

How climate change could affect some of West Africa's iconic bird species

May 28 2019, by Benedictus Freeman



Credit: AI-generated image ([disclaimer](#))

If scientists know how particular species are responding to the realities of global climate change, they can help to recommend [better conservation strategies](#).

But information about climate change response and adaptation is either

limited or not available for many tropical bird species. This is a glaring oversight: particularly for range restricted [tropical birds](#)—that is, species with narrow ranges that occur only in a particular place or habitat. [Scientists have shown](#) that range restricted tropical birds are extremely vulnerable to [global climate change](#), owing to their specialized habitat requirements. These species include a number of West African birds which occupy the region's tropical forests.

Like most regions on the continent, future [climate change projections for West Africa](#) suggest there's a high chance of temperature increases. But they're more equivocal with rainfall: different projections indicate significant increases or decreases in future rainfall, with little consensus among models.

My colleagues and I wanted to address the gap in knowledge about what's needed to protect West African species from the effects of changes in climate.

We [looked at](#) three range restricted endemic West African bird species: the Timneh Parrot (*Pscittacus erithracus timneh*), Ballman's Malimbe (*Malimbus ballmanni*), and White-necked Rockfowl (*Picathartes gymnocephalus*). These birds are only found in West Africa and have restricted habitat requirements, making them highly susceptible to climate change.

Using [a variety](#) of [open access occurrence data](#) available for our three target species, and [27 global climate models](#), we created ecological niche models for each species to assess how climate change will affect the current and potential future geographic distributions of these already restricted range birds.

Based on our modeling we showed that the impact of climate change on two bird species—the Ballman's Malimbe and White-necked

Rockfowl—would be minimal. The data suggest these species' ranges will remain stable and closely similar to their present-day distributions.

But the story is quite different for the Timneh Parrot. Our models suggest that it faces a marked loss of range due to climate change. The model shows that by 2050 the species will be entirely limited to Liberia: its current range extends beyond Liberia into neighboring Sierra Leone, Guinea and Cote d'Ivoire.

Under pressure

Our three focus species were selected for several reasons. These were the fact that they are globally threatened—listed as either endangered or vulnerable by the [International Union for Conservation of Nature](#); the fact that they occupy restricted ranges and the fact that they are likely to be highly susceptible to habitat loss and climate change.

[Our findings](#) – that the effects of climate change on the present distributions of West African birds will be minimal in some cases—but devastating for the Timneh Parrot—are extremely worrying.

We found marked climate change-driven potential range loss across the Timneh Parrot current range in West Africa. And, worse, our models suggest that no areas will become newly suitable for its habitation. By 2050, our models suggest that the parrot will be almost entirely restricted to Liberia, representing a loss of about 75% of its range.

The Timneh Parrot already faces a number of threats, most related to human activity. Habitat loss is one big problem; the birds are also trapped and sold into the [illegal international pet trade](#). There are only between [100 000 and 500 000](#) of these birds alive today in the wild, and their numbers are falling. Any more pressure could push this species to the brink of extinction.

What needs to be done

One of the things we attempted to predict through our models was how easily each species would be able to move to and colonize new, uninhabited areas that are suitable for their needs. For this to happen, there must be suitable corridors along which the [birds](#) can travel. This is even true for the Timneh Parrot, which can disperse a little under suitable conditions.

This means that [conservation efforts](#) in the region should not only focus on protecting individual habitat fragments suitable to these species. These efforts should also prioritize creating corridors for connectivity between suitable habitats.

We recommend that regional and national species conservation action plans in West Africa should incorporate [climate](#) change adaptation strategies for individual species. This will optimize conservation of these [species](#), now and in the future, and of bird diversity in general.

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