CMS GIUM

Global Initiative on Ungulate Migration

FACT SHEET

Cape Buffalo © Emily Bennitt

Cape Buffalo: Okavango, Botswana

Migration Description

Cape buffalo rely on consistent access to large amounts of water, so they time their movements to stay close to water sources. In northern Botswana, rainfall is highly seasonal, falling between November and March. The rains fill ephemeral waterholes and promote the growth of annual, productive grasses. During the rainy season, buffalo move extensively across the landscape to forage on new growth during the rainy season, including into dryland areas dominated by mopane woodland and sandveld grasses. When the rains cease, vegetation dies back and waterholes dry up, pushing buffalo to move back towards more permanent water sources in the Okavango Delta. Rainfall in Angola causes the annual flood pulse in the Okavango, which rises from May to peak in July before receding, leaving fresh green grasses in its wake. These floodplain grasses provide sustenance for buffalo during the driest time of the year, when vegetation in all other habitats is senescent. When the rainy season starts in earnest, Cape buffalo can travel to their wet season range in a matter of hours. In contrast, their return migration to the dry season range is usually slower as buffalo can still access some water and forage along the way.

Threats to Migration

Climate change is likely to make rainfall less predictable, with important implications for migratory Cape buffalo. Some studies predict a shorter rainy season punctuated by more frequent, extended dry spells. A longer dry season and less consistent rainfall are likely to reduce the growing period for productive grasses and alter the timing of migration for Cape buffalo. Females typically give birth in January – February, after they have shifted to their wet season range. Extended dry spells could influence the availability of essential nutrients in forage that sustain lactating females. The impacts of climate change on rainfall patterns, combined with planned developments upstream, are likely to affect the amount and timing of water coming into the Okavango Delta with the annual flood pulse. This has the potential to significantly reduce the extent of the floodplains that sustain buffalo and other herbivores through the hot dry season, likely leading to population crashes. The veterinary fence built in 1996 constrains Cape buffalo movements during the wet season in the southern part of their range, but no extensions of the fence or other barriers are currently planned.

Local Population Facts

Migration

Seasonal

Medium *48.6 km (avg.)*

Threats

Climate change | Energy dev. | Urban sprawl | Linear barriers

Agriculture | Livestock | Illegal killing | Other

Species Facts

Common name: Cape buffalo

Species name: *Syncerus 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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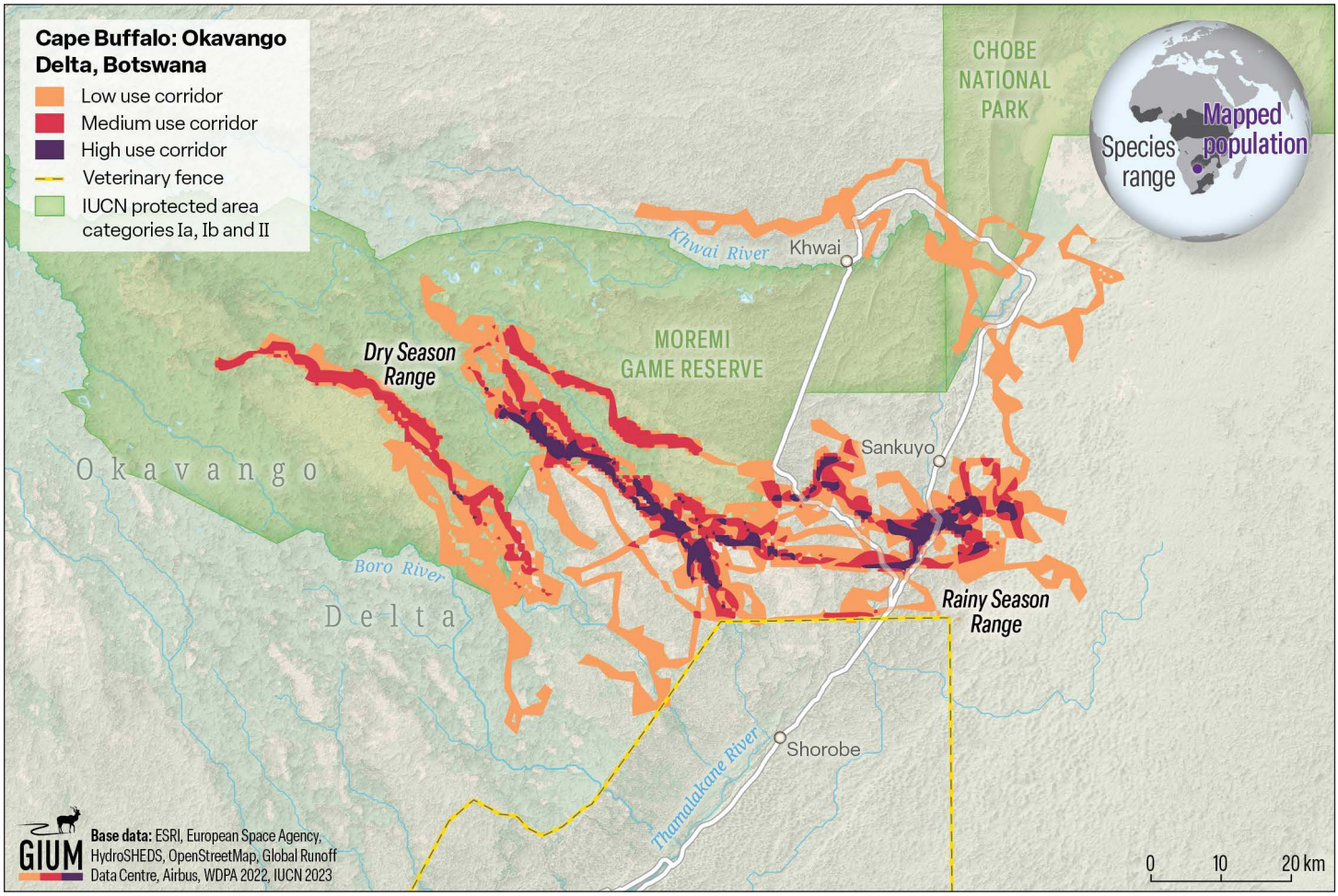
Cape Buffalo Migration



Wet season range					Wet to dry season migration		Dry season range				Dry to wet season migration		
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec		

Study Information

Sample size
15 individuals

Relocation frequency
Hourly

Project duration
3 years, 2007–2009

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 (fixed motion variance, 4000)

Route Summary

Migration start and end date (median)

- Dry to wet season transition: November 16–November 30
- Wet to dry season transition: August 7–August 20

Average number of days migrating

- Dry to wet season transition: 16 days
- Wet to dry season transition: 18.3 days

Migration route length

- Min: 9.9 km
- Mean: 48.6 km
- Max: 82.6 km

Data Providers

Data were collected under the direction of Dr. Emily Bennitt then at the University of Bristol, and are now managed through the University of Botswana and the Okavango Research Institute. Funding was provided by Rodney Fuhr and the Dulverton Trust.

In partnership with:

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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

Bennitt, E. 2024. Cape Buffalo: Okavango Delta, Botswana. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration.* Convention on the Conservation of Migratory Species of Wild Animals.