

Urbanization favors sedentary males

May 1 2007

Urbanization changes landscapes and local environments, which can alter the life histories and traits of the creatures living in and around these areas. Studying European blackbirds (*Turdus merula*), Jesko Partecke and Eberhard Gwinner (Max Planck Institute for Ornithology) discovered certain adaptive traits, that in the long run, could lead to more offspring. The study, "Increased sedentariness in European Blackbirds following urbanization: a consequence of local adaptation?," appears in the April issue of *Ecology*.

Earlier field studies revealed a greater tendency for birds to over-winter in urban populations of migratory species such as the European Blackbird and the European Robin, especially when compared with populations of the same species living in nearby forest and rural habitats.

"The decision to migrate is probably influenced by both genetics and environment," say the authors in the study. "In this study, we wanted to determine if changing migratory habits were due to changes in genetic composition in urban populations, or were environmental-induced."

To test the effects of environment and genetics on migration habits, the scientists set up an experiment where they raised birds from both the city and forest environments. They monitored their movements at night and during the day and measured body fat, an indicator that the bird is preparing for migration. The researchers also looked at sexual maturity, to see if migratory disposition had an impact on the seasonal timing of reproduction.

Partecke and Gwinner found that the birds exhibited migratory traits - fat buildup and more nocturnal activity, during periods in the spring and fall. While they found little difference between forest and urban females, urban males were less likely to show a desire to migrate (migratory disposition). Furthermore, those individuals with a lower migratory disposition were more likely to develop gonads earlier in the season than their forest counterparts with higher migratory propensity.

"We suggest the migratory drives for urban and forest blackbirds are genetically driven and consider it likely that they are the result of microevolutionary changes following urbanization," say the researchers.

So why the males and not the females? The authors suggest that selection in urban habitats operates differently on the migratory habits of male and female European blackbirds. In partially migratory species, sedentary individuals are not only able to establish territories and to begin pair formation earlier than migratory birds, but also may have a longer reproductive season. The earlier onset of favorable conditions for breeding in urban areas should, thus, favor selection for sedentariness. The advantage of both sedentariness and earlier onset of territory establishment in terms of reproductive success for males seems to outweigh that of the females.

Source: Ecological Society of America

Citation: Urbanization favors sedentary males (2007, May 1) retrieved 25 April 2024 from <https://phys.org/news/2007-05-urbanization-favors-sedentary-males.html>

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