



# ACTIVITY PATTERN AND USE OF SPACE OF THE AFRICAN BUFFALO IN ZOO ANTWERPEN

September 9 2025 —→ December 2 2025

Authors Romero Martínez, Lidia

February 2026

Affiliations

1. Antwerp Zoo CRC, Royal Zoological Society of Antwerp, BE

2. Animal Behaviour and Welfare Group, Faculty of Veterinary Medicine, Universitat Autònoma de Barcelona, ES

## OBJECTIVES

1

## BACKGROUND

The **welfare of captive ungulates** has gained increasing attention in recent years.

However, zoo-specific research on African buffaloes (*Syncerus caffer*) remains **limited**, underscoring the importance of understanding how these animals interact with their enclosures and whether their behaviour reflects **good welfare**.

2

## METHODOLOGY

- Visual observations of **3 buffaloes** in 20-minute sessions from 09:00 h to 17:00 h.
- Locations registered at **1-minute intervals**.
- A total of **266,04 hours** recorded.
- Behaviours registered using the **continuous focal method**<sup>1</sup> in ZooMonitor app.

### DIURNAL ACTIVITY PATTERN

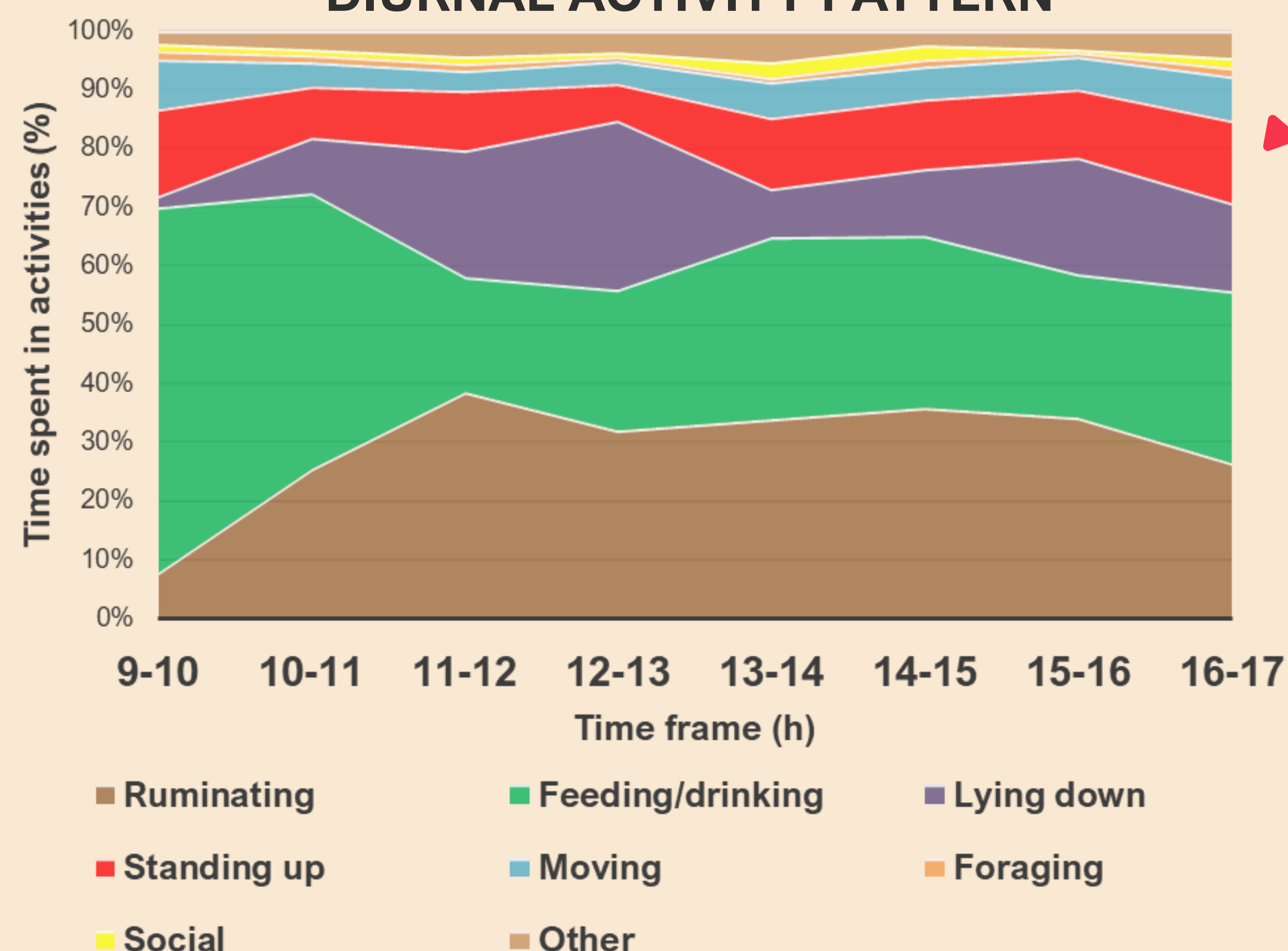


Figure 2. Diurnal activity pattern of all individuals (9.00 – 17:00 h).

### PROPORTIONAL BREAKDOWN OF SOCIAL ACTIVITIES

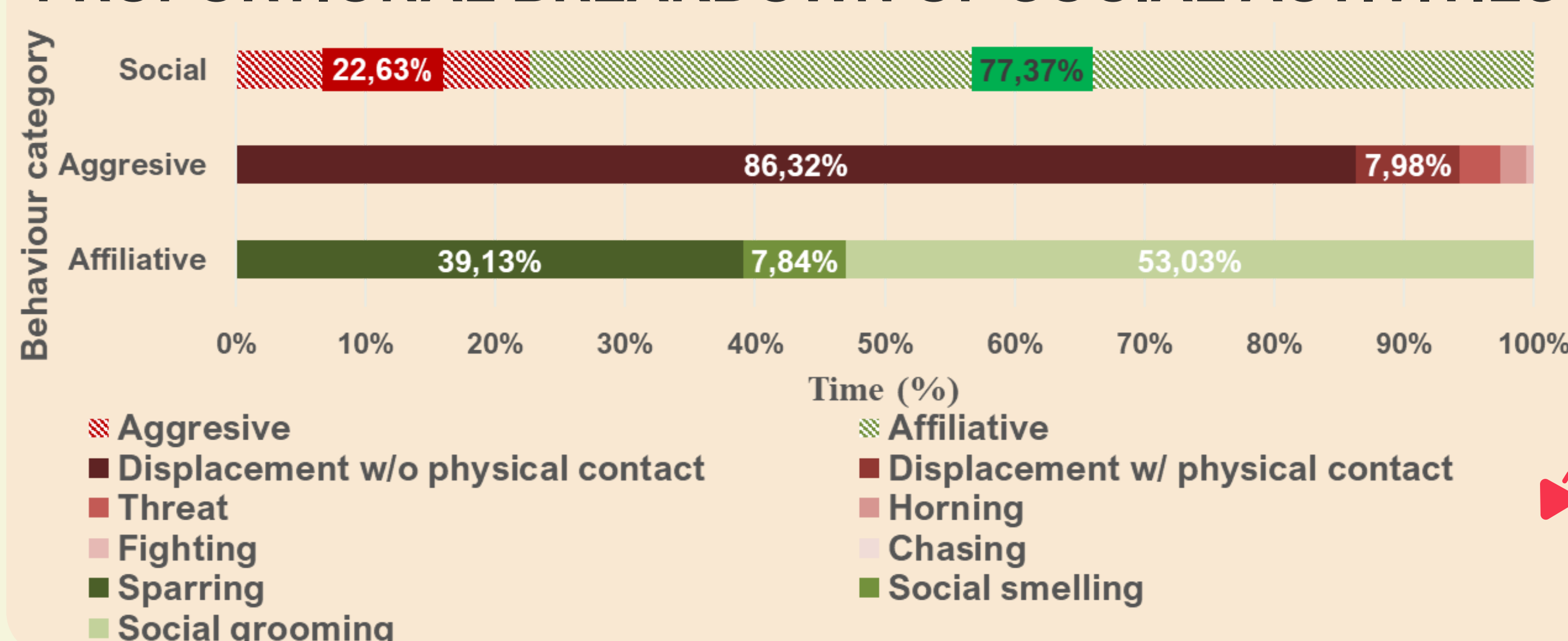


Figure 4. Proportional breakdown of social activities (affiliative and aggressive).

