Global Initiative on Ungulate Migration

FACT SHEET

Cape Buffalo: Zambezi, Namibia & Botswana

Migration Description

The Zambezi Region is a narrow extension of northeastern Namibia measuring 280 miles long and from 20-65 miles wide. The region, which includes Bwabwata National Park, is bounded by a veterinary fence along the borders with Botswana to the south. Cape buffalo in Zambezi make some of the widest-ranging movements recorded for the species. Typically migrating in groups, they travel from the permanent water sources they depend on to survive the hot dry season (September to early November) to wet season ranges up to 100 km away in woodland and savannah habitats. During the rainy season (late November to April), buffalo move extensively to forage on new vegetation, with some animals moving north into Angola and through Bwabwata National Park, and others southeast into Botswana, traveling around the end of the border fence or through openings towards Moremi. When the rains cease and morning and night temperatures drop, vegetation dies back and ephemeral water holes dry up. In response, buffalo return to their dry season ranges to forage on remaining vegetation and congregate near permanent water sources.

Threats to Migration

Bwabwata National Park is located in the center of the Kavango-Zambezi transfrontier conservation area ("KAZA"), a mosaic of many different parks, protected areas, and communal lands. Linear barriers nonetheless may impede the park's connectivity with the greater landscape. Researchers believe that veterinary fences have confined the buffalo's migratory movements, with animals moving back and forth between the border fence with Botswana and the major road running through the strip. Yet, buffalo in this system have also made some of the longest migrations known for the species, with one female migrating over 200 km. These wide-ranging movements suggest that if connectivity was restored through removing parts of the northern Namibia/Botswana border fence, Cape buffalo could more easily undertake critical seasonal movements, which are likely to become increasingly important as species respond to climate change impacts in this region. As fences can prevent disease transmission between cattle on different sides of the borders and potentially between wildlife and livestock, fence removal should be evaluated while taking into account potential risks and benefits for the livestock and conservation sectors. Conflict with farmers poses another threat. Buffalo sometimes wander into farmlands, and are killed for crop raiding. Climate change is expected to make rainfall less predictable, cause longer dry seasons and affect vegetation availability. For Cape buffalo, well-timed rainfall and vegetation growth supports their reproductive success, providing key nutrients for lactating females. Amidst climate change, working to conserve connected landscapes will be even more important to allow them to shift their migrations.

Local Population Facts

Migration

Seasonal

Medium 32.5 km (avg.)

Threats

Climate change; Energy dev.; Urban sprawl; Linear barriers; Agriculture; Livestock; Illegal killing; Other

