Arthropods as a key to evaluate both the effectiveness and the ecological status of recent Forestation interventions in urban and peri-urban areas

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Abstract:

Urbanization is one of the greatest threats to biodiversity, leading to habitat loss and fragmentation. Nevertheless, indications of urban environments as potential biodiversity hotspots have emerged. Indeed, the relevance of the cities in biodiversity conservation issues is underlined by the fact that enhancing their green areas is now one of the milestones of the Nature Restoration Law.

In this framework, novel and integrative approaches to monitor the urban ecosystem are urgently needed. This project aims to develop and pave the way for new integrative methods for efficient and rapid long-term urban and peri-urban biodiversity monitoring. To address this issue DNA-based approaches (DNA metabarcoding) using environmental matrices such as soil and bulk samples from pitfall traps and sweep nettings will be integrated with advanced sensor technologies (i.e., computer vision). The final goal is to assess the taxonomic and functional biodiversity along urbanization gradients and across different management strategies of urban and peri-urban green forested areas. The obtained data will provide guidelines for standardizing monitoring approaches and implementing novel approaches for monitoring urban environments, representing effective scientific support for urban planners and stakeholders, to effectively design ecological restoration strategies.