

# City birds better than rural species in coping with human disruption

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A white stork peers out from a nest atop a street light standard in the small city of Faro in southern Portugal. Credit: John Wingfield

Birds that hang out in large urban areas seem to have a marked advantage over their rural cousins – they are adaptable enough to survive in a much larger range of conditions.

In fact, new research from the University of Washington suggests that the adaptability of many urban bird species means they don't just survive but actually thrive in what might be considered to be a very challenging environment.

"The urban habitat is usually more severe than the habitats these birds historically occupied. Urban habitats aren't easy, so the birds have to have developed coping mechanisms," said John Wingfield, a UW biology professor involved in the research.

The study was led by Frances Bonier, a postdoctoral researcher in biology at Virginia Polytechnic Institute, who did the work as a UW doctoral student before moving to Virginia Tech. Co-author Paul Martin, now an assistant professor of biology at Queens University in Kingston, Ontario, also took part in the research as a UW doctoral student.

Ornithologists, biologists and birdwatchers around the world were sent questionnaires that asked them to list 10 common native breeding birds found in their cities. The responses produced data on 217 urban bird species from 73 of the world's largest cities and 247 rural species. To be considered "rural," a species could not be described as breeding in human-disturbed habitats such as towns and cities, and its natural breeding distribution must overlap at least one of the large cities, implying that at one time the species occupied the area where the city is now.

Some birds on the urban list – starlings, parrots, crows, sparrows, pigeons and doves – would be expected to be found in cities, Bonier said. However the researchers only looked at species native to a particular area, so starlings and sparrows native to Europe but found in North American cities, for example, did not count. Less-common species found in cities included the black-tailed trainbearer, a tiny hummingbird in Quito, Ecuador; the green bee-eater found in Giza, Egypt; and a small bird called the broad-billed tody that lives in Santo Domingo, Dominican Republic, and is part of a group of birds found only in the Caribbean.

The researchers learned that urban birds worldwide can endure a far

broader range of environments than rural species. Urban species had elevation ranges more than 1,600 feet broader and their distribution covered about 10 degrees more of latitude, or about 700 miles.

"This sounds very intuitive, but there's never been any research confirming urban birds' adaptability," Wingfield said. "Fran's idea to send out the questionnaires provided the information that we lacked. This now gives us a hypothesis to work from for further research."

The work, supported in part by the National Science Foundation, is detailed in a paper that has been published online and will appear later this year in the print edition of the Royal Society journal *Biology Letters*. The Royal Society is the United Kingdom's national science academy.

While it is not exactly clear what allows some species to flourish in urban settings, the research supports previous findings that suggested the most specialized birds will have the hardest time adapting in an ever-changing world.

"In the face of global climate change and human disturbances, such as increased urbanization and deforestation, we may be able to identify species that can cope with such changes," Wingfield said. "Then we may be able to identify the species that cannot cope with these changes, or might even go extinct in the face of increased disruption."

The information could be used to fine-tune conservation efforts to save those challenged species, he said.

"Land managers can use the information to determine where trails should go, how many people should be on those trails and similar issues," he said.

Source: University of Washington

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