"A walk on the wild side": Designing streets to enhance biodiversity and nature experience in cities

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Abstract

In the current context of urban sprawl, it becomes urgent for researchers and designers to propose urban approaches that sinergistically promote ecological functions and people-nature relationships. Streets, that are often only viewed as corridors for pedestrians and vehicles, can represent strong opportunities to promote biodiversity in the whole urban matrix and facilitate daily nature experience. We conducted ecological and psychological studies to assess the role of streets in promoting nature in cities.
Based on a plant survey along 48 km of street pavements in Blois (France), we firstly examined the relative importance of multi-scale factors on spontaneous plant assemblages of pavements. Secondly, we combined online and field surveys conducted at the French scale to assess people preferences for various management and design practices promoting pavement herbaceous vegetation.

More than 300 plant species (1/5 of the regional species pool) were recorded on the pavements of Blois. Pavement type was the strongest determinant of plant assemblages, plant cover and species richness being strongly higher on permeable sandy than on asphalt pavements. The effects of weeding frequency and the presence of green space around pavements were marginally important.

Contrary to conveyed ideas, social surveys showed that extensively weeded pavements with spontaneous vegetation were in average as much valued by people as intensively managed pavements without vegetation and a mineral aspect. Vegetation integrated in small pavement designs (flower or grassland strips) was the most appreciated, showing that people acceptance for vegetation can highly increase with visible signs of human actions.
These results support the fact that streets can become biodiversity-friendly urban greenspaces appreciated by urban dwellers. In already built-up areas, we suggest to reduce the pressure of weeding allowing the appearance of spontaneous vegetation. In future constructions, we suggest that civil engineers and architects integrate vegetation on pavements through innovative designs.

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