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ESDAR NEWSLETTER

Newsletter 6

July 2001

5th Annual Conference of the

European Society for

Domestic Animal Reproduction

in collaboration with the

European Veterinary Society for

Small Animal Reproduction

Vienna September 13th to 15th 2001

AN INTEGRATED APPROACH FOR THE ENHANCEMENT OF REPRODUCTIVE PERFORMANCE OF WHITE RHINOCEROSSES (*Ceratotherium simum*) IN THE EEP

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This abstract reports an overview on an IRF-SOS Rhino funded multi-disciplinary, multi-institutional research project which is currently in progress and which aims to work on possible solutions to overcome reproductive problems in the endangered white rhinoceros. Reproductive problems in the captive population include: 1) acyclicity and variable estrous cycle lengths of 35 or 70 days, 2) mating failure due to acyclicity, or silent estrus due to sibling relationship/mate choice problems and 3) conception - pregnancy failure due to presumed uterine pathology. Reasons for these problems are still not definitively identified. Our combined approach includes: 1) endocrine monitoring; 2) transfer of animals to enhance natural breeding; 3) clinical examinations of reproductive soundness in male and female white rhinos and 4) development of artificial insemination (AI). Results from a large number of animals in different EEP institutions are already available. Serial faecal reproductive monitoring includes >35 females and in the future will be extended to male white rhinos. Long term endocrine monitoring in

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female rhinos following a transfer between institutions indicates that estrous cycle activity could not be stimulated in some animals. This held true even 1 year after transfer and thus these animals will presumably not breed naturally. Monitoring of reproductive soundness to date includes 8 males and >15 females. Monitoring of the genital tract by transrectal ultrasonography is done under full anesthesia or in deep standing sedation. This applied method has been successfully used >35 times and thus provides a reliable and safe immobilization protocol. Female reproductive tracts have been evaluated in >15 animals and beside reproductively sound animals, different types of flat liners (acyclic females), and animals with either uterine cysts or ovarian tumors were identified. Male spermatological parameters after electro ejaculations have been evaluated in 8 males and have allowed to work on semen cryopreservation. In addition, work on conditioning 2 males for manual semen collection is currently underway. Different protocols for ovulation induction were used and several AIs have been performed. Results demonstrate that a reliable ovulation protocol and an AI technique suitable to overcome difficult anatomical structures of the female genital tract is available. In conclusion, our combined approach including several institutions provides indispensable knowledge for the further propagation of the captive white rhinoceros population.

Founded by International Rhino Foundation - <http://www.rhinos-irf.org/> and SOS RHINO - <http://www.sosrhino.org>.

EEP: European Endangered Species Programme.

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