

Progesterone Supplementation and Pregnancy in a Black Rhinoceros (*Diceros bicornis*): A Case Report

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A wild-born (1962 est.) female black rhinoceros (SB#53) at the Sedgwick County Zoo maintained four pregnancies with medical management and progesterone supplementation. She had produced two live offspring 15 years earlier, but, after breeding to the same male (SB#301), she aborted three times (8 months (Oct. 1989), 10 months (April 1991), and 4 months (December 1991)). Her reproductive status was monitored through excretory hormones and ultrasonography (Berkeley et al. 1997). Oral progesterone (2.2 mg/ml Regumate, Hoechst-Russell) was administered 15 ml/ BID from the 2nd or 3rd month of pregnancy to a gradually reduced dose during the assumed last month of pregnancy. The caloric and vitamin/mineral content of her diet was supplemented and hay shredded for digestibility. Medical problems were addressed as indicated by weekly analysis of hematology and serum chemistries. Mucopurulent vaginal discharges, periodic skin ulcerations, imbalance in the calcium to phosphorous ratio, low glucose and sand impaction were treated accordingly. She consecutively, delivered a male calf (1993), aborted in the last month (1996), delivered a female calf (1999) and then died pregnant (2000). Maintenance of four pregnancies over eight years was aided with intensive medical and reproductive management.

Berkeley, E.V.; Kirkpatrick, J.F.; Schaffer, N.E.; Bryant, W.M.; Threlfall, W.R. Serum and fecal steroid analysis of ovulation, pregnancy, and parturition in the black rhinoceros (*Diceros bicornis*). ZOO BIOLOGY 16:121-132, 1997

Utero – Ovarian Pathological Complex of the Sumatran Rhinoceros (*Dicerorhinus sumatrensis*)

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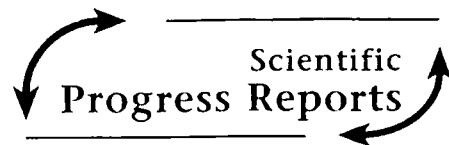
Sumatran rhinoceros reproductive biology is complicated, and has contributed to the failure of this species to flourish in captive breeding facilities. Physiological failures have included absence of intromission, intromission lacking conception and reabsorption. Twenty-two females have entered captivity since 1984. Seventeen of these animals were examined and at least 50% exhibited reproductive tract pathology. Uterine tumors and cysts were noted with ultrasonography. Leiomyoma and cystic endometrial hyperplasia was reported postmortem. One female exhibited 8-year-long galactorrhea and another an unusual

occurrence of multiple corpora lutea on the ovaries and enlarged uterus. Pathology appears to begin after 10 years of age, assuming animals were mature when captured, and becomes prevalent in animals over 15 years old. Of the remaining ten females in captivity, eight are copulating. Three have no pathology, and the other five are copulating with unknown to mild or significant pathology. These animals will have increased difficulty conceiving, though they continue cycling. The etiology of these pathologies needs further investigation.

Manual Semen Collection in a Standing Rhinoceros (*Ceratotherium simum simum*)

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Reproductive technologies, such as artificial insemination, require routine methods of semen collection. As the common technique to obtain semen samples from rhinoceros is electroejaculation, the objective of this study was to develop a less invasive procedure without the necessity of anaesthesia in order to perform repeated deseminations. Based on case reports in the equine literature on successful pharmacologically induced ejaculation in stallions using alpha-2-agonists, a study with two white rhino bulls (age 20 and 30) at Salzburg Zoo Hellbrunn was undertaken using Detomidine (*Domosedan*?) and a combination of Detomidine (*Domosedan*?) and Butorphanol (*Torbugesic*?) applied IM. To evaluate the minimum dosage necessary, various dosage-related protocols are being performed. In- and outdoor restraint chutes enable easy access to the genital region of the white rhino bulls while providing the highest standard of safety for the operating person. First experiences demonstrate that a dosage of 14 mg Detomidine / bull / session regularly induces a reversible penile protrusion approximately eight minutes after the injection - followed by a medium erection of the penis without manual stimulation. Massage of the preputium then leads to a full erection with cranioventral orientation of the penis and pulsatile contraction of the penile muscles. Ejaculates could be obtained using a dosage of 14 mg Detomidine, but were of poor volume and sperm concentration and were highly contaminated by urine. Whether a complete ejaculate with acceptable sperm quality and quantity can be collected by the combination of Detomidine and Butorphanol still has to be investigated in this study. In comparison to manual stimulation without pharmacological induction we can conclude that IM applied alpha-2-agonists induce stronger erections of longer duration. Additionally due to the slightly sedative effect general manipulation of the restrained rhinoceros is facilitated.



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Abstracts of the
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