

## **Modelling the Socioeconomic Forces behind 21st Century Biodiversity Loss: A Macroscopic Approach to turn Complexity into Opportunities for Action**

Initiative: Freigeist-Fellowships

Bewilligung: 28.06.2016

Laufzeit: 5 Jahre

Projekt-Website: [https://www.idiv.de/en/groups\\_and\\_people/core\\_groups/macroecosocial/projects.html](https://www.idiv.de/en/groups_and_people/core_groups/macroecosocial/projects.html)

Extinctions of species are eroding the integrity of ecosystems, which threatens human well-being. The main driver of this "biodiversity loss" is human land-use (e.g. agriculture), which in turn is linked to various demographic, macroeconomic, political and other drivers in a global social-ecological system (SES). The complex links in this SES are poorly understood, hampering the development of sustainability strategies that are both ecologically effective and politically feasible, given potentially conflicting goals such as conservation, food security and economic development. The applicant aims to build empirical statistical models of global SESs of biodiversity loss. He will use a macroscopic approach, which fundamentally differs from contemporary, localized case study-based SES research. The approach will build on recent advances in modelling ecological, economic and land-use subsystems of the global SES, and exploit newly available global datasets. The applicant aims to identify key socioeconomic drivers of biodiversity loss and study trade-offs between biodiversity and other societal goals resulting from targeted interventions or unexpected shocks such as economic crises. The project will inform environmental policies, may catalyze a paradigm shift towards a more quantitative understanding of SESs, and will set important groundwork for a nascent field of "macro-social-ecology".

### **Projektbeteiligte**

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