

Reproduction and Population Performance in the European Captive Population of Eastern Black Rhinoceros

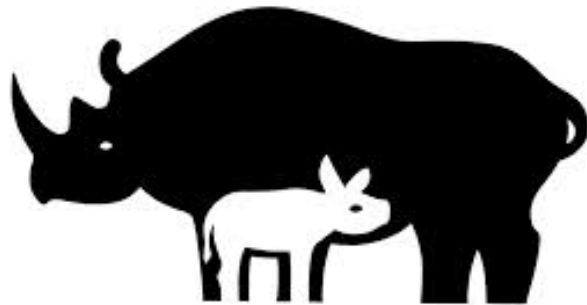


Katie L. Edwards, Susanne Shultz, Mark Pilgrim and Susan L. Walker

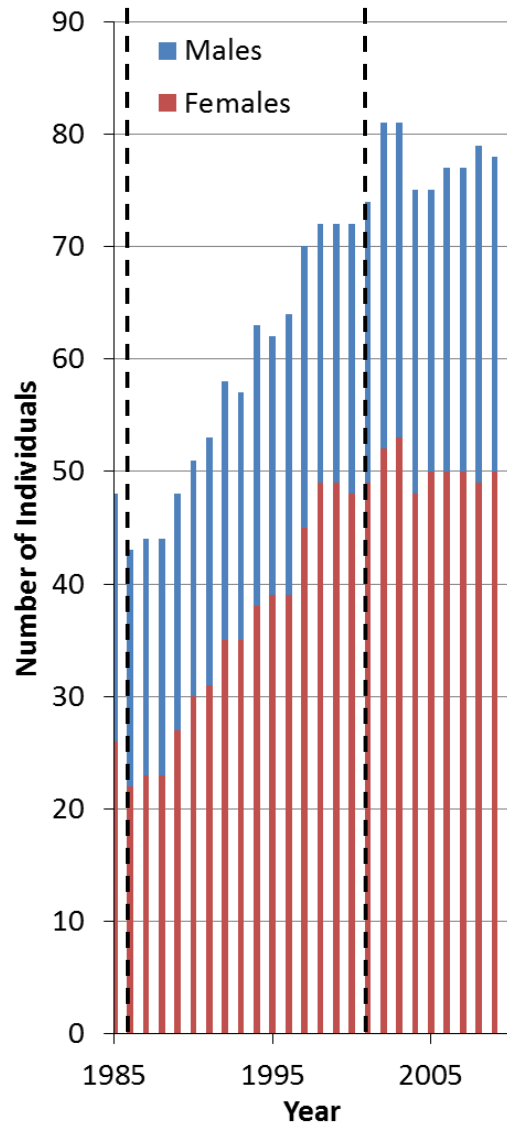
Ex situ conservation



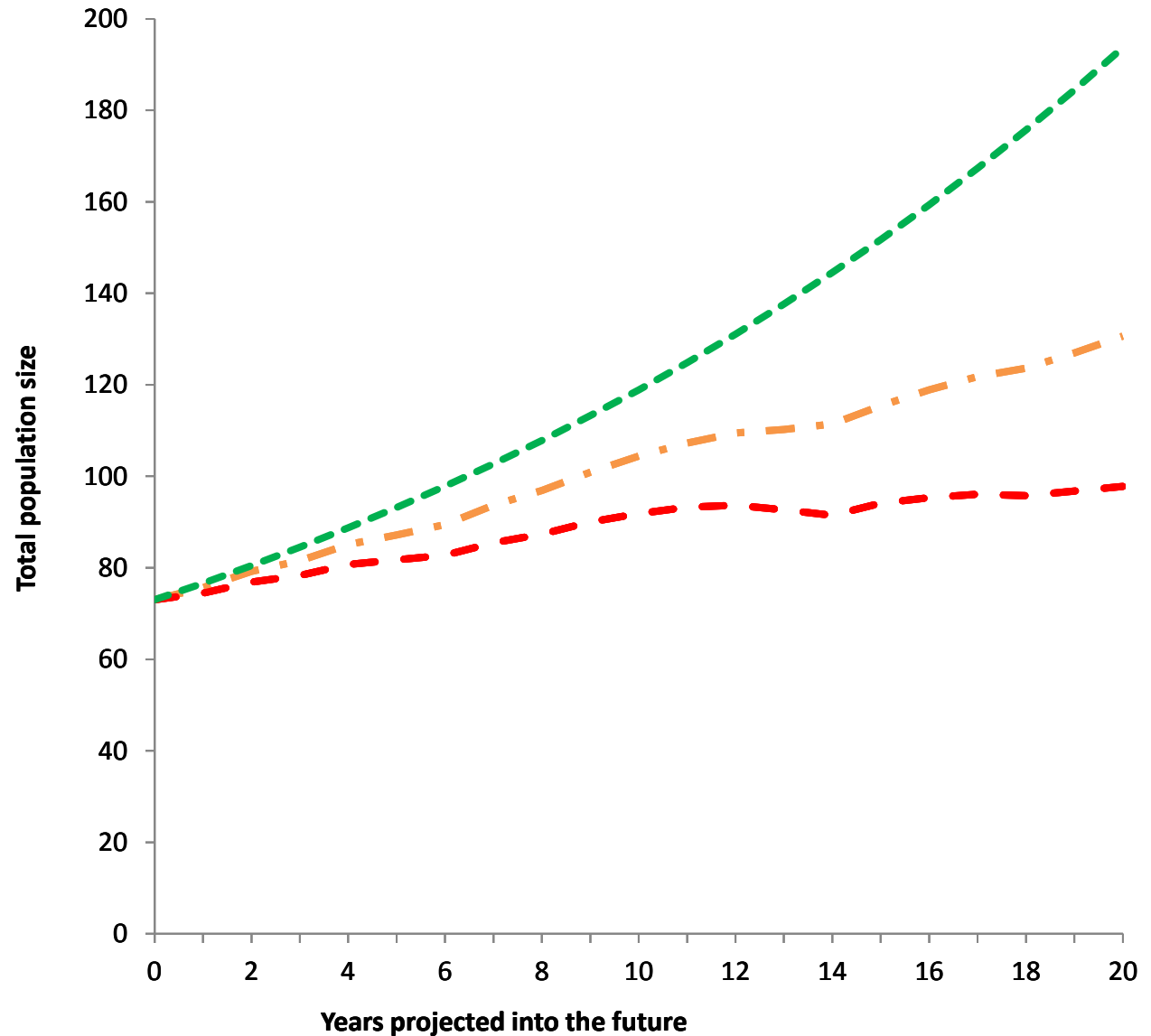
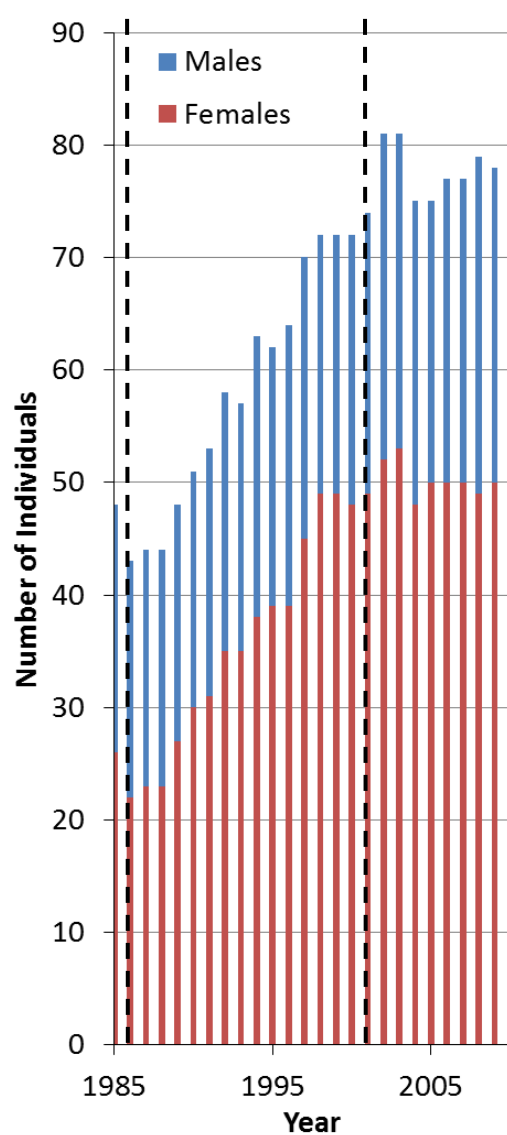
World Association of Zoos
and Aquariums | **WAZA**
United for Conservation



