

*Invited MSc Thesis Topic*

**Transformative change interventions for biodiversity in the EU's food and biomass systems**

**Language:** English

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**Background:** Human consumption, production, and trade of food and biomass are the main underlying causes of biodiversity loss. In addition, biodiversity impacts due to climate change, invasive species, and pollution are also direct consequences of our current, unsustainable production and consumption systems. Demand for food and biomass rises with affluence and population growth, threatening ecosystem service provision and thus, ultimately, human well-being.

To date, three quarters of the global land area has been significantly changed, more than 80% of global wetlands have been lost, and marine systems are increasingly under pressure. While the intensification and expansion of agriculture has enhanced the supply of food and biomass to a growing world population, this comes at a substantial cost in terms of loss of natural forests and grasslands, overfertilization, and increasingly uniform and biodiversity-poor agroecosystems. Climate change may become a dominant threat to biodiversity in the future without strong climate mitigation efforts, and such efforts could either increase other pressures on biodiversity or provide opportunities for conservation and restoration.

Halting and reversing the loss of biodiversity therefore requires fundamental transformative change of food and biomass systems, addressing the multifaceted nexus between climate action, production, trade, consumption, and human behaviour. In order to realise possible pathways that allow such transformations, feasible interventions to restore and protect biodiversity must be identified and implemented.

**Goal:** The goal of this thesis is to identify, discuss, and derive recommendations for potential transformative change interventions in the EU food and biomass nexus between climate action, production, trade, consumption, and human behaviour.

**Approach:** The thesis should include a literature review of a) scientific literature, such as existing sustainability pathways, transformative change scenarios and IPCC/IPBES assessments, as well as b) policy documents, such as commitments to international agreements, EU Green Deal proposal, etc. Interviews with selected stakeholders could contribute as an additional source of information and/or to validate findings of the literature review.

**Research project:** This master thesis takes place within the framework of the EU funded RAINFOREST project. The overall objective of RAINFOREST is to contribute to enabling, upscaling and accelerating transformative change in Europe towards reducing biodiversity impacts of major food and biomass value chains. This will be done by closing knowledge gaps, demonstrating the

effective co-generation and use of knowledge in stakeholder processes to formulate transformative policy options and related innovative governance arrangements, including government procurement practices and regulations.

Specifically, the aim is to i) co-develop and investigate just and viable pathways for transformative change and policies for their implementation with stakeholders, ii) enhance assessment models to allow for the quantification of biodiversity impacts at different spatial and organizational levels (e.g. company, national and global scales), iii) highlight and exemplify the application of the investigated pathways for transformative change in case studies, iv) investigate and co-generate governance and financial reforms, including public sector procurement, at all scales; v) explain, visualize and communicate the results and tools to a diverse audience.

( <https://www.uni-bonn.de/en/news/144-2022>)

**Expected skills and interest:**

- Interest in environmental policy and biodiversity protection
- Experience with concepts and theories from agricultural, environmental, or institutional economics
- Candidates should be comfortable analysing scientific texts and policy documents
- Experience in conducting literature reviews, interviews, and qualitative analysis is a plus