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Plains Zebra: Zambezi, Namibia & Botswana

Migration Description

In one of Africa's longest-documented mammal migrations, plains zebra travel 250 km from their dry season ranges along the Chobe River in Namibia to reach areas in and around Nxai Pan National Park in northern Botswana. Zebra begin their trek at the beginning of the wet season, typically December. From the floodplains and woodlands near the Chobe River, they cross the river into Botswana and continue south for the next 10-20 days until they arrive in the Nxai Pan area, with some individuals continuing as far as Makgadikgadi Pans National Park. Although the number of animals has not been well-established, researchers estimate that 5,000 – 10,000 individuals could be involved in the migration. Zebra remain in the Nxai Pan vicinity through the wet season months, where drinking water and forage are readily available. At the end of the rainy season (April), animals begin the trek back to the Chobe River floodplains. Zebra make a less direct and somewhat longer return migration than the initial southwards movement, as they take advantage of abundant waterholes and other ephemeral water sources that were replenished in the rainy season.

Threats to Migration

The zebra migration occurs entirely within the Kavango-Zambezi Transfrontier Conservation Area (KAZA), a five-country initiative that includes Angola, Zambia, and Zimbabwe in addition to Namibia and Botswana. Therefore, this migration is afforded protections that many other long-distance migrations are not. However, it is important to note that KAZA is not a national park. Rather, it is a complex of protected areas, game reserves, hunting and tourism concessions, communal lands and private landholdings. As such, zebras migrate outside of parks and other protected areas, where threats include poaching, competition with livestock, and barrier effects from roads, fences, and agricultural lands. In the past, illegal killing has reduced the zebra population of the Chobe River in Namibia to exceedingly low numbers. The threat of illegal killing must be addressed if the migration is to persist, particularly as the migratory population is not believed to be very large. Furthermore, the construction of artificial waterholes that provide permanent, year-round drinking water has been associated with the cessation of migrations in other ungulate species in southern Africa.

Local Population Facts

Migration



Threats



Species Facts

Common name: Plains zebra

Species name: *Equus quagga*

Range: Fragmented range in eastern and southern Africa

Diet: Grasses, but can switch to woody browse

Global population: 150,000 – 250,000 (IUCN)

