

Species on the move

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The European bee-eater (*Merops apiaster*) is one of the species moving with climate change, traditionally breeding in Africa, southern and central Europe and East Asia -- they have reportedly bred in Nottinghamshire. Credit: (c) Elgollimoh license numbers: CC BY-SA 3.0

A total of 55 animal species in the UK have been displaced from their natural ranges or enabled to arrive for the first time on UK shores because of climate change over the last 10 years (2008-2018) - as revealed in a new study published today (18 July 2019) by scientists at international conservation charity ZSL (Zoological Society of London).

Making use of a previously overlooked source of data, the team turned to social media to search for rare species sightings. The researchers conducted searches both on Twitter and Google, attributing 10 out of the 55 species identified to people posting images online of the animals in unusual places.

The study led by Dr. Nathalie Pettorelli of ZSL's Institute of Zoology, published in the *Journal of Applied Ecology*, explains that, due to regular sightings from environmentalists, UK wildlife is one of the most intensively monitored in the world, but there is very little centralised tracking of species arriving for the first time in the country or moving to places outside of their known UK range, due to [climate change](#).

The analysis also considered UK Government environment reports as well as 111 scientific papers, leading to a total of 55 species (out of 39,029 species in the UK) being identified. The research focused solely on species which had established sustainable populations through natural, rather than human-assisted movement.

Little evidence for any one group of animals showing resilience to the pressures of climate change were seen, with invertebrates, mammals and birds all seemingly impacted by rising temperatures. Of the 55 species identified, 64% were invertebrates, and only one formally classified as an [invasive species](#)—the leathery sea squirt (*Styela clava*).

Species such as the black bee fly (*Anthrax anthrax*) arrived in the UK for the first time in 2016 and was reportedly found using a garden bug-hotel in Cambridgeshire. The Jersey tiger moth (*Euplagia quadripunctaria*) previously only seen around Jersey and the south coast of England, is now regularly sighted in London.

Bird species moving with climate change include the purple heron (*Ardea purpurea*) and tropical-looking European bee-eater (*Merops*

apiaster) - identified by keen birdwatchers—which have been nesting in Kent and Nottinghamshire, quite a stretch from their natural breeding grounds in Africa, central and southern Europe and East Asia.

Seeking to understand the impact of these species', the study found that 24% of new species arriving or displaced were cited as having negative impacts on ecological communities and [human society](#). Damage to crops, biofouling, human disease spread and increased pressure on planning permissions were all regarded as negative impacts. Some positive impact was recorded, with a boost in tourism after sightings of a Eurasian nuthatch (*Sitta europaea*) in Scotland were reported in 2010 and 2018.

Dr. Nathalie Pettorelli, lead author and Senior Research Fellow at ZSL's Institute of Zoology said: "We are currently massively unprepared for the climate-driven movement of species that is happening right now in the UK. As it stands, society is not ready for the redistribution of species, as current policies and agreements are not designed for these novel species and ecological communities—particularly if those species have no perceived value to society.

"Our results suggest that many species are on the move in the UK, and that we can expect a lot of changes in the type of nature we will have around us in the coming years. But the lack of an integrated national platform dedicated to tracking and communicating about [species](#) displaced by climate change is currently a hindrance to mitigating those potential ecological, economic and societal associated impacts."

More information: Nathalie Pettorelli et al, Anticipating arrival: Tackling the national challenges associated with the redistribution of biodiversity driven by climate change, *Journal of Applied Ecology* (2019). [DOI: 10.1111/1365-2664.13465](https://doi.org/10.1111/1365-2664.13465)

Provided by Zoological Society of London

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