

Press release**Max-Planck-Institut für Ornithologie****Dr. Sabine Spehn**

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<http://idw-online.de/en/news658371>Research results
Biology
transregional, national**The great tit, *Parus major*, does better in the countryside****A study by researchers at the Ludwig Maximilians University Munich and the Max Planck Institute for Ornithology shows that birds in an urban environment have fewer and smaller offspring than in rural settings.**

Great Tits are synanthropes who have followed humans into large cities. A team led by Philipp Sprau at Ludwig Maximilian University in Munich and the Max Planck Institute for Ornithology in Seewiesen has investigated the adaptive mechanisms needed by the birds for urban life. Their study has shown that while Great Tits begin to breed earlier in cities, their clutches are smaller and nestlings weigh less than their rural counterparts upon leaving the nest.

Differences between cities and rural environments:

To study the effects of urbanization, the scientists placed 600 nest boxes in twelve forest areas and another 156 in the city of Munich. Along with key life history traits, such as the start of egg laying, clutch size, and number and weight of nestlings, they correlated breeding success for the tits with environmental parameters characteristic for urbanization such as temperature, humidity, light, and noise that were measured throughout the breeding season.

Although the measurements of environmental parameters showed differences between city and rural environments, the scientists found no direct relationship between these parameters and the quantified life history traits. "Therefore we divided the city into three zones ranging from areas with conditions close to natural habitats to those characteristic of urban settings," said Niels Dingemanse of Ludwig Maximilians University, head of the research group for the evolutionary ecology of variation at the Max Planck Institute for Ornithology. This analysis of the varied extreme urbanization also revealed no specific patterns. The simple division between "city" and "forest" habitats still explained the differences in life histories best.

"Our study showed how difficult it is to accurately measure the effects of urban development on natural ecosystems," commented Sprau, principal author and head of the study. "Although we have quantified various environmental parameters, no clear patterns were found which can explain the differences in reproductive success." Thus for future studies it must be considered that individual features of urban environments such as light and noise may not be enough to describe the prevailing environmental conditions adequately. Other environmental factors than those quantified in this study should be considered in addition in future studies to assess the impact of the multidimensionality of urbanization on wildlife. SSp/HR

URL for press release: <https://www.mpg.de/10708754/urban-birds-rural-birds>



For the study, citizens interested in nature could sponsor a nest box and observe its residents with the help of a webcam. The images were transmitted directly to the mobile phone of the sponsors.
Philipp Sprau



Urban great tits start breeding earlier, their clutches are smaller, and when leaving the nest, nestlings weigh less than their forest-dwelling cousins.
Alan Stenhouse