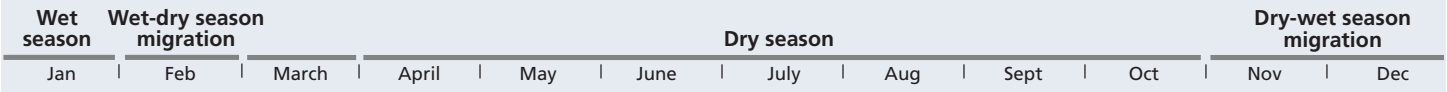
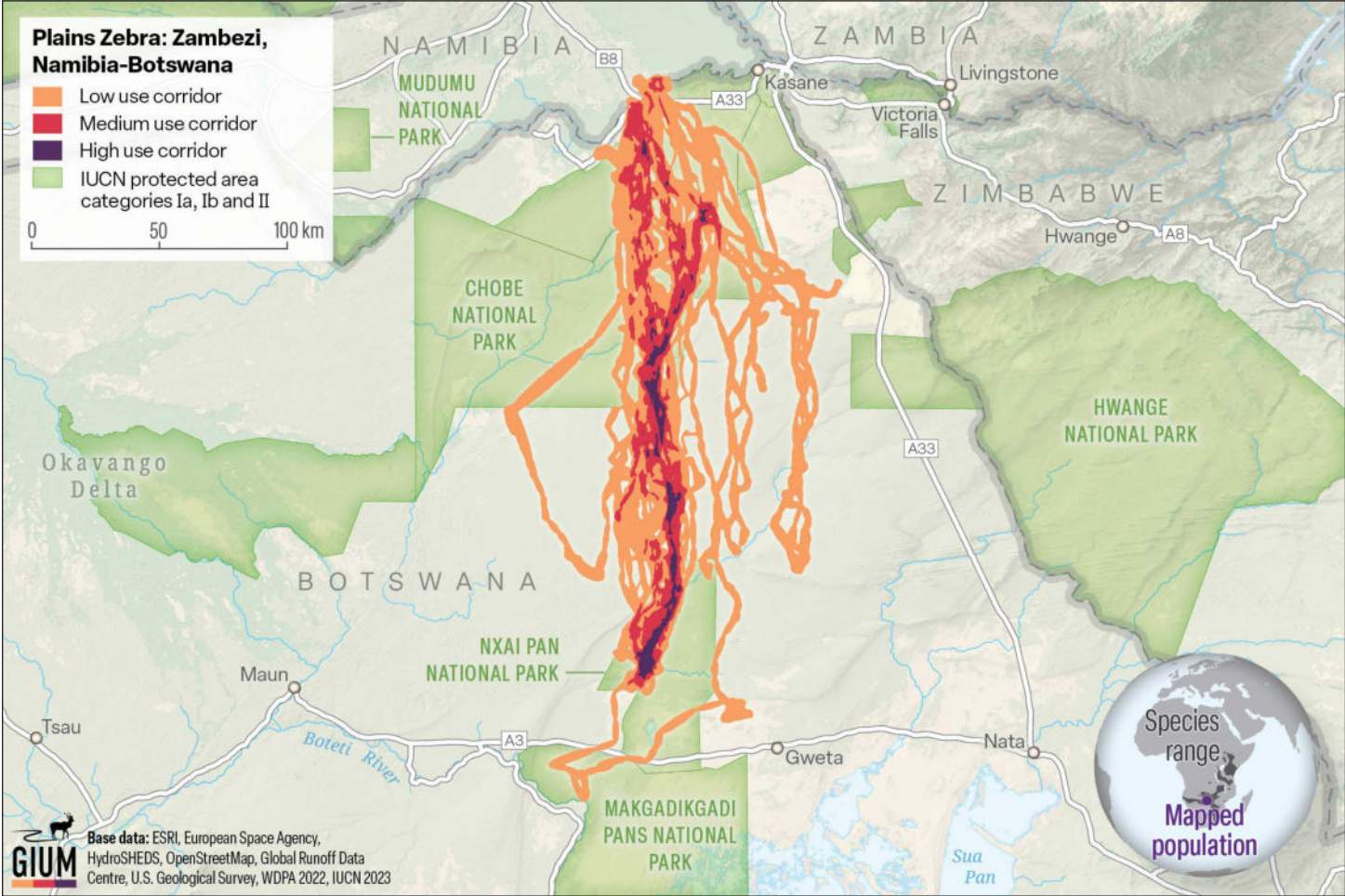
IUCN Conservation Status

NT Near threatened

CMS Status

Not listed

Plains Zebra Migration



Study Information

Sample size

17 individuals

Relocation frequency

1–6 hours

Project duration

5 years between 2012 and 2024

Data Analysis

Delineation of migration periods

Net squared displacement to delineate migration between dry and rainy season ranges

Models derived from

Brownian Bridge Movement Model

Route Summary

Migration start and end date (median)

- Dry to wet season transition: November 12–December 24
- Wet to dry season transition: February 28–March 18

Average number of days migrating

- Dry to wet season transition: 17 days
- Wet to dry season transition: 22 days

Migration route length

- Min: 65.2 km
- Mean: 158.1 km
- Max: 247.3 km

Data Providers

Data were collected in the context of long-term monitoring of zebras and other large species of wildlife in the Kavango and Zambezi regions of Namibia, led by the Ministry of Environment, Forestry and Tourism of Namibia, under the direction of Piet Beytell, and supported by the World Wildlife Fund, under the direction of Robin Naidoo.

In partnership with:



www.cms.int

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.



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The Global Initiative on Ungulate Migration (GIUM) was created in 2020 to work collaboratively to: 1) create a Global Atlas of Ungulate Migration using tracking data and expert knowledge; and 2) stimulate research on drivers, mechanisms, threats and conservation solutions common to ungulate migration worldwide.



View and Download Map Data from the GIUM Migration Atlas

Naidoo, R. and P. Beytell. 2024. Plains Zebra: Zambezi, Namibia & Botswana. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration*. Convention on the Conservation of Migratory Species of Wild Animals.