1

To investigate the African buffalo activity patterns in a zoo enclosure

2

To establish the space use of African buffaloes housed in a zoo environment

3

## RESULTS

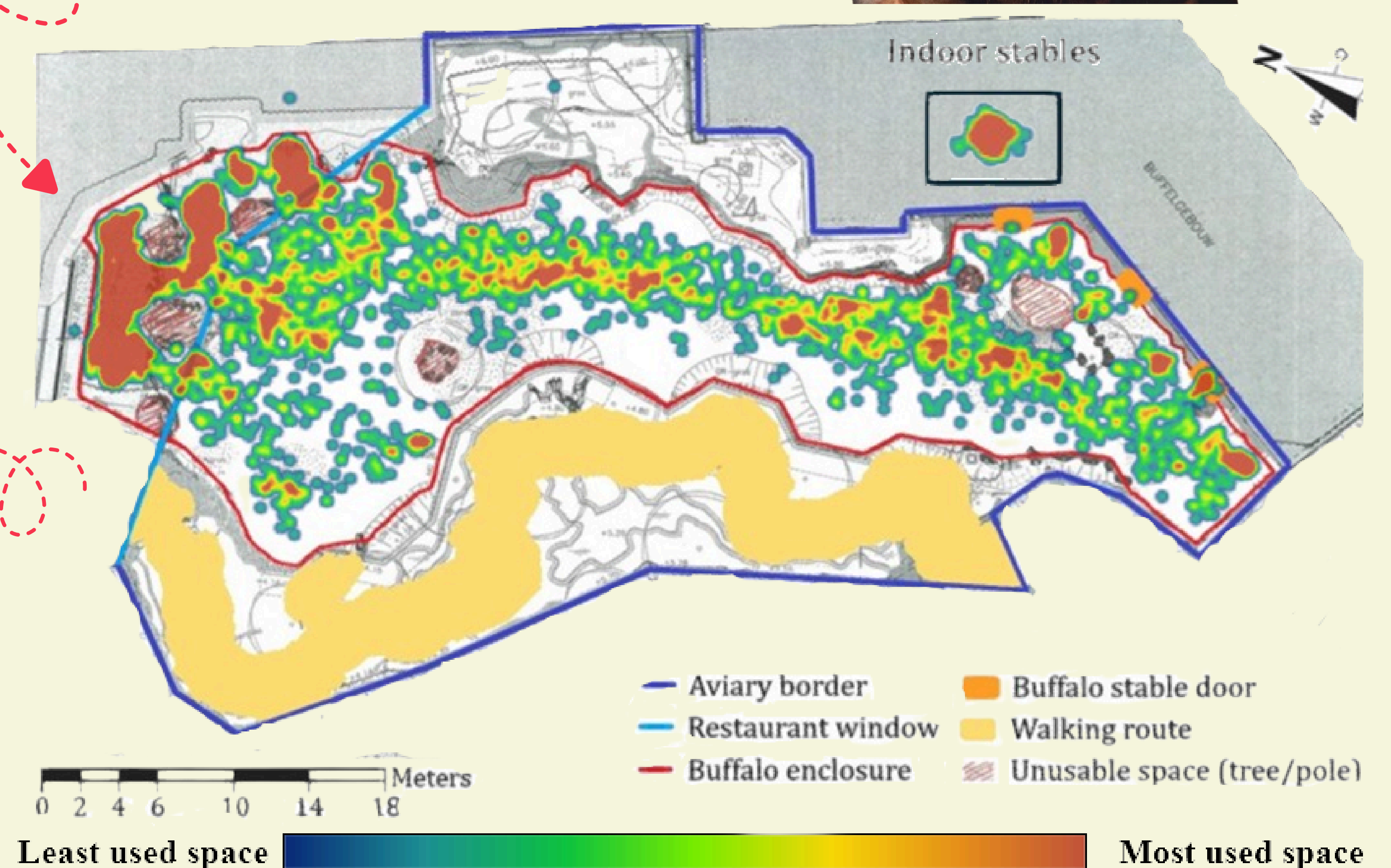


Figure 1. General heat map of the buffaloes in the enclosure.

