blog post (https://isoe.blog/) with concrete recommendations for dealing with future crisis-related disruptions in research.

Department Offspring

Auri Lotta *20 Jun (Julia Palliwoda)

Congratulations

Lukas Egli finished his Ph.D. and graduated at University of Potsdam under the supervision of Volker Grimm and Ralf Seppelt in February 2021. He continues working in our Department as Postdoctoral Researcher.

Link to his website: UFZ/CLE

Lisanne Hölting finished her Ph.D. and graduated at TU Dresden in May 2021. She now works as Postdoctoral Researcher in the Dep. Computational Landscape Ecology in the project ECO²SCAPE at the TU Dresden.

Link to her website: TU Dresden

Dr. Kathleen Hermans was awarded the UFZ Supervision Prize 2021 for excellent supervision of doctoral students. The award recognises her structured and reliable working methods, her high quality standards and her efforts to give doctoral students the freedom to develop their own ideas.

Press and Media

ARD - Das Erste, "Wissen vor 8. - Natur"

Given the drastic decline of media responses after the publication of the Global Assessment of IPBES in Mai 2019, IPBES and IPCC authors approached ARD and suggested to strengthen reporting on transformative change to fight the biodiversity and climate crisis. Finally we were invited to consult within the new series of „Wissen-vor-8" on various topics such as zoonoses, agricultural monocultures, invasive species, climate change in the arctic.

Link to the Videos (in German)

Video on the TALE project - Towards multifunctional Agricultural Landscapes in Europe

This animated movie presents the results of the TALE project which investigated the potential conflicts and possible synergies between agricultural services and biodiversity through the development of land use. arctic.

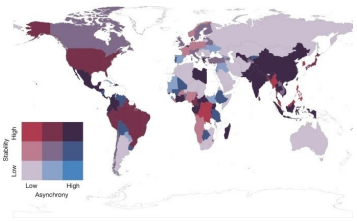
Link to the Video on Youtube

How to decipher the Biodiversity-Production Mutualism in the Global Food Security Debate?

How do we manage the resources of our planet in a way that we produce enough healthy food without destroying our life-support system? Answers to that question require to quantify incorporation of agro-ecological principles in global food systems, will inform assessments of green total factor productivity, and help avoiding possible lock-ins of the global food system through over-intensification and associated biodiversity loss. An overhaul of agro-economic models is needed to incorporate the interactions of ecosystem functioning with food security and malnutrition.

Link to the Video on Youtube

Publications "Editor's Choice"



Egli, L., **Schröter, M.**, Scherber, C., Tscharntke, T., **Seppelt, R.**, (2020): Crop asynchrony stabilizes food production. *Nature* 588 (7837), E7 - E12. DOI: 10.1038/s41586-019-1316-y

Recently, Renard and Tilman (2019) reported that crop diversity stabilizes national food production. Here we show that the asynchrony of the year-to-year production of different crops within a nation is an even better predictor of agricultural production stability. We suggest that asynchrony can explain why a higher crop diversity supports the stability of national food production, and that it should be considered in strategies to stabilize agricultural production.

Kaim, A., Bartkowski, B., Lienhoop, N., Schröter-Schlaack, C., **Volk, M.**, **Strauch, M.**, (2021): Combining biophysical optimization with economic preference analysis for agricultural land-use allocation. *Ecol. Soc.* **26** (1), art. 9. DOI: 10.5751/ES-12116-260109

By integrating preference information into the biophysical optimization this paper reduces the usually large set of Pareto-optimal solutions and thus facilitates further stakeholder-based analyses. The explorative study provides an example of how socioeconomic data and biophysical models can be combined to support decision making and the development of land-use policies.

Hermans, K., Berger, E., Biber-Freudenberger, L., Bossenbroek, L., Ebeler, L., **Groth, J.**, Hack, J., Hanspach, J., Hintz, K.S., Kimengsi, J.N., Kwong, Y.M.C., Oakes, R., Pagogna, R., Plieninger, T., Sterly, H., van der Geest, K., van Vliet, J., **Wiederkehr, C.**, (2021): Crisis-induced disruptions in place-based social-ecological research – an opportunity for redirection. *GAIA* **30** (2), 72 - 76. DOI: 10.14512/gaia.30.2.3

Fieldwork in place-based research can be disrupted by various threats, such as natural and global health hazards as well as political conflicts. The current COVID-19 pandemic has shown how these threats can drastically affect social-ecological research activities such as those in our project in Ethiopia. In this paper, we discuss the need for adaptive research designs while also providing an opportunity for a structural shift towards a more sustainable and inclusive research landscape.

Derepasko, D., Guillaume, J.H.A., Horne, A.C., **Volk, M.**, Martin (2021): Considering scale within optimization procedures for water management decisions: balancing environmental flows and human needs. *Environ. Modell. Softw.* **139** , art. 104991. DOI: 10.1016/j.envsoft.2021.104991

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Imprint

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