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NO POINT DENYING IT – CHANGE IS HERE

When Roman scholar Pliny the Elder wrote 'There is always something new out of Africa', he was referring to curiosities rather than change. Europe's awe of the 'dark continent's' seemingly endless biodiversity continued unabated for almost two millennia. Even today, Africa boasts the most intact biodiversity of any continent, but many regions are experiencing explosive human population growth and an increasing demand for natural resources. Superimposed on these 'developments' is the spectre of climate change, a drum to be beaten by the believers and muffled by the denialists.

The summer of 2009–10 saw an unprecedented irruption of African Openbills into the southern and western regions of South Africa. The causes of this dramatic influx remain unknown.

Anyone who has had an interest in South Africa's birds in recent decades cannot help but notice changes in the distributions of many species – the Hadeda Ibis and Common Swift being cases in point. Several species have undergone large range expansions, even colonising new climate regimes, such as the winter-rainfall area of the Western Cape. Very recently, South Africa has experienced two major bird irruptions – by Marabou Storks and African Openbills. As far as we are aware, there is no historical precedent for either of these movements.

Africa is likely to be heavily impacted by climate change, with both ecological and economic consequences. But is our shifting avifauna a response to this or to something else? The Fitztitute, in conjunction with colleagues from the South African National Biodiversity Institute and Australia's Macquarie University, recently undertook a large-scale analysis of range changes by South African birds to try and understand their causes. Models are equivocal as to how South Africa's biota will react to climate change, with some predicting southward movement (towards the pole, as has happened in Europe) and others foretelling range contraction towards higher altitudes in the east. It soon became clear that expanding range margins were far from random and were not readily predicted by climate-change models. Most species that have shifted their range limits have done so to the west or the south; almost none have moved north or east.

We expected that the 'movers' would be habitat generalists and mobile, especially nomadic or migratory (strategies that allow rapid, long-distance movement and, in the case of nomads, have a lifestyle built around adapting to changing environments). These attributes did indeed describe the species that have moved south, but not those that have headed west. The latter are habitat generalists, but are no more mobile than species that could have moved west but did not. Rather, westward movers were characterised by being associated with human-modified elements in the landscape, such as buildings, agriculture and alien woodlands. This did not fit the profile of species we predicted would respond to climate change.

In Europe, it has been argued that land-use practices are so old that they no longer contribute to changing bird distributions. In Africa the story may be different. Some species, such as Common Swifts, are almost certainly responding to climate change, but for others, such as Black Sparrowhawks, this explanation is less convincing. Both climate and land-use changes are affecting bird distributions, making the resulting conservation equation that much more complex. If local models are correct and species will eventually contract their ranges into climate refuges, we must ensure that land-use changes in those refuges do not destroy the habitats needed by birds.