



## First range wide assessment of the endemic Luangwa giraffe in Zambia

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### Background

Found exclusively in Zambia's Luangwa Valley, the Luangwa giraffe (*Giraffa tippelskirchi thornicrofti*) is a genetically distinct subspecies of the Masai giraffe. The Luangwa giraffe are listed as *Vulnerable* on the IUCN Red List, yet limited data on their numbers and range exist. Geographically isolated from other giraffe, they are vulnerable to anthropogenic threats such as habitat loss and fragmentation, disease and climate change that impact their survival and movement.

### Survey Results

In late 2023 the Giraffe Conservation Foundation (GCF) in collaboration with the Zambian Carnivore Programme, the Zambian Department of National Parks and Wildlife and other stakeholders, conducted the first range-wide road-based photographic survey of the Luangwa giraffe to estimate their numbers and range across the Luangwa Valley. During the survey, the team covered a distance of 3,000 km in an area of 17,000 km<sup>2</sup>.

These surveys showed that the distribution of the Luangwa giraffe has increased by 7.25%, extending their previously recognised range to the south by 120 km along both sides of the Luangwa River in South Luangwa National Park and other land uses including game reserves, game management areas (GMAs), and community forests.

Using state-of-the-art statistical modelling and pattern-recognition software ([GiraffeSpotter.org](https://www.giraffespotter.org)), a total population size of 760 Luangwa giraffe were estimated with an overall density of 0.04–0.05 individuals per km<sup>2</sup>. This number shows an 27% increase from the 2015 IUCN Red List assessment. The giraffe sex ratio was balanced, and the age structure showed a low proportion of subadults

(10–15%), likely as a result of lion predation or environmental stressors. Overall, the Luangwa giraffe population is increasing, but the findings emphasize the importance of long-term monitoring given potential threats.

The giraffe density was highest near permanent rivers and declined rapidly beyond 7.5 km away, affirming the importance of riparian habitats. Interestingly, Luangwa giraffe coexist with low-intensity human activity, as their density and movement did not decrease under moderate human presence (measured by the Human Footprint Index HFI). However, under higher human pressure (above HFI of 13.6) both their density and range of movement declined.

Our findings present the first systematic, large-scale population estimate of the Luangwa giraffe. The new data forms a solid baseline for future land-use planning, long-term monitoring, and data integration to guide conservation efforts and protect this unique and endemic subspecies in an increasingly human-modified landscape. Their increased numbers and range underscore the importance of collaborative conservation in the Luangwa Valley.

### Acknowledgement

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### Reference

Sun et al. 2025. First rangewide density estimate of the endemic and isolated Luangwa giraffe in Zambia. *Sci Rep* 15, 16435

<https://www.nature.com/articles/s41598-025-00306-w>