### ACTIVITY BUDGET

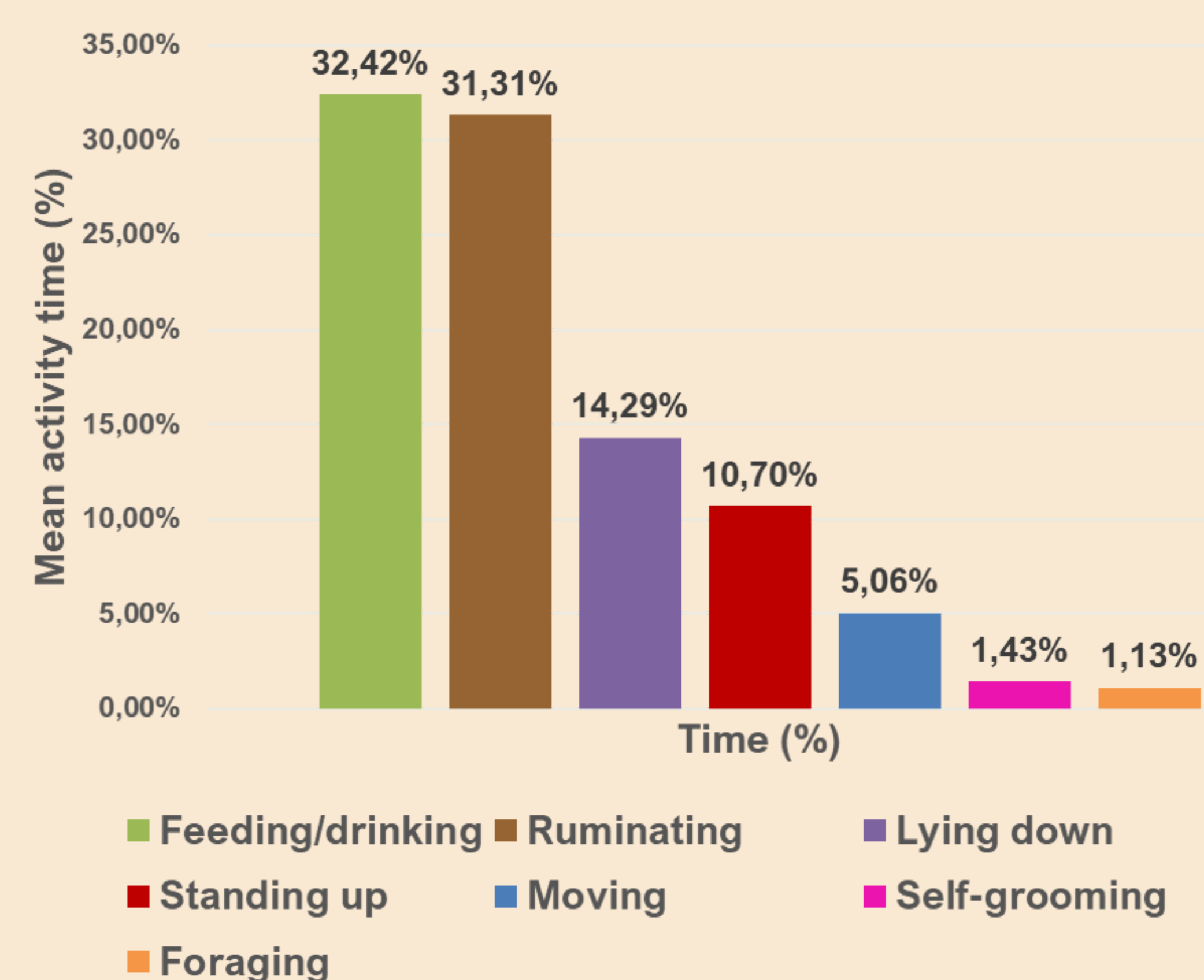


Figure 3. Mean activity budget of all individuals for each behaviour in percentage.

4

## CONCLUSION

- Entire enclosure used, hotspots below the **restaurant (shelter and heat lamps)** and **inside stables**.
- Feeding and ruminating equaled **63,73%** of total time.
- Affiliative behaviours** dominated over aggressive ones.



UAB  
Universitat Autònoma  
de Barcelona



ZOO  
SCIENCE

ZOO  
ANTWERPEN

### Acknowledgements

We thank the buffalo keepers of Zoo Antwerp for their help during data collection.

### References

1: Martin, P., & Bateson, P. (1993). *Measuring Behaviour*. Cambridge University Press.