Think more broadly to predict wildlife climate change survival, scientists say

16 February 2016

Peacock butterfly. Credit: Shutterstock.

Scientists studying whether wildlife can adapt to climate change should focus on characteristics such as what they eat, how fast they breed and how well they survive in different habitats rather than simply on how far they can move, a conservation biologist at the University of Exeter says.

In a paper published this week in the journal *Trends in Ecology and Evolution*, Dr Regan Early, a lecturer in Conservation Biology at the University of Exeter, and colleagues from Portugal, Canada and Sweden, say scientists are largely ignoring the species characteristics that could tell them the most when it comes to calculating the probability of how well species will be able to survive environmental change.

One of the main ways wildlife will survive climate change is to move to new areas when climate conditions become intolerable for them. Scientists studying which species will be able to colonise new areas commonly focus on how well an individual can move long distances. In an opinion piece in the journal, Dr Early and her colleagues suggest an innovative framework, based on existing evidence, that provides guidelines on other characteristics that might point more accurately to which species are likely to survive.

"There are hundreds of species characteristics that could be used, and little thought has been given as to which characteristics could tell us the most. What's surprising is that there are some characteristics that scientists usually ignore, but which turn out to be really important. For example how quickly plants and animals can reproduce, how well species are able to compete with other species for resources, and what kinds of food species can eat or habitat they can live in," said Dr Early.

"This is the first time that scientists have stood back and looked at all the evidence that we can use to predict responses to environmental change. The scientific world has to think more broadly, rather than just relying on a basic metric to estimate displacement. Once they do, we expect that they will find some rather different results."

These findings emerge from collaboration between researchers across Europe working to forecast how European wildlife will respond to climate change, as part of the BiodivERsA network. Alongside the University of Exeter, co-authors were from the Universidade de Évora, Portugal, the Estación Biológica de Doñana in Sevilla, Spain, McGill University, Montréal, Canada, and Lund University, Sweden.

Usefulness of Species Traits in Predicting Range Shifts by Alba Estrada, Ignacio Morales-Castilla, Paul Caplat, Regan Early is published in *Trends in Ecology and Evolution*.

More information: Alba Estrada et al. Usefulness of Species Traits in Predicting Range Shifts, *Trends in Ecology & Evolution* (2016). DOI: 10.1016/j.tree.2015.12.014

Provided by University of Exeter