Typification of urban ecosystems in Italy. Scientific evidence for environmental and sustainability policies at the FUA level.

Simone Valeri[1], Annarita Lapenna[2,3], Alessandro Montaldi[1,3], Eva Del Vico[1,3], Maria Chiara Pastore[2,3], Giulia Capotorti[1,3]
*lead presenter: simone.valeri@uniroma1.it

1. Department of Environmental Biology, Sapienza University of Rome, Italy
2. Department of Architecture and Urban Studies, Polytechnic of Milan, Italy
3. National Biodiversity Future Center (NBFC)

Urban areas are recognized as socio-ecological systems within which built-up and green-blue infrastructures interact and co-evolve across spatial and temporal scales. In countries characterized by marked environmental heterogeneity and long settlement histories, such as Italy, an integrated comprehension of the mutual relationship between cities and their ecological setting is crucial to support biodiversity conservation, ecological restoration and nature-friendly urban planning. Accordingly, as part of the NBFC research project devoted to urban biodiversity, a first typification of Italian Functional Urban Areas (FUAs) is proposed that is based on urban form and ecoregional arrangement.

A total of 83 FUAs were analysed using 37 indicators about urban tissue structure, natural features configuration, infrastructure and demographic density, and recent land take trends. Four types associated with distinct ecoregional contexts thus emerged, including: Coastal and sub-Alpine centralized and densely populated urban FUAs; Po Plain, Adriatic and Sicilian lowland sub-rural FUAs; Trans-ecoregional composite and scattered urban FUAs; and Mountain sub-natural large FUAs with small centres.

Obtained outcomes could improve the attuning of restoration efforts, enhancement of biodiversity within and around cities, and promotion of a more systemic understanding of urbanisation dynamics, consistently with current sustainability challenges. Especially, the implementation at the national level of European regulations on Nature Restoration and Ecosystem Accounts, as well as of the Soil Monitoring Directive and strategic target to develop ambitious urban nature plans, could benefit of such a classification for recognising reference models, setting priorities and defining monitoring plans.