EEP population of black rhino



EEP population of black rhino



What could be limiting growth?

Ex situ

In situ



11.3% females breeding per annum

23.7 % females breeding per annum

Last 10 year period

Previous 10 year period



40.7% females aged 5-32 produced offspring

52.9% females aged 5-32 produced offspring



1.54 calves per breeding female

2.11 calves per breeding female

What could be limiting growth?



42.1 %



48.6 %

Non-proven

Differences in reproductive success

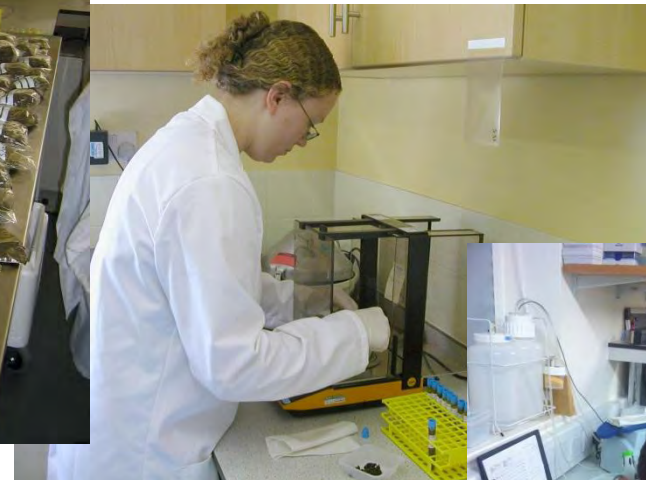


?



