

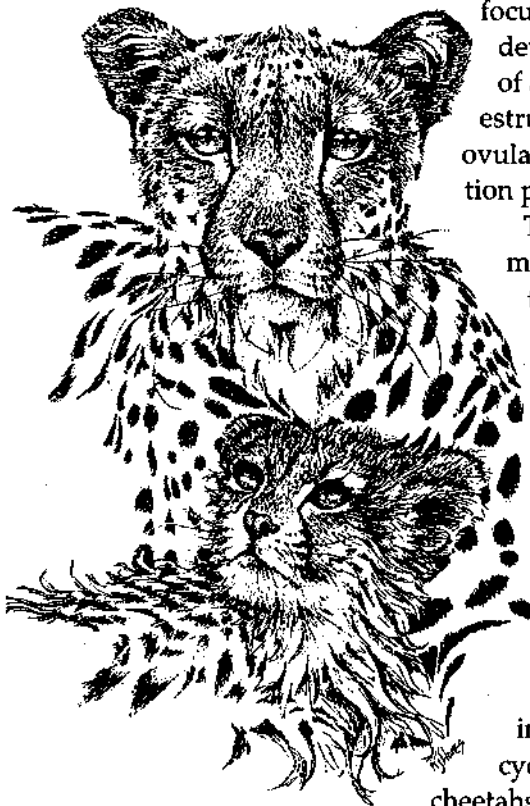
Durrant BS, Millard-Davis S. 2000. Estrus induction studies in captive cheetahs. *Cheetah News*:8.

Keywords: *Acinonyx jubatus*/captive breeding/captivity/cheetah/cyclicity/female/litter/oestrous cycle/pregnancy/research/veterinary

Abstract: The objective of this study was to reinitiate the lost natural cycle of breeding stimuli in the cheetah colony of the San Diego Wild Animal Park. Hormonal and behavioural stimulation of five acyclic females resulted in the birth of four litters and a pregnancy. Three females of them resumed the natural cyclicity.

ESTRUS INDUCTION STUDIES IN CAPTIVE CHEETAHS

San Diego Wild Animal Park cheetahs were not bred for several years, due to a nationwide moratorium and the difficulty of placing numerous cubs in appropriate institutions. The resulting loss of breeding stimuli interrupted the ingenerate succession of birth, separation, and estrus. The objective of this study was to reinitiate the natural stimulus cycle in our cheetah colony. In accordance with CRES' emphasis on non-invasive research, we



focused on the development of a simple estrus and ovulation induction protocol.

This year marked the third in a long-term study to develop an array of hormone treatments and husbandry techniques to stimulