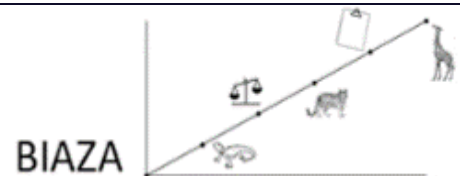


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# BIAZA Research Committee Conference July 2021

## *Book of Abstracts*



**Research  
Committee**

spends 42% of its time resting, 25% foraging and 19% in locomotion activities. The remaining 13% was used for social behaviour, including grooming, play, embracing and aggression; self-directed behaviour (scratching) and interactions with the environment. Males in this group played more than females, while females spent more time grooming and embracing. Grooming occurred mainly between the oldest female and the adult male, as well as her infant son. Grooming among the other adults was rare. Aggression mainly involved the 4 and 5 year old sons, as well as the 6 year old daughter, and the adult male. Embraces, which are more important than grooming for regulating social relationships in spider monkeys, occurred most frequently between the oldest adult male offspring and his father and mother, as well as between the mother and father. Overall, aggression was low and “embraces” were probably used to reduce tension between the adult male and his oldest son. While the effects of the number of enclosures and enrichment items could not be experimentally manipulated, there is evidence that conflicts between the oldest male and his sons occurred mainly when there was no access to multiple enclosures, or when single, easy-to-monopolise enrichment items were provided. Tension between the young males and the adolescent female could probably be resolved by transferring the female rather than the young males as was suggested by the keepers, so that a more natural group dynamic of related males and emigrating females can arise.

## **Day 2 Invited Speaker 2**

**Thomas B. Hildebrandt**<sup>1</sup>, Frank Goeritz<sup>1</sup>, Robert Hermes<sup>1</sup>, Susanne Holtze<sup>1</sup>, Steven Seet<sup>1</sup>, Jan Zwilling<sup>1</sup>, Sebastian Diecke<sup>2</sup>, Vera Zywitza<sup>2</sup>, Hayashi<sup>3</sup>, Masa Hayashi<sup>3</sup>, Giovanna Lazzari<sup>4</sup>, Silvia Colleoni<sup>4</sup>, Marilyn Renfree<sup>5</sup>, Jan Stejskal<sup>6</sup>, Barbara de Mori<sup>7</sup>, Pierfrancesco Biasetti<sup>1,7</sup>, Cesare Galli<sup>4</sup>

<sup>1</sup> The Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany, 10315.

[Hildebrandt@izw-berlin.de](mailto:Hildebrandt@izw-berlin.de); [Goeritz@izw-berlin.de](mailto:Goeritz@izw-berlin.de); [Hermes@izw-berlin.de](mailto:Hermes@izw-berlin.de); [Holtze@izw-berlin.de](mailto:Holtze@izw-berlin.de); [Seet@izw-berlin.de](mailto:Seet@izw-berlin.de); [Zwilling@izw-berlin.de](mailto:Zwilling@izw-berlin.de); [Biasetti@izw-berlin.de](mailto:Biasetti@izw-berlin.de)

<sup>2</sup> Max Delbrueck Center for Molecular Medicine, Berlin, Germany, 13125.

[Sebastian.Diecke@mdc-berlin.de](mailto:Sebastian.Diecke@mdc-berlin.de); [Vera.Zywitza@mdc-berlin.de](mailto:Vera.Zywitza@mdc-berlin.de)

<sup>3</sup> Faculty of Medical Sciences, Kyushu University, Fukuoka, Japan, 812-8582.

[Hayashi.katsuhiko.104@m.kyushu-u.ac.jp](mailto:Hayashi.katsuhiko.104@m.kyushu-u.ac.jp); [Hayashi.Masa.104@m.kyushu-u.ac.jp](mailto:Hayashi.Masa.104@m.kyushu-u.ac.jp)

<sup>4</sup> Avantea srl, Laboratorio di Tecnologie della Riproduzione, Cremona, Italy, 26100.

[Giovannalazzari@avantea.it](mailto:Giovannalazzari@avantea.it); [Silviacolleoni@avantea.it](mailto:Silviacolleoni@avantea.it); [Cesaregalli@avantea.it](mailto:Cesaregalli@avantea.it)

<sup>5</sup> School of BioSciences, The University of Melbourne, Victoria, Australia, 3010.

[m.renfree@unimelb.edu.au](mailto:m.renfree@unimelb.edu.au)

<sup>6</sup> Zoo Dvůr Králové, Dvůr Králové nad Labem, Czech Republic, 544 01.

[jan.stejskal@zoodk.cz](mailto:jan.stejskal@zoodk.cz)

### **BioRescue – New conservation strategy to save critically endangered species**

The last two Northern White Rhinos left are both females - Najin & Fatu. To save these charismatic animals from extinction seems impossible under these circumstances. The international BioRescue project funded by the German Federal Ministry of Education and Research aims to make the seemingly impossible a reality and is developing methods of assisted reproduction and stem cell research under the leadership of the Leibniz Institute for Zoo and Wildlife Research (Leibniz-IZW). In light of the Earth's sixth great extinction event driven by man traditional conservation strategies such as habitat protection and ex-situ breeding combined with reintroduction programs will be not sufficient to stop or even to slow down this process significantly. Currently, 22% of the mammals are at risk of extinction. The family Rhinocerotidae is particularly affected, with three of the five extant species listed as critically endangered (Sumatran, Javan, and black rhinoceros), one listed as vulnerable (greater one-horned rhinoceros), and only one, the southern white rhinoceros (SWR, *Ceratherium simum simum*), listed as near threatened. Contrarily, in 2008 the IUCN officially declared the northern counterpart of the SWR, the northern white rhinoceros (NWR, *Ceratotherium simum cottoni*, 1908) as extinct in the wild. On March, 19th, 2018 the death of the last male NWR, Sudan, brought wide public attention to the doomed fate of this subspecies and served as a clarion call for alternative measures of conservation. The long-term consequences of the loss of a keystone species for the fragile ecosystem of Central Africa are not fully predictable. However, the eradication of a megavertebate and important landscape architect such as the NWR will cause at least a significant disturbance or even destruction to elements of the complex ecosystem. The loss of a keystone species can initiate a so called “vortex effect”. The term was coined by Bob Lacey (1993) and used to name his famous Vortex Population Viability Analysis software, distributed freely by the IUCN. The vortex effect stands for the accelerated loss of species and entire species societies whose life history directly or indirectly depends on keystone species which are on the brink of extinction. In 2015 a group of 20 international scientists from five continents met in Vienna to develop a new strategic roadmap (Saragusty et al., 2016) for saving the critically endangered NWR. At that time only three

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individuals (1 male, 2 females) of this subspecies were alive. The new approach combines advanced assisted reproductive technologies (ART) and stem cell associated techniques (SCAT). This combined third strategy, in addition to the two established main strategies of habitat protection and classical ex-situ conservation programs, allows for the employment of biomaterial of live and deceased individuals in form of cryopreserved gametes as well as of skin samples for fibroblast cultures. Fibroblast cultures via induced pluripotent stem cell transformation can subsequently be used for the in vitro production of artificial gametes. This third way of species protection is now being developed in the international "BioRescue" project and put into practice immediately.

The project focus on the development of suitable technologies and protocols to rescue the NWR and to provide the opportunity to establish a self-sustaining, genetically healthy NWR population which can be reintroduced to the wild. In addition to the two approaches to embryo production, an ethical risk analysis as of the integrated research approach is part of the project, too. If innovative research shifts the boundaries of what is possible in species protection, new risks that have not yet been adequately evaluated will emerge on the one hand, and ethical questions on the other, which will bring together the well-being of individuals, the prosperity of an entire subspecies and complex social-ecological questions. These new risks and ethical questions are systematically analysed and discussed in the "BioRescue" project, also involving relevant stakeholders and the interested public in the discourse.

**Please join us for a panel discussion on Zoom**

**“Moving on from Covid- what research are zoos looking for? In need of?”**

