Butterflies' evolutionary responses to warmer temperatures may compromise their ability to adapt to climate change

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Brown Argus butterfly by Vince Massimo (www.ukbutterflies.co.uk)

Members of the brown argus butterfly species that moved north in response to recent climate change have evolved a narrower diet dependent on wild Geranium plants, UK researchers report. However,

butterflies that did not move north have more diverse diets, including plants such as Rockrose that are abundant in southern parts of the UK.

So although rapid evolutionary changes have allowed the brown argus to move north and track the warming climate, they have led to a more restricted diet. This increased specialization may limit this butterfly's continued spread north, into areas where Rockrose is common.

"Our data confirm that rapid evolutionary change in a species' diet is important for responding to recent climate change, but as a consequence, variation in this ecologically-important trait may be lost," said Dr. Jon Bridle, co-author of the *Ecology Letters* study. "In addition, unlike the brown argus, many butterflies already have restricted diets, so they may be unable to rapidly evolve changes in their diets to survive ongoing climate change," said co-author Dr. James Buckley.

More information: Buckley, J., Bridle, J. R. (2014), Loss of adaptive variation during evolutionary responses to climate change. *Ecology Letters*. DOI: 10.1111/ele.12340

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