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INVESTIGATIONS INTO THE REPRODUCTIVE PHYSIOLOGY OF THE LESSER ANTEATER (TAMANDUA TETRADACTYLA).

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The tamandua or lesser anteater is a member of the family Myrmecophagidae in the order Xenarthra (Edentata) - neotropical sloths, anteaters and armadillos. Little is known about this order in general or tamanduas in particular. Captive xenarthrans are a particularly valuable source of physiological and behavioral information since there is little field data and the few specimens held in captivity have poor captive propagation records. Daily urine samples collected from 2 female tamanduas were analyzed for hormonal changes with concomitant cytological study of vaginal smears to correlate changes in vaginal epithelial cells with endocrine patterns. Hormonal analysis indicated that one of the females demonstrated regular endocrine changes with a cycle length of 42 ± 3 days and no apparent seasonal effect. Although urinary estrogen conjugates (EC) and pregnanediol-glucuronide (PdG) demonstrated concurrent elevations, peak PdG (18 ± 0.8 ng/mg creatinine (CRT)) occurred 12 days later than peak EC (37 ± 11 ng/mg CRT). The large range of peak concentrations of estrogen metabolites in the urine (7-110 ng/mg CRT) did not correlate with urinary cortisol levels. Based on the rise and fall of PdG values, the luteal phase lasted 23.4 ± 1.0 days ($n=10$). Examination of vaginal cytology indicated the occurrence of red blood cells on the days immediately prior to and during the rise in urinary EC. Stained vaginal epithelial cells displayed no clearly defined pattern of cornification. The second female had regular bloody vaginal discharges lasting 7-12 days but without a corresponding endocrine pattern. Assays of urinary hormones and vaginal cytology provide useful insights for determining reproductive patterns of exotic species. Funded, in part, by the Blackstock Fund of the Metro Toronto Zoological Society.

FERTILITY ANALYSIS TECHNIQUES IN SUMATRAN RHINOS: SEMEN COLLECTION AND ULTRASOUND

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The Sumatran rhino (*Dicerorhinus sumatrensis*) is a critically endangered species. Intensive management of captive populations can be expedited by information on the reproductive status of individuals. Semen collection and ultrasound have been applicable to other species of rhinoceroses and previous researchers indicated that they may be readily applicable to the Sumatran rhinoceros. This report details the successful use of these techniques in one male and two female Sumatran rhinos at the Sungai Dusun Reserve in Selangor, Malaysia.

Semen (0.25 ml) was collected by manual massage of the penis. Urine contamination lowered sperm counts (1.9×10^6 /ml) and adversely affected motility (<50%) and vital staining analysis (90%). However, viable sperm were evident in this male, which supports his ability to successfully fertilize a female.

Rectal probe ultrasound on the females revealed a complex cervix. The presence of several follicles on the ovaries of both females indicated, though did not confirm, cycling.

The physical size and tractable nature of this species makes the Sumatran rhino an accessible candidate for these procedures. This single examination provided information on the reproductive status of these animals. Further studies in the male could provide a better assessment of his fertility and provide genetic material for preservation. In the female, further ultrasound studies can confirm cycling and identify estrus. Introducing pairs for breeding during the female's estrus may help reduce aggressive contact. Furthermore, pregnancy can be confirmed with ultrasound, thus avoiding non-productive waiting intervals.

Appropriate facilities, dedicated personnel, available expertise and acclimated animals at the Sungai Dusun Reserve presented an excellent situation for semen collection and ultrasound studies. Institutions that incorporate these factors can utilize these procedures for further investigations into the reproductive status of the Sumatran rhino.