

Proposal for interdisciplinary group project

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Rationale of the proposal

This proposal for the interdisciplinary group project within the AGES master program will engage master's students in undertaking a systematic literature review of scientific research papers that address the assessment of ecosystem services and biodiversity provided by High Natural value (HNV) farming systems in Europe.

Opportunity of the topic

High natural value (HNV) farming systems represent an outstanding example of the interactions between humans and nature, showcasing agriculture as a complex social-ecological system.

The term High Natural Value (HNV) farming describes those areas in Europe where agriculture and livestock farming support high species and habitat diversity whose conservation and enhancement depends on the continuation of low intensity farming systems. Most of these HNV systems are extensive livestock and mixed farming systems that tend to be found in the more marginal areas of the EU. In these areas, agricultural productivity is constrained by environmental factors while HNV farming systems are typically well-adapted to them. Since they require comparatively higher levels of labour input per unit of production, they render uncompetitive compared to their intensive counterparts while their high opportunity costs also make them less attractive compared to alternative employment options outside farming. Such pressures on HNV farmland can lead to either abandonment or intensification and the consequent loss of these systems and their practices linked to biodiversity.

Why a systematic review

This work aims to synthesize the existing knowledge on the biodiversity hosted and the ecosystem services provided by HNV farming systems in Europe. For this purpose, the aim is to conduct a systematic literature review of both scholarly publications and grey literature that reported empirical case studies assessing HNV farming systems. The aim is to characterize the location, temporal evolution, and scope of existing literature on HNV farming systems. The results of this review will compile and showcase key scientific knowledge on these systems, identifying their current social-ecological dynamics and main (direct and indirect) drivers of change that influence their evolution. Research gaps, likely future trends and recommendations regarding management improvement will also stem from this review.

Involving students in a systematic review entails integrating research into their study curricula and a collaborative systematic literature review is a particularly suitable activity to introduce research into educational programs.

This proposal builds on previous experiences of student-driven review projects that have addressed transdisciplinarity in sustainability science (Brandt et al., 2013), urban ecosystem services (Luederitz et al., 2015) and ecosystem-based adaptation (Brink et al., 2016).

More specifically, our proposal will follow the recommendations and phases that Luederitz et al. (2016) compiled for undertaking systematic reviews with students.

Multidisciplinary background of the supervisors

Professor Tobias Pliening is a sustainability scientist with a commitment to inter- and transdisciplinary research at the social-ecological interface. In particular, he studies rural landscape change, ecosystem services, and sustainability transformations. His research focuses on the complex relationships between agriculture, forestry, nature conservation, and other sectors of natural resource management.

Elsa Varela is a Senior Postdoc Humboldt research fellow at University of Göttingen. Her work addresses HNV systems from an economic valuation perspective, assessing the economic value of their ecosystem services and societal willingness to pay to maintain and enhance these systems. She has also worked on the assessment of the institutional dimensions of Payments for Ecosystem Services that may reward HNV farmers.

The complementary background of the supervisors will allow the students to grasp the complexity and the different analytical lenses that can be employed to assess HNV farming systems.

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