# Whose city? Evaluation of oxidative damage in different bees species in relation to urban context challenges: a case study in Milan (Italy)

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Bees are globally declining due to anthropogenic phenomena, among which urbanization, eliciting biotic and abiotic stressors on them (e.g., high temperatures, unavailability and fragmentation of green areas). Despite these challenges, some wild bees thrive in cities but the impact on their health is poorly investigated. In this study, we evaluated the impact of urban stressors on oxidative damage and developmental stress makers in four bee species usually abundant in cities: *Apis mellifera*, *Bombus terrestris*, *Osmia cornuta* and *Anthophora plumipes*. We analyzed a total of 370 individuals collected from 17 sites along an urbanization gradient in the metropolitan area of Milan. Specifically, we quantified lipid peroxidation and protein carbonylation's products since these compounds are known to increase in response to chronic stress exposure in other organisms. Furthermore, we measured fluctuanting wing asymmetry through a morphometric approach, since it is known that exposure to different stressors enhances wing asymmetry and therefore inefficiency in flight performance. Our results improved our understanding of the multifaceted impact of landscape features on bees' physiology, development and thus health condition. In conclusion, this study provided a new insight on how to improve conservation policies for pollinators facing urbanization challenges.