

There are 50 billion wild birds on Earth – but four species dominate

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European starlings (*Sturnus vulgaris*) are one of the world's most common birds
Arndt Sven-Erik/Arterra Picture Library/Alamy

Earth is home to around 50 billion wild birds according to a new global estimate, but most species are very rare and only a handful number in the billions.

Just four undomesticated species are in the club of those with a billion-plus individuals, with house sparrows (*Passer domesticus*) the most abundant, followed by European starlings (*Sturnus vulgaris*), ring-billed gulls (*Larus delawarensis*) and barn swallows (*Hirundo rustica*). By contrast, 1180 species number fewer than 5000 birds each.

“One of the takeaways is mother nature just loves rare species. It’s what some refer to as hyper dominance, which has been found in Amazonia tree flora and other plant groups. It’s not terribly surprising, but it’s good to have the data,” says Corey Callaghan at the University of New South Wales, Australia, who led the research.

The estimate of around six wild birds for every human on the planet is the first since researchers arrived at a global figure of 200 to 400 billion undomesticated birds 24 years ago. The big gap between the studies isn't due to a dramatic decline in bird numbers, but is explained by a more sophisticated method that used data for more species.

Callaghan and his colleagues took citizen science data on bird sightings from the online database eBird to build a model that estimated global numbers for species. To ensure it was working well, they cross-checked the results for 724 species with other rigorous data sources on well-studied birds. The model was then extrapolated out to 9700 species, arriving at a median of 50 billion wild birds globally.

The citizen science sightings underpinning the research are both its strength and weakness, says Richard Gregory at UK charity the Royal Society for the Protection of Birds. eBird has far less data on birds in the tropics than in temperate regions, he says.

For instance, the red-billed quelea is sometimes regarded as the most numerous undomesticated bird on the planet, but in the new analysis its population is estimated at just 95 million.

Another example is that the model initially predicted a best estimate of about 500 living ivory-billed woodpeckers, even though this species is thought to be extinct. That quirk was caused by two erroneous sightings of the species in the database when it was downloaded, which were later removed by reviewers. Nonetheless, Callaghan says such granular differences for individual species don't change the overall estimate.

Callaghan says we could improve bird conservation with further research on why some species are rare, whether it is just because they have evolved to occupy a single island or because of human activities such as deforestation.