

City-life changes blackbird personalities, study shows

June 18 2013



This image shows behavioral experiments on urban and forest-dwelling blackbirds. Urban blackbirds wait longer than their forest-born counterparts before approaching a new object (in this case, a plastic cup). Credit: MPI for Ornithology/Ana Catarina Miranda

The origins of a young animal might have a significant impact on its behavior later on in life. Researchers at the Max Planck Institute for Ornithology in Radolfzell, Germany, have been able to demonstrate in hand-reared blackbirds that urban-born individuals are less curious and

more cautious about new objects than their country counterparts. This study sheds light on an interesting debate on whether personality differences between rural and urban birds are behavioral adjustments to urban environments, or if there is an underlying evolutionary basis to the existence of different personalities in urban habitats.

It's something pet owners have always known: animals have personalities too. More than 100 species have so far been identified by scientists where individuals consistently follow distinct [behavioral strategies](#) and behave in similar ways in a variety of situations. Scientists believe that such differences may also be important in adapting to new habitats.

Urbanization has considerably changed the living conditions of many [wild animals](#). Animals living in urban areas need to cope with new anthropogenically-altered living conditions. A textbook example is the European blackbird (*Turdus merula*). Historically a forest-dweller, the blackbird is now one of the most common [bird species](#) found in our cities. In these new habitats, the blackbird has changed its behavior in many ways: urban [blackbirds](#) migrate less in the winter, breed earlier, and live in higher densities than their forest conspecifics.

Cities might be also responsible for fundamental changes in the behavior of wild animals across the globe. A team from the [Max Planck](#) Institute for Ornithology in Radolfzell analyzed existing studies on differences between urban and rural populations of various species. In 27 out of 29 studies, animals in the city responded differently to new stimuli than animals in the countryside. "This seems to be a [global phenomenon](#)," comments Ana Catarina Miranda, the lead author in the study.



This image shows the hand-rearing of urban and rural blackbird nestlings. Credit: MPI for Ornithology/Jesko Partecke

Moreover, the Radolfzell scientists tested whether or not these behavioral differences also reflect different personality types and if so, whether this is a result of evolutionary changes or individual flexibility. To this end, the scientists collected nestlings from an urban and a rural environment, hand-reared them and kept them individually under identical conditions. When these blackbirds matured into adults, the researchers repeatedly presented individuals with unfamiliar objects over a period of several months.

Compared with birds from the forest, the birds from the city waited much longer before they approached a new object. Not only did urban blackbirds react more cautiously towards new objects, they also tended

to avoid unfamiliar objects. Since all the birds were collected as nestlings, hand-reared, and kept under identical conditions during the entire experiment, the differences in behavioral responses between urban and rural blackbirds seem to be intrinsic and not a result of experiencing the original urban or rural environments. A recently published study supports these findings: Genes which are believed to be involved in shaping personality traits exhibit a different structure in urban blackbirds than in their rural counterparts.

This work is an important step to understand how animals cope with our urbanizing world. Different reasons might be behind differences in personality types between urban and rural animals, and this is a question to be further explored. "Animals in fast-paced [urban environments](#) face numerous and potentially dangerous new situations, and this might select for specific reactions towards novelty," suggests Miranda. "Evolution appears to have favored certain personality types."

More information: Miranda, AC, Schielzeth H, Sonntag T, Partecke J (2013) Urbanization and its effects on personality traits: a result of microevolution or phenotypic plasticity? *Global Change Biology*, June 19, 2013, [doi: 10.1111/gcb.12258](https://doi.org/10.1111/gcb.12258)

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Mueller JC, Partecke J, Hatchwell BJ, Gaston KJ, Evans KL (2013) Candidate gene polymorphisms for behavioural adaptations during urbanization in blackbirds. *Molecular Ecology*, online in advance of print. [doi: 10.1111/mec.12288](https://doi.org/10.1111/mec.12288)

Provided by Max Planck Society

Citation: City-life changes blackbird personalities, study shows (2013, June 18) retrieved 25

April 2024 from <https://phys.org/news/2013-06-city-life-blackbird-personalities.html>

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