

## **Climate change and distribution shift: the case of the Long-legged Buzzard at the range boundary**

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The distribution of many organisms is shifting in latitude and elevation in response to recent climate warming. In the Strait of Gibraltar, at the shortest distance between Africa and Europe, an expansion in species' range constitutes, in the case of African species, a major step in biogeographical terms. Recently the Iberian Peninsula has been colonized by different African birds, such as the White-rumped Swift, Little Swift, Common Bulbul and Long-legged Buzzard. In the latter case, the species was first confirmed breeding in continental Europe in 2009, and the increasing number of records and recent studies based on distribution models suggest that it is finding new favorable areas to breed in southern Spain.

To determine if the Long-legged Buzzard is shifting or increasing its range in latitude, we have modelled its distribution using the favourability function, a set of environmental variables and the IOMS features of the forecasted effect of climate change of the species favourability using fuzzy logic operations.

Our results indicate that there will be fewer favorable areas for the species in Morocco, mostly confined in the Atlantic coast, regardless of the scenario we considered. Thus, the distribution area of the Long-legged Buzzard could be suffering a latitudinal movement towards the north, instead of an expansion of its northern distribution edge.