

THE SELF-RECOGNITION OF AN AFRICAN ELEPHANT

Immanuel Birmelin
ibirmelin@aol.com

It's generally admitted that apes, whales and dolphins are able to recognize themselves in a mirror. Joshua M. Plotnik, Frans B. M. de Waal and Diana Reiss proved in 2006, that even Asian elephants recognize themselves in mirrors. As far as I know, African elephants were never tested, as they're not as domesticated as Asian elephants. We tested the elephant cow Mala at an elephant-farm in Platschow/Germany, using a 3mx4m plastic mirror. During the first series of experiments, Mala attacked the mirror and was only held back by her animal-trainer Sonny Francello. In this first series Mala was not able to recognize herself in the mirror. In the second series, three months later, Mala showed all typical stages of behavior and recognized herself in the mirror. To prove, that Mala recognizes herself in the mirror, we performed the marker test; a plastic banana was stuck on the head of the elephant. As Mala didn't notice the banana for 20 minutes, we were sure, that there was no reason for her to grab for the banana. Then she was confronted with the mirror and immediately picked the banana from her own head instead of grabbing for the banana in the mirror. Her whole behavior shows, that she recognizes the mirror image as herself. The ability to recognize herself reveals that Mala has an idea of her identity, which is supposed to correlate with higher forms of empathy and altruistic behavior.

RESULTS FROM TWO DECADES OF REPRODUCTIVE STEROID MONITORING IN WHITE RHINOCEROSES KEPT IN EUROPEAN ZOOS

Schwarzenberger F¹, Walzer C², Versteeg L³, Goeritz F⁴, Hildebrandt TB⁴, Robert Hermes⁴

¹ Dept. of Biomedical Sciences, University of Veterinary Medicine Vienna, Austria

² Research Institute of Wildlife Ecology, University of Veterinary Medicine, Vienna, Austria

³ Safaripark Beekse Bergen, Hilvarenbeek, Netherlands

⁴ Leibniz Institute for Zoo & Wildlife

Franz.Schwarzenberger@vetmeduni.ac.at

Only 20% of the white rhino EEP population is breeding and as a result the population is not self sustaining. The EEP white rhino Studbook 2009 contains a comprehensive analysis of the situation in Europe. Over the past two decades faecal steroid hormone analysis in female white rhinoceroses was used as a diagnostic tool for investigating reproduction and reproductive problems; these investigations in part were accomplished by rectal ultrasonographic examination. Results of these investigations will be used to analyse and possibly answer the following questions (analysis is currently underway):

- Oestrous cycle length: What is the 'normal' length of the oestrous cycle, 35 or 70 days? Does the oestrous cycle length of 35 or 70 days affect the likelihood of conception? How well do faecal and plasma hormone levels correlate?

- During the past years several young rhino cows have been imported into the EEP. How do ovarian cycles develop in these animals?
- According to studbook analysis the distribution of birth in the EEP indicates some reproductive seasonality; how does this finding correlate to results from faecal hormone analysis?
- Stress, as indicated by faecal glucocorticoid analysis, is often used as an argument to possibly differentiate more or less stressful keeping conditions. With some results on faecal glucocorticoid metabolites we will try to evaluate this debate.
- The recommendation of the EEP is to keep white rhinos in groups. What is the effect of varying group size on reproductive parameters. What is the influence of a white rhino cow on the reproductive endocrinology of its calf, what is the best timing for natal dispersal?
- The recommendation by the EEP is to move and transfer animals out of non-breeding groups into new groups, or at least to separate males for a few months from their group in case there is no breeding. How does a change in group composition (i.e. arrival of a new male, transfer of females to unknown groups) influences reproductive endocrinology?
- It is a proven fact that non-reproducing white rhinoceroses (males and females) develop reproductive health problems. Can these problems be identified from faecal hormone analysis?

ELEPHANT-SIZED HOT FLASHES? THE RELATIONSHIP BETWEEN SOCIAL STATUS AND OVARIAN CYCLE ACTIVITY PROVIDES EVIDENCE FOR MENOPAUSE IN FEMALE AFRICAN ELEPHANTS

Elizabeth W. Freeman^{1,2}, Jordana M. Meyer², Sarah Putman², Bruce A. Schulte³, Janine L. Brown²

¹George Mason University

²Smithsonian Conservation Biology Institute

³Western Kentucky University

efreeman@gmu.edu

In large, long-lived, highly social animals such as elephants, cessation of reproductive activity before death may be selected for when energy usually devoted to the care and survival of offspring can instead increase inclusive fitness. African elephants live in a matriarchal, fission-fusion society that relies on the knowledge of the matriarch to access resources, coordinate group defence and facilitate reproductive success. Investigating ovarian activity of free-ranging elephants can enhance knowledge about the physiology of ageing and provide insight into evolutionary phenomena such as menopause. Fecal samples were collected opportunistically (June 2007 to September 2009) from 40 known female African elephants in Addo Elephant National Park, South Africa. Resulting fecal progesterone metabolite (FPM) analyses were used to examine the relationships among age, family social status and ovarian activity in adult elephants. FPM profiles suggested that five females (45-60 years of age) were no longer cycling normally and that pregnant elephants (n = 22) had significantly higher FPM concentrations than non-pregnant individuals. Social status and month of gestation were the strongest predictors of