

# TEMPERATURE AND NOT LANDSCAPE COMPOSITION SHAPES WILD BEE COMMUNITIES IN AN URBAN ENVIRONMENT

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## Background

More than half of the world's population lives in cities and urban areas are increasing. Worldwide, insects, and bees among them, are decreasing and urbanisation is one of the several anthropogenic threats to their survival. Wild bee communities in urban environments are different than in natural or agricultural areas. For example, urban species should be adapted to conditions specific to cities, such as warmer temperatures than the surroundings due to the urban heat island effect.

## Objective

The study aims to answer the questions of how wild bees in urban environments will be affected by rising temperatures and how we can design pollinator-friendly cities.




## Results

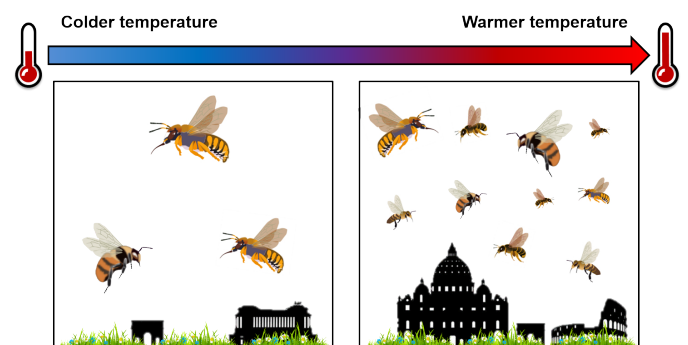
-  In a highly urbanised environment, temperature is a fundamental driver of pollinator communities.
-  More bee individuals and species were present in the warm areas of Rome compared to the cold ones.
-  Warming might homogenise bee communities by selecting those traits that make species more easily adaptable to high temperatures, such as small body size and a very flexible diet.
-  This leads to the prediction that while heat-tolerant wild bee species will benefit from increasing temperatures, these heat-tolerant communities will be dominated by small-bodied bees with a flexible diet, rather than by bees specialised in few flowers and larger bees such as bumblebees.

## Source

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## Key Messages

-  Cities are facing critical challenges when it comes to adapting to temperature warming, drought and the increased likelihood of extreme weather events, for both local human populations and local pollinators and biodiversity.
-  Urban greening is key to adapting to the impacts of the urban heat island effect and mitigating it.
-  High-quality and connected green spaces could offer climate change refugia for pollinators in urban environments, as well as flower and nesting resources.



Graphical representation of the distribution of bee individuals and species in warm and cold areas across Rome.

