Colonisation dynamics of insect communities in newly constituted urban habitats: a life-size experiment in schoolyards

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Résumé

The greening of urban spaces is recognized as an effective means of adapting to climate change, both to combat heat pockets and to improve soil permeability. Many local authorities have embarked on such schemes, which could also help to conserve biodiversity by providing new habitats for local species, particularly insects, to colonise. However, as these experiments in urban renaturing are still relatively recent, there is little or no data available on the characterisation of the biological communities likely to establish themselves in these newly created environments.
In 2021, the city of Nice began an operation to desilt and revegetate almost 100 schoolyards, which will last until 2026. By creating a large number of independent replicates within an area that is homogeneous in terms of the type of species likely to become established, this particular operation provides a rare opportunity to address scientific issues at the interface between invasion biology, community ecology and conservation policy. We started in 2024 a wide inventory of flying and ground insects in 18 yards selected for their contrasting ecological characteristics, and renatured for 1-3 years, and we present here our preliminary results for the 1st year of the project. We use different metrics (abundance, richness, diversity) to describe the insect communities and to explore two main issues:

(1) the functionality of the renatured areas: do these newly revegetated areas in dense urban environments harbour specific communities, or do they enable communities to be reconstituted that are qualitatively comparable to those observed in older semi-natural environments (urban parks and gardens)?
(2) the influence of local habitat patches: do the characteristics of landscaped courtyards (surface area, plant diversity, choice of planted species) influence the rate of colonisation, community diversity and ecological services? Is it possible to define landscaping strategies that maximise insect biodiversity in these highly constrained contexts (limited available space, restrictions regarding children safety)?

Mots-Clés: Urban ecology, community dynamics, insects, biodiversity, schoolyards, renaturation

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