



COMPASS: Co-producing management practices & sustainability strategies for olive agroforestry systems

Duration: 02/2023-12/2025

Wider research context

Biodiversity loss is driven in particular by intensive agriculture and structural impoverishment of the landscape. Sustainable development of land use management is therefore key to reversing biodiversity loss and associated ecosystem services.

Research objectives

We propose to combine biodiversity monitoring data from field experiments with socio-ecological analyses of local stakeholders to develop strategies for a sustainable management of olive monoculture land-use systems across the EU. We will (i) identify knowledge and implementation gaps for integrating biodiversity conservation into agricultural landscape management, (ii) develop evidence-based, biodiversity-friendly management actions that integrate biodiversity conservation and production in traditional olive agroforestry systems, and (iii) design flowering strip management measures promoting pollinator diversity and pest control services in Mediterranean olive agroforestry systems.

Approach

We aim to integrate biodiversity-monitoring data from previous field research and on-going projects, as well as develop socio-ecological surveys and modelling approaches with the goal to assess the challenges and opportunities of biodiversity-friendly olive farming across the EU. To achieve this goal, we will (i) integrate available biodiversity monitoring data on plant functional species composition and seed availability of ruderal vegetation, flowering strips that promote pollinator diversity and pest control services; (ii) establish a network of monitoring sites to investigate effects of optimized traditional management approaches (i.e., olive tree pruning and farm mowing practices) on biodiversity, ecosystem services and olive production with a focus on birds, bats, and arthropods (including olive pests); and (iii) develop an open-access database for dissemination of our results, which thus could be applied beyond the study area.

Level of originality

We will revitalize and optimize traditional farm management methods, such as pruning and mowing practices through the integration of scientific evidence from on-going efforts monitoring biodiversity and by integrating available data on ecosystem services provided by Mediterranean land-use systems, as well as through linked socio-ecological assessments and modelling approaches assessing stakeholder preferences and land-use decisions. We will generate insights into key approaches, assess challenges and create opportunities that advance our understanding of how to integrate biodiversity monitoring with existing management practices across the EU.

Primary researchers involved

Our consortium consists of researchers from the [International Institute for Applied Systems Analysis, Austria](#); [University of Vienna, Austria](#); [Sant Anna University Pisa, Italy](#); [University of the Aegean, Greece](#); [University of Cádiz, Spain](#); and [University of Jaén, Spain](#), thus sharing multidisciplinary expertise in Biodiversity, Ecology, and Conservation.

Further, we are currently building project partnerships expanding the COMPASS approach also to cacao agroforestry systems, in collaboration with [UNTAD University, Indonesia](#).