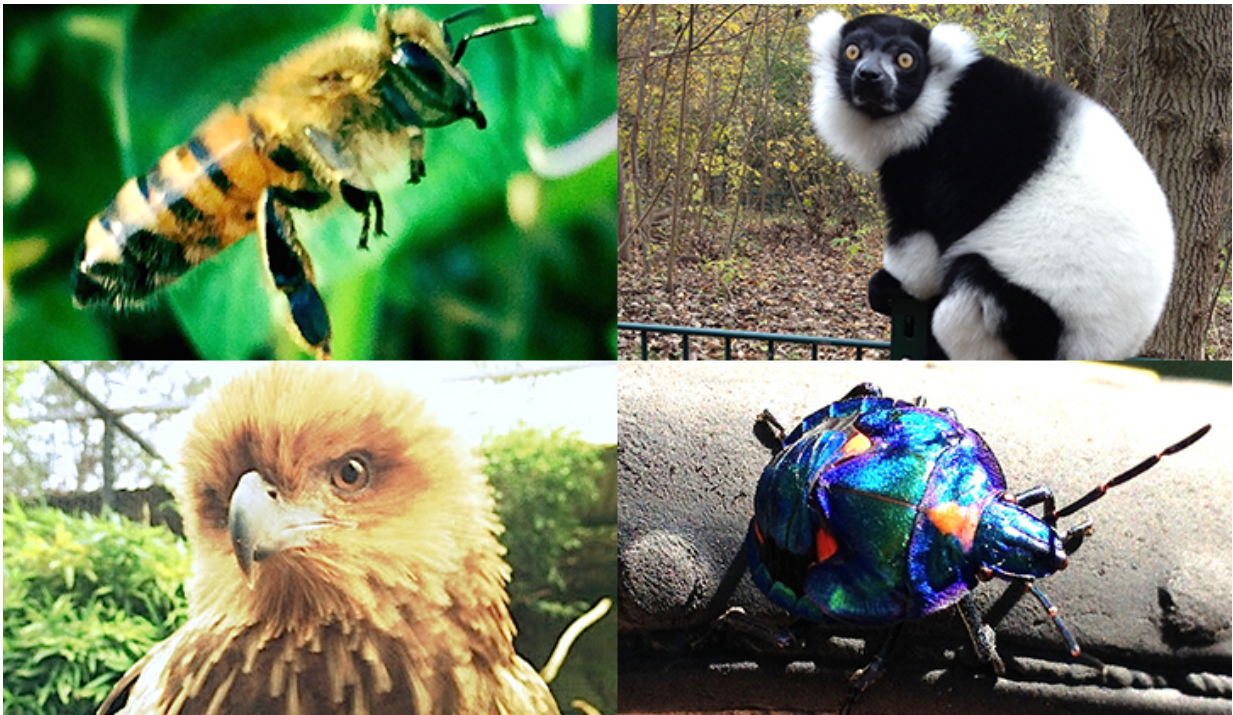


# 'Common' animal species are not that common and rare species are rare

September 28 2015

---



Credit: Dr John Alroy

New research by Dr John Alroy in the Department of Biological Sciences suggests that current models describing the commonality and dominance of a few species in any one community are incorrect, and that there is actually a limit to the number of species thought of as 'rare'.

The research, published in *Science Advances*, is based on study of more than 1000 lists of species representing different [ecological communities](#) from around the world, from bats to trees to butterflies. It is the first study of its kind to include a global, diverse data set.

"The idea that communities of species are open to all newcomers goes back to theoretical work in the 1960s that argued in favour of certain mathematical models of communities. These models try to predict how many individuals belong to the most [common species](#), and then to the second-most common one, and so on in any particular community," said Dr Alroy.

Previous models assumed either that species compete for just a single resource or that competition is not strong. Dr Alroy explained the data with a new model that assumes species compete strongly for two resources, such as light and nutrients or physical space and water.

"Common species in these ecological communities are simply not that common. It's almost never true that, for example, half of the individuals in any one place belong to a single species. Instead, there's often no significant difference between the abundance of the [dominant species](#) and the abundance of the next few species down the line," said Dr Alroy.

"For example, if you look at a group of frogs in a pond, there will generally be only a few species. Other species of frogs may try to join the community, but will be kept out by competition for resources. That's why common species and rare species are both not seen very often."

"In general, I found that there aren't nearly as many rare species as most ecologists would lead you to believe. In most places, there is actually a fairly equal distribution of abundances. If this is true, then the [species](#) richness of ecological communities and of the entire globe could be quite strongly limited," said Dr Alroy.

**More information:** "The shape of terrestrial abundance distributions."  
*Science Advances* 25 Sep 2015: [DOI: 10.1126/sciadv.1500082](https://doi.org/10.1126/sciadv.1500082)

Provided by Macquarie University

Citation: 'Common' animal species are not that common and rare species are rare (2015, September 28) retrieved 20 June 2024 from <https://phys.org/news/2015-09-common-animal-species-rare.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.