

More young and other traits help mammals adapt to urban environments

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Species of mammals that live in urban environments produce more young compared to other mammals. But along with this advantage, mammals have other strategies to successfully inhabit cities. This is what

Radboud University ecologist Luca Santini and colleagues found in a study that they will publish in *Ecology Letters* on 21 December. "This is the first step of many to understand why certain mammals manage to live in cities and why other species don't."

Mammals living in [urban environments](#) tend to be more of a nuisance to human inhabitants than birds, because they are often regarded as pests—for example, rats and bats; some damage structures or goods—wild boars, for instance. "It's important to gain more insight into how mammals live in urban environments, so we can eventually achieve a more peaceful coexistence," Santini says.

Traits that benefit urban mammals

Santini and colleagues collected studies from all over the world that recorded the number of [mammal](#) species in cities. "The large number of studies that have already been conducted show that birds in cities—for example, crows—tend to be cleverer, meaning that they are better able to adapt to unexpected situations. However, mammals in cities are far less investigated, and only studies on a single mammal species, such as bats, have been carried out.

Mammals have way more diverse traits than birds, such as a higher diversity in body structure, size, life history and ecology. Therefore, we were curious to know whether there are particular traits that are positively affecting the ability of mammal species to flourish in new ecosystems, such as urban environments."

Larger litters, brains and bodies

The finding that stands out most is that all groups of urban mammals seem to produce more young. Santini says, "In general, animals that

produce larger litters do so to compensate for a high mortality rate amongst their young. This suggests that a [high mortality rate](#) due to, for example, road traffic accidents, persecution by humans and predation by [domestic cats](#) and dogs could be a major selective pressure for mammals in urban environments."

Differences in other traits were less explicit. "For example, a larger brain mass appears to be mostly associated with carnivores and primates, who only occasionally visit urban environments, such as jackals, wolves, bears and baboons, rather than with mammals who permanently live in cities, such as genet cats and mongooses among carnivores, or hedgehogs and shrews among insectivores. We also found that carnivores and primates that sporadically visit cities tend to be larger than average. This may be because they need to cover large distances in short times."

Different strategies for different species

Overall, the results indicate that different groups of mammals use different strategies to deal with the urban [environment](#). "However, because the number of mammal species in an urban environments compared to the total number of mammal species is quite small—190 out of approximately 6,000 species—this makes the statistics quite challenging, which makes it hard to make definite statements about specific groups of mammals and traits."

Santini hopes to investigate further questions in the future, such as which [species](#) live in parks, suburbs or [city](#) centres and why. "We expect that the number of animals living in urban environments will increase, because [urban areas](#) will expand and natural habitat will become more fragmented. Many animals that we believe cannot live in urban areas today, might start visiting and using cities in the future.

More information: One strategy doesn't fit all: determinants of urban

adaptation in mammals, Luca Santini e.a. *Ecology Letters*, 21 December 2018, [DOI: 10.1111/ele.13199](https://doi.org/10.1111/ele.13199)

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