UK's cuckoos unable to adjust migrations to keep up with climate change

June 22 2023, by James Ashworth

Credit: AI-generated image (disclaimer)

Cuckoos are having difficulty adjusting their internal clocks to the changing pace of the world.

As the world gets warmer due to climate change, the timings of once regular events are starting to shift. Icy periods are growing shorter as

temperatures rise, while the heat of summer is lasting increasingly longer.

As a result, animals and plants are struggling to keep up. While many species can shift the timing of key life events to try and adapt, others aren't so fortunate.

A new study reveals that cuckoos face the choice of setting off on their annual migration across the desert perilously early, or risking their hosts having already bred by the time they arrive.

Dr. Chris Hewson, a senior research ecologist at the British Trust for Ornithology (BTO) who co-authored the study, writes, "There is a trade-off between survival and the benefits of early arrival, perhaps due to birds migrating with less on-board fuel than they otherwise would."

"Such risks may become more necessary as birds try to keep up with climate change on the breeding grounds."

The findings of the research were published in the journal *Proceedings of the Royal Society B*.

Cuckoos in the UK

Cuckoos are what is known as a brood parasite, which means that they rely on other species to raise their young. While there are a number of different animals which do this, cuckoos are one of the best known.

Female cuckoos are divided up into different groups, or gens, based on the species that their eggs mimic. They lay their eggs in the nest of a host and then leave the unsuspecting birds to raise their offspring.

Over the past 50 years, however, cuckoo populations have gone into

decline across Europe. While populations have dropped by about a quarter on the continent, there are up to 76% less cuckoos in the UK.

While a variety of different causes, including habitat destruction, intensive agriculture and hunting, have all been linked with the birds' decline, they're difficult to separate out. It's likely that all these issues are playing a role, with a number of cuckoo studies trying to reveal their contribution to overall population losses.

The BTO has been tracking cuckoos for around 10 years to better understand how their migration affects the bird's chances of survival. The birds spend their winters in and around the Congo rainforest, before migrating across the Sahara Desert and into Europe during spring.

Before crossing the Sahara, the birds first stop over in West Africa in a region known as the Intertropical Convergence Zone where winds from the northern and southern hemisphere converge. The arrival of rains in the spring causes caterpillars and other invertebrates to flourish, providing ample food for the birds to build up their strength for the rest of the migration.

But as global temperatures continue to rise, the cuckoos' host birds in the U.K. are breeding increasingly early, meaning that cuckoos need to arrive earlier to have the best chance of breeding success. This is pushing them to leave the stopover in West Africa earlier, which means that they are unable to put on as much weight before the Sahara crossing.

Timing is everything

Using tracking data from 87 different cuckoos, the researchers found that the time of departure from the stopover site was the most important factor in determining when a bird would reach their breeding grounds in the U.K.

Birds which left the stopover site earlier were more likely to arrive first in Britain, allowing them to establish in the best breeding territories and lay eggs in the nests of their hosts. However, they were also more likely to die, probably because they hadn't eaten enough to survive the journey.

This might explain some of the difference in population decline between the U.K. and continental Europe, as birds heading to the latter would be better able to survive on less food as they don't have as far to fly.

Cuckoos which left later, meanwhile, were more likely to make it back to the U.K., but this pushed their breeding back. Previous research has suggested that some cuckoos are compensating by increasingly targeting late-breeding species such as the reed warbler in England.

This too, however, presents its own challenges. Birds that left the U.K. later in the autumn to head back to Africa were also more likely to die as there is less food and suitable habitat available for them prior to departure.

While the study paints a bleak picture for the cuckoos, it highlights some opportunities to better support migrating birds. Restoring the habitat of known stopover and breeding sites in Europe and Africa will help to ensure there's more food for cuckoos, giving them a better chance of survival.

The team also hope to conduct more research into why Scottish cuckoos are faring better, with populations having increased by a third in the past 20 years. As these birds take a different migration route to their English relatives, it's likely this journey is less hazardous despite being longer.

Ultimately, finding out more about migrating cuckoos in general is vital to ensure their survival. The BTO has recently attached trackers to 10 more birds to build up a better picture of their journey, including

individuals from Ireland.

"It's especially exciting to see birds from Ireland tagged for the first time," Chris says. "We're looking forward to learning about the migrations of these cuckoos from the western extremity of the species' breeding range."

"These birds will help us to better understand the pressures they face, the reasons for the population declines they are undergoing and how we can help them to successfully complete their arduous migrations in the rapidly changing world we share."

More information: Jacob G. Davies et al, Spring arrival of the common cuckoo at breeding grounds is strongly determined by environmental conditions in tropical Africa, *Proceedings of the Royal Society B: Biological Sciences* (2023). DOI: 10.1098/rspb.2023.0580

This story is republished courtesy of Natural History Museum. Read the original story here.

Provided by Natural History Museum

Citation: UK's cuckoos unable to adjust migrations to keep up with climate change (2023, June 22) retrieved 21 May 2024 from https://phys.org/news/2023-06-uk-cuckoos-unable-adjust-migrations.html