

Climate change puts most-threatened African antelopes in 'double jeopardy'

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Addax from the Sahara. Less than 200 of this critically endangered antelope remain in the wild. Credit: Image courtesy of John Newby/Sahara Conservation Fund.

Researchers reporting in the Cell Press journal *Current Biology* on April 28 say that climate change will cause a disproportionate decline in

African antelopes with the smallest geographic ranges, placing the most-threatened taxa in "double jeopardy." The findings are the first to suggest that animals already living in the most-restricted areas will be hardest hit as the climate shifts in the coming decades.

"The study clearly shows that several [antelope](#) species are in need of urgent conservation action to avoid extinction," says Jakob Bro-Jørgensen of University of Liverpool in the UK.

Scientists had suspected that animals with the smallest ranges to start with might be at the greatest risk as the climate changes. That's because small ranges imply that species thrive under a very narrow range of conditions. Even small changes in climate could push those species outside of their comfort zones.

Species that are found only in very restricted areas "are usually more demanding in the combination of temperature and rainfall conditions they require, and therefore suitable areas are more likely to disappear when temperature and rainfall do not change together," Bro-Jørgensen says.

The researchers realized that African antelopes presented an ideal opportunity to study the relationship between species' range sizes and the effects of [climate change](#) because of their diversity. Also, antelopes are an increasing conservation concern, with one-third of the world's 87 species now listed as threatened.



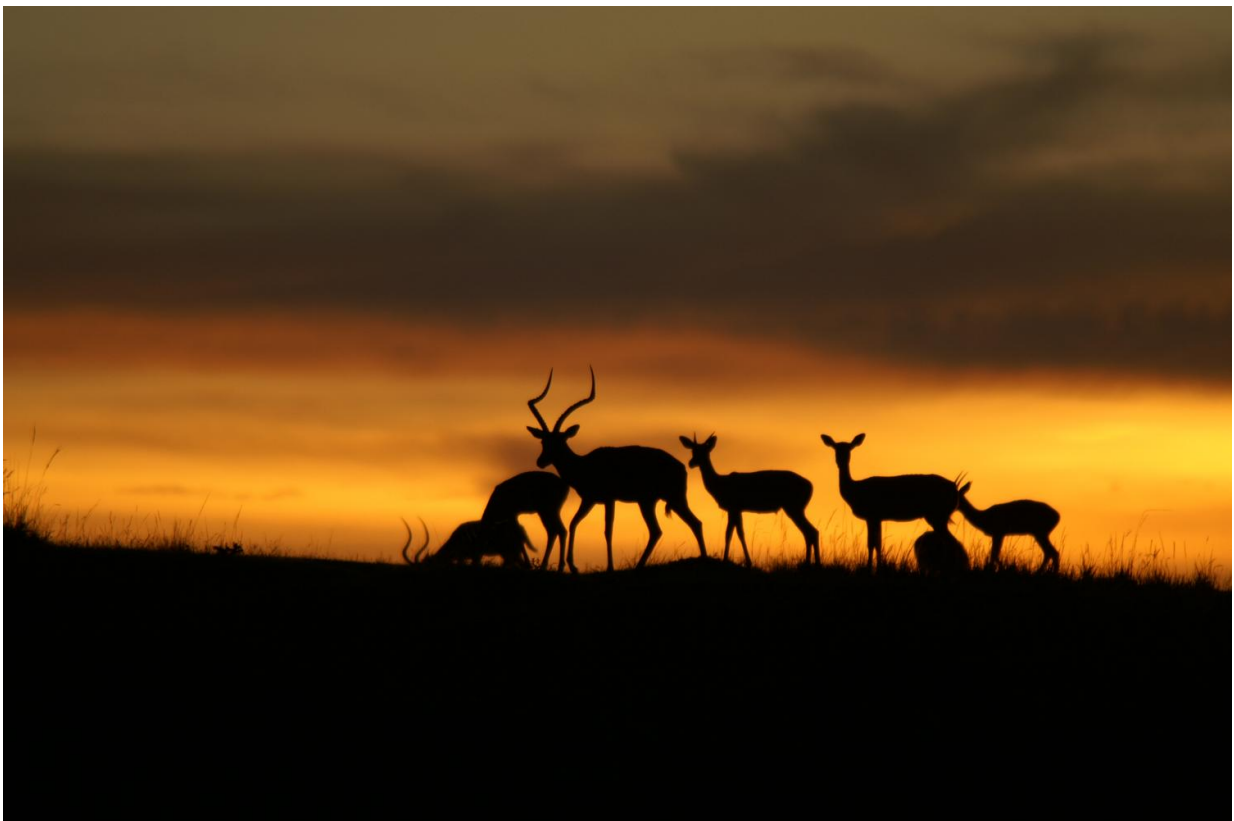
A female eland looking after a crèche of calves. A third of all antelope species are now listed as threatened on the IUCN Red List. Credit: Jakob Bro-Jørgensen.

The researchers began by modeling the current ranges of 72 African antelope species based on their known ecological requirements and current environmental conditions. They then generated forecasts of where those species might live in the future based on multiple models of climate change by the year 2080.

For 82 percent of African antelope species, the forecasts show a decline in suitable habitat by 2080 due to the effect of climate change. About one-quarter are likely to see their range size drop in half. None of Africa's antelopes are predicted to improve their threat status on the IUCN Red List as a result of changes in climate, and the threat status of

ten species is predicted to worsen as a direct result of climate change, the report shows.

According to their analysis, antelopes preferring cooler and drier climates are likely to be the hardest hit. The researchers were also shocked to discover that a species' threat status itself "was so closely linked to forecasts of drastic future range loss."



A photograph of impala. A third of all antelope species are now listed as threatened on the IUCN Red List. Credit: Jakob Bro-Jørgensen

"Our study shows that climate change is likely to hit wildlife even harder than we thought because the species already threatened stand to lose a

higher proportion of their range," Bro-Jørgensen says.

"But," he adds, "there is also some good news: if we switch to more conservation-friendly land use, the threatened [species](#) with small ranges stand to benefit the most, having the greatest potential to expand their ranges. A major priority is to target the increasing fragmentation of wilderness areas, which prevents wildlife from tracking shifts in their environment."

More information: Current Biology, Payne and Bro-Jørgensen: "Disproportionate Climate-Induced Range Loss Forecast for the Most Threatened African Antelopes" [www.cell.com/current-biology/f ... 0960-9822\(16\)30178-6](http://www.cell.com/current-biology/full/S0960-9822(16)30178-6) , DOI: [10.1016/j.cub.2016.02.067](https://doi.org/10.1016/j.cub.2016.02.067)

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