



Conference Abstract

# Activity density of carabid beetles along an urbanization gradient in the city of Rome (Italy)

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## Abstract

As concrete jungles, urban areas may be considered extreme environments for most animal groups. Yet, cities host unexpected high values of biodiversity, sometimes also in the most urbanized sectors. Several works have investigated the impact of urbanization on carabids using urban-rural gradients. However, most research has been done in north-western and central Europe, whereas urban communities in the Mediterranean region remain largely unexplored. Also, due to the high fragmentation of green spaces in urban areas, studies on the urban-rural gradient typically used data collected from several green spaces along the gradient, not from a single large area, which complicates interpretation because of the many confounding factors associated with inter-site variability. Aim of this research was to investigate the response of carabid populations to urbanization by analysing how their activity density varied along an urban-rural gradient within a single, large green space. The study was conducted in Rome (Italy), in the Appia Antica Regional Park, an urban park of 3,500 ha, which extends for some 16 km from the city centre to the rural environments out of the city. Carabids were sampled by pitfall traps from nine sites along the entire urban-rural gradient. We calculated the total carabid activity density, number of carabids/total Coleoptera (CAR/COL), and number of carabids/total insects

(CAR/INS). As already observed for various organisms in urban environments, we found that carabid activity density peaked in the middle of the gradient, where it was more than six times higher than in the city centre and about three times higher than in the rural sites. This supports the intermediate disturbance hypothesis, according to which moderate urbanization may favour diversity by increasing habitat heterogeneity. CAR/COL and CAR/INS also peaked in the middle of the gradient, which indicates that carabids are the insect taxon most favoured by intermediate urbanization.

## **Keywords**

Urban Ecology; Urban-rural gradient; Urban green spaces; Insect Conservation

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