



## **BiodivERsA project VineDivers: Analysing interlinkages between soil biota and biodiversity-based ecosystem services in vineyards across Europe**

Johann G. Zaller (1), Silvia Winter (2), Peter Strauss (3), Pascal Querner (1), Monika Kriechbaum (2), Bärbel Pachinger (2), José A. Gómez (4), Mercedes Campos (4), Blanca Landa (4), Daniela Popescu (5), Maria Comsa (5), Maria Iliescu (5), Liliana Tomoiaga (5), Claudiu-Ioan Bunea (6), Adela Hoble (6), Liviu Marghităs (6), Teodor Rusu (6), Ángel Lora (7), Gema Guzmán (7), Holger Bergmann (8), and the Martin Potthoff<sup>8</sup>, Daniel Cluzeau<sup>9</sup>, Francoise Burel<sup>9</sup>, Vincent Jung<sup>9</sup> Team

(1) Institute of Zoology, University of Natural Resources and Life Sciences Vienna, Gregor Mendel Straße 33, A-1180 Vienna, Austria, (2) Institute of Integrative Nature Conservation Research, University of Natural Resources and Life Sciences Vienna, Gregor Mendel Straße 33, A-1180 Vienna, Austria, (3) Institute for Land and Water Management Research, Austrian Federal Agency for Water Management, Pollnbergstraße 1, A-3252 Petzenkirchen, (4) Instituto de Agricultura Sostenible, Alameda del Obispo S/N Apartado 4084, 14080 Cordoba, Spain, (5) Research Station for Viticulture and Enology Blaj, 2 G. Baritiu Street, 515400, Alba county, Romania, (6) University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (UASMV Cluj-Napoca), Faculty of Horticulture, Department of Horticulture and Landscaping 3-5 Calea Manastur St., 400372, Cluj-Napoca, Romania, (7) University of Córdoba, Department of Forestry Engineering, Ctra. Madrid-Cádiz Km. 396, 14071 Córdoba, Spain, (8) University of Göttingen, Department for Agricultural Economics and Rural Development, Platz der Göttinger Sieben 5, 37073 Göttingen, Germany, (9) University Rennes 1, UMR CNRS EcoBio, 35380 Paimpont, France

Essential ecosystem services provided by viticultural landscapes result from diverse communities of above- and belowground organisms and their interactions. For centuries traditional viticulture was part of a multifunctional agricultural system including low-input grasslands and fruit trees resulting in a high functional biodiversity. However, in the last decades intensification and mechanisation of vineyard management caused a separation of production and conservation areas. As a result of management intensification including frequent tilling and/or use of pesticides several ecosystem services are affected leading to high rates of soil erosion, degradation of soil structure and fertility, contamination of groundwater and high levels of agricultural inputs. In this transdisciplinary BiodivERsA project we will examine to what extent differently managed vineyards affect the activity and diversity of soil biota (e.g. earthworms, collembola, soil microorganisms) and how this feed back on aboveground biodiversity (e.g. weeds, pollinators). We will also investigate ecosystem services associated with soil faunal activity and biodiversity such as soil structure, the formation of stable soil aggregates, water infiltration, soil erosion as well as grape quality. These effects will become increasingly important as more extreme precipitation events are predicted with climate change. The socio-economic part of the project will investigate the role of diversely structured, species-rich viticultural landscapes as a cultural heritage providing aesthetic values for human well-being and recreation. The project objectives will be analysed at plot, field (vineyard) and landscape scales in vineyards located in Spain, France, Romania and Austria. A detailed engagement and dissemination plan for stakeholder at the different governance levels will accompany scientific research and will contribute to the implementation of best-practice recommendations for policy and farmers.