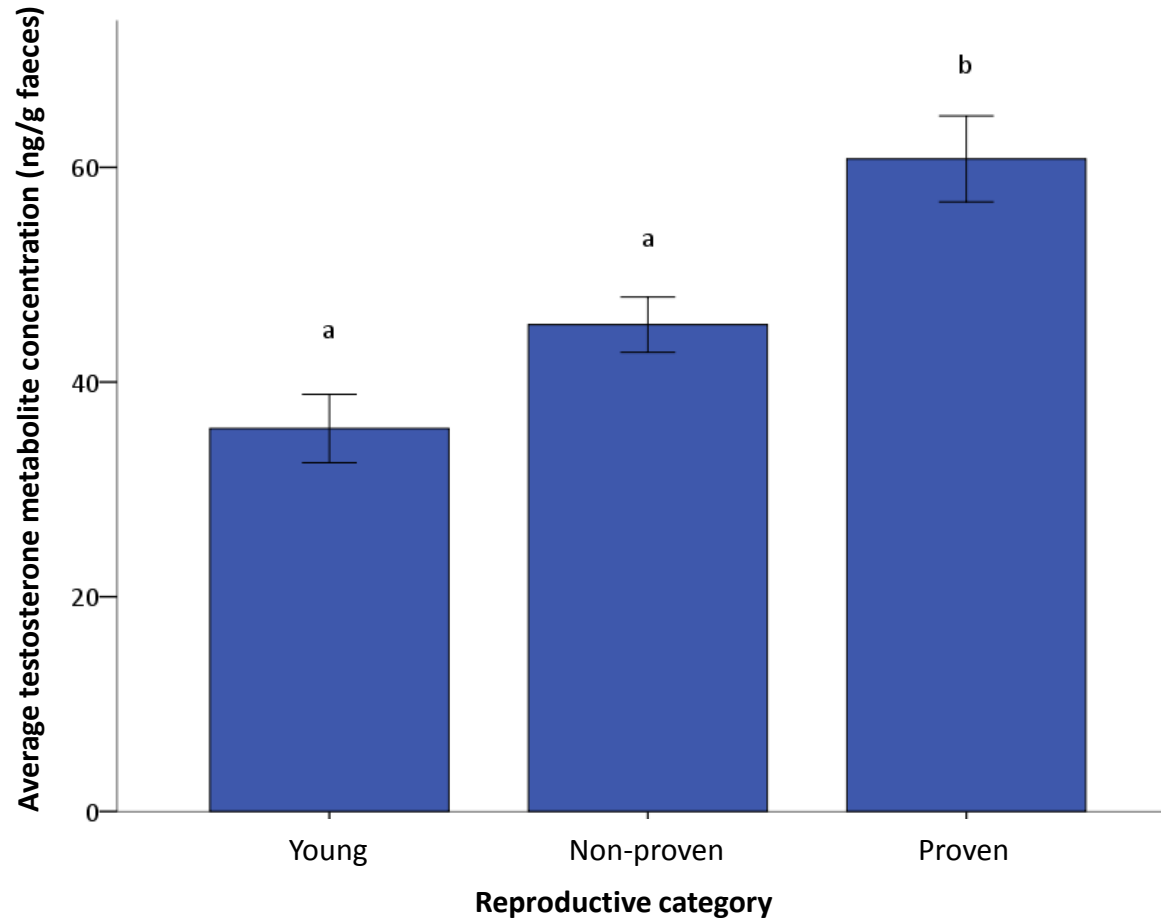
Hormones and reproductive success

CHESTERZOO



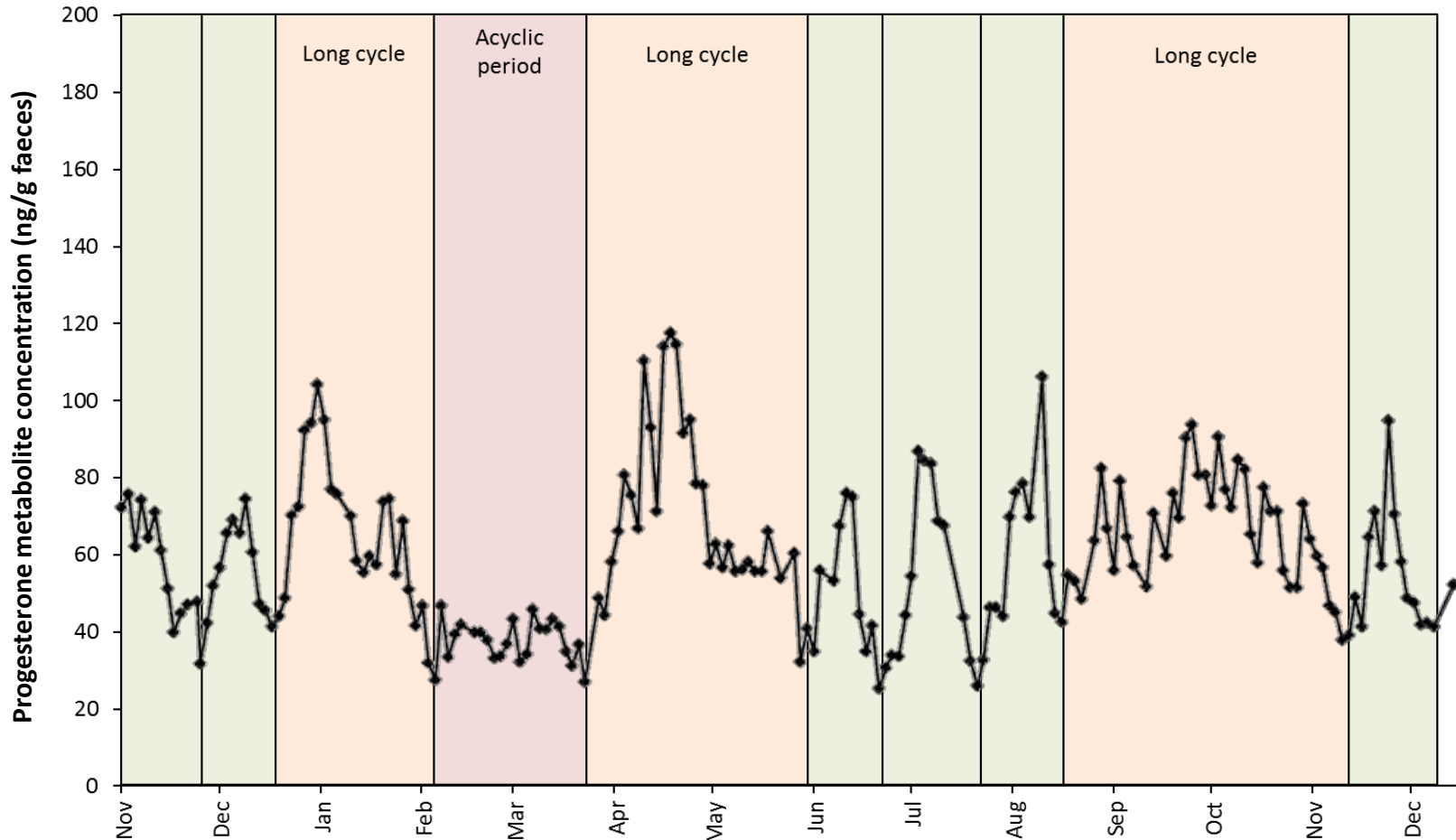
Glucocorticoids

Testosterone

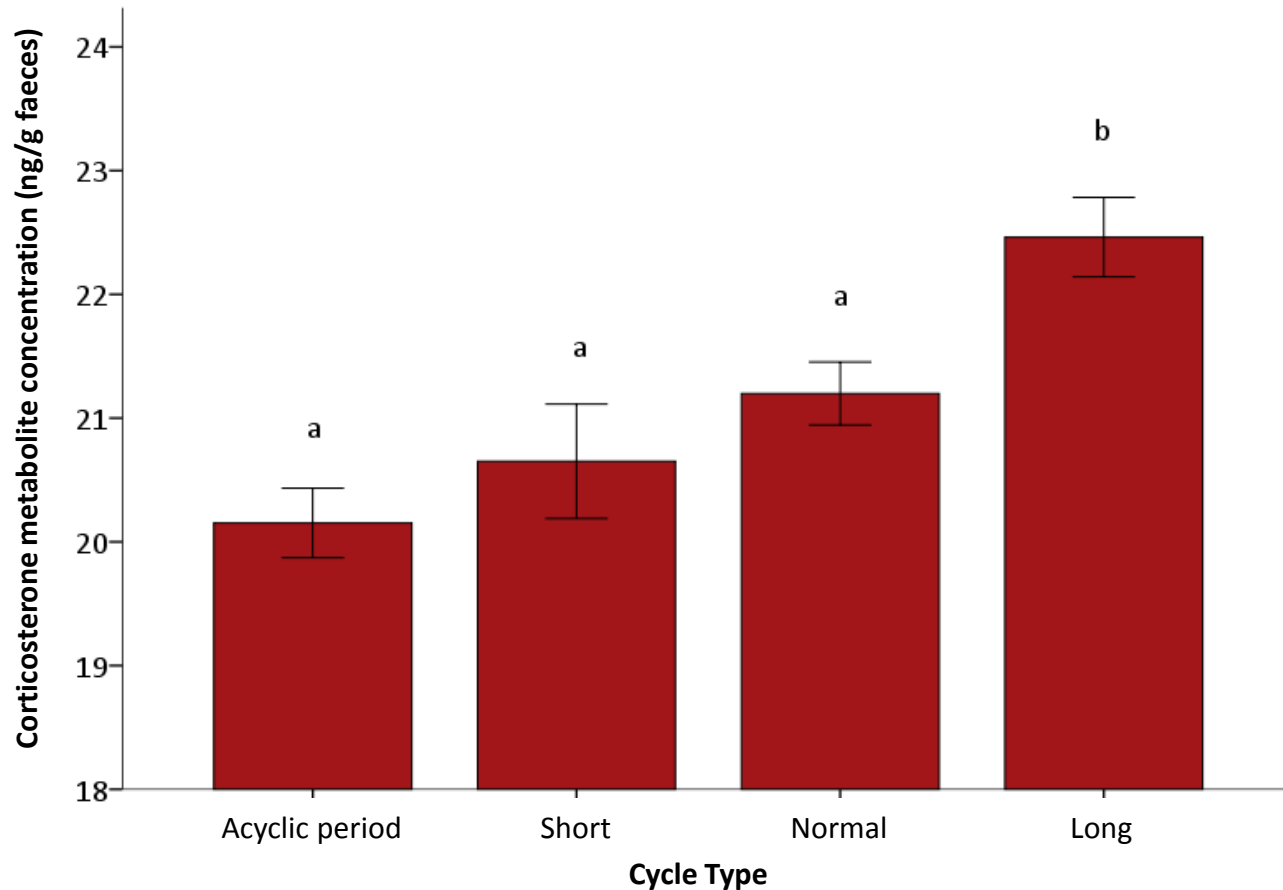


- Proven males had higher testosterone than non-proven males
- No relationship between testosterone and glucocorticoids

Female cyclicity



- 4 types of cyclicity pattern observed
- No evidence of seasonality
- Long cycle types more commonly observed in non-proven females



- Glucocorticoids were higher during long cycle types
- Especially in non-proven females

What other factors could be involved?

CHESTER ZOO



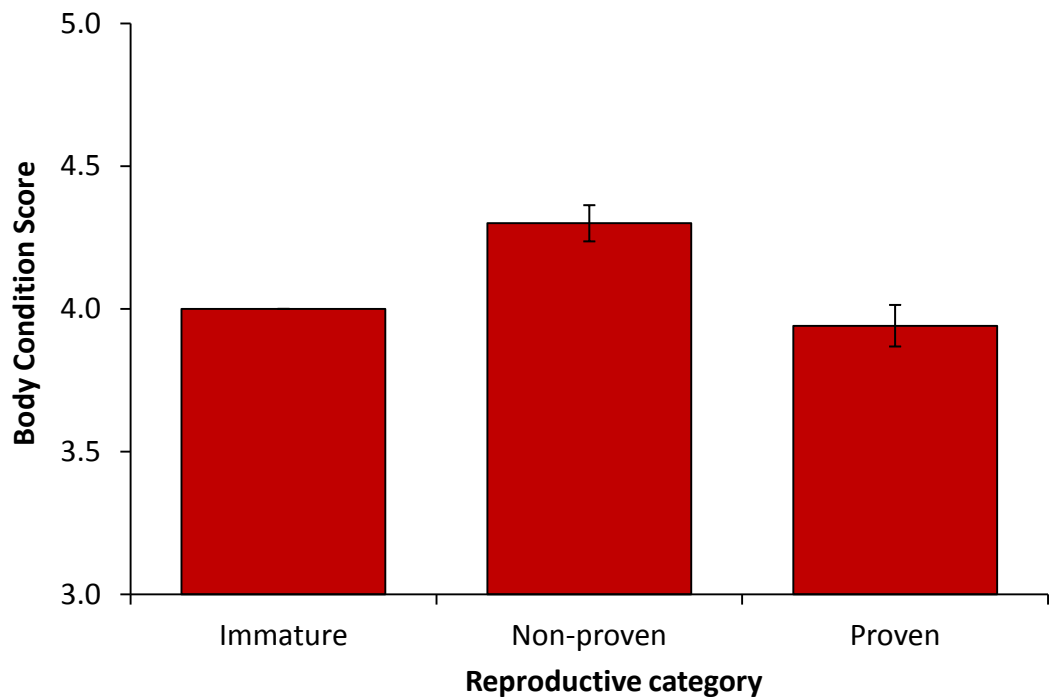
?



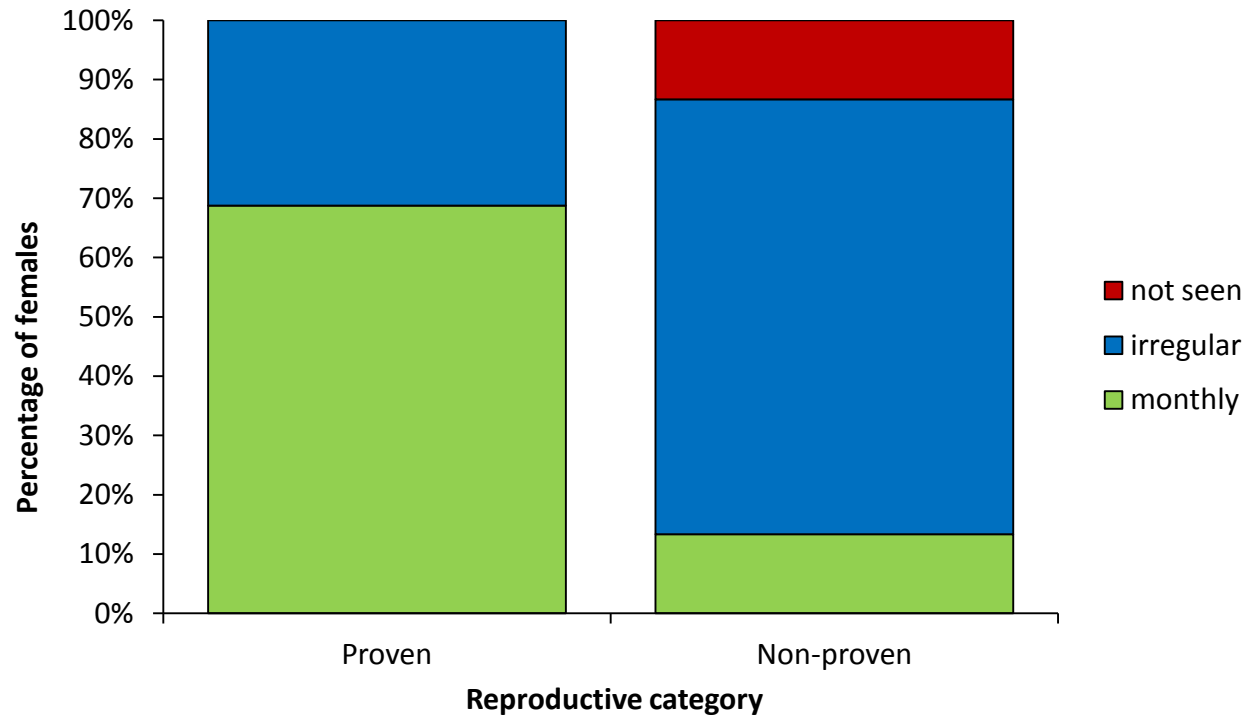
Body condition



- Non-proven females scored higher BCS than proven females



Observed oestrus



- Non-proven females were less likely to express regular behavioural signs of oestrus

Temperament



'Almost always behaves the same'

'Sometimes can be unpredictable'

'Very unpredictable'



PROVEN

NON-PROVEN

Extrinsic factors



- Sub-optimal reproduction limiting population growth
- Hormone differences between breeding and non-breeding rhinos
- In males, testosterone differences unrelated to extrinsic factors
- In females, erratic cyclicity is relatively common
- Long cycle types may be indicative of a problem – glucocorticoids
- Body condition related to reproductive success
- Expression of oestrus can be unreliable, especially in non-proven females
- Temperament related to glucocorticoids and reproductive success

Acknowledgements

CHESTERZOO



Any Questions?

CHESTER ZOO