Species Facts

Common name: Cape buffalo, or African buffalo

Species name: *Synerus caffer caffer*

Range: southern and eastern Africa

Diet: Herbivore

Global population: ~400,000

IUCN Conservation Status

NT Near threatened

CMS Status

Not listed

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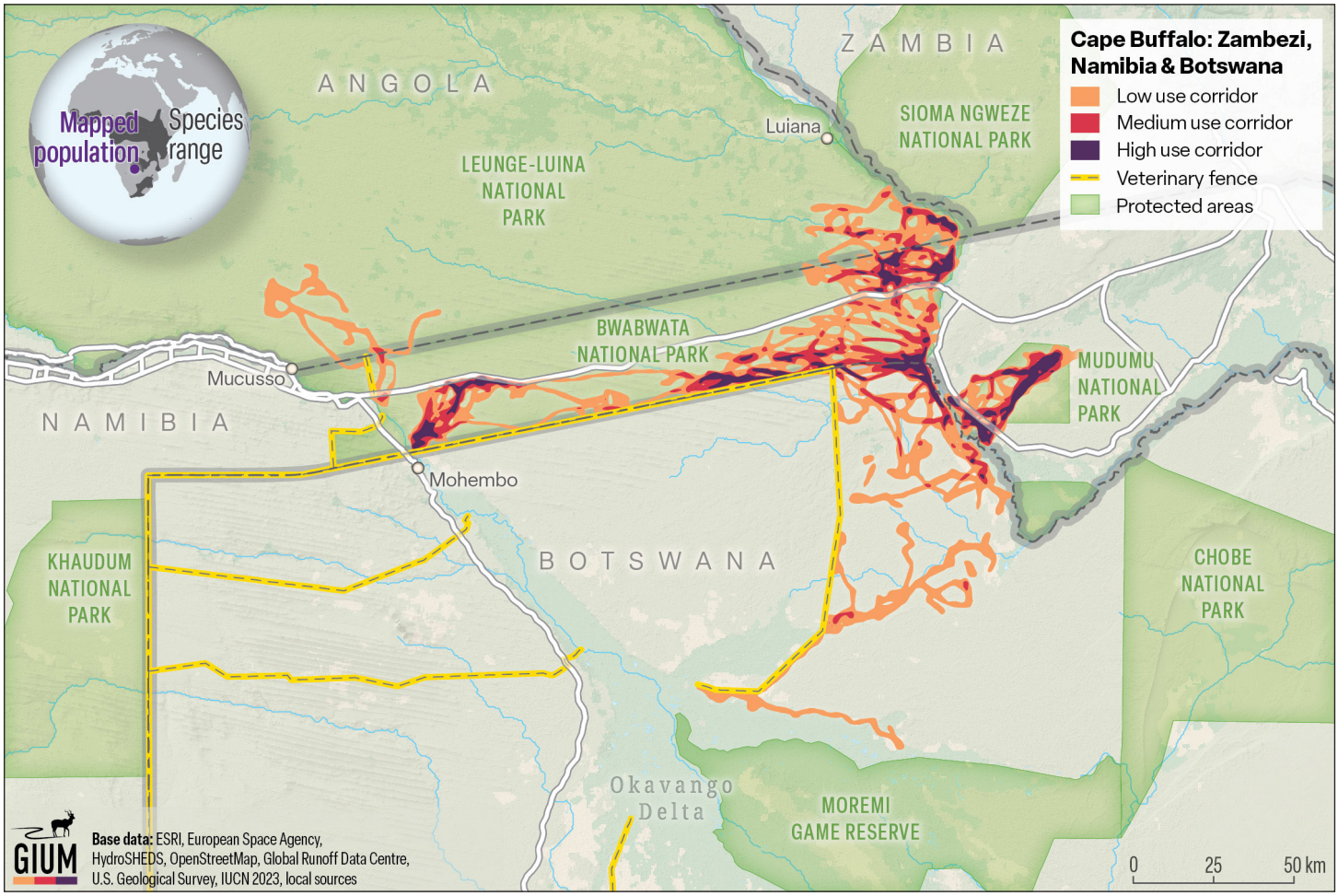
Cape Buffalo Migration



Hot wet season		Hot wet to cool dry migration		Cool dry season			Cool dry to hot dry migration		Hot dry season		Hot dry to hot wet migration	
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	

Study Information

Sample size
24 individuals

Relocation frequency
4 hours

Project duration
12 years, 2007–2020

Data Analysis

Delineation of migration periods
Net squared displacement to delineate migration between cool dry and hot dry and hot wet seasonal ranges

Models derived from
Brownian Bridge Movement Model (fixed motion variance, 2500)

Route Summary

Migration start and end date (median)

- Cool dry to hot dry: August 01–August 08
- Hot dry to hot wet: November 16–November 25
- Hot wet to cool dry: March 28–April 03

Average number of days migrating

- Cool dry to hot dry: 7 ± 6 days
- Hot dry to hot wet: 7 ± 5 days
- Hot wet to cool dry: 7 ± 3 days

Migration route length

- Min: 2.2 km km
- Mean: 32.5 ± 20.5 km
- Max: 112 km

Data Providers

Data were collected and provided by Namibia's Ministry of Environment, Forestry and Tourism, and WWF-US.

In partnership with:

CMS 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.

GIUM www.cms.int/gium

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. 2025. Cape Buffalo: Zambezi, Namibia & Botswana. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration.* Convention on the Conservation of Migratory Species of Wild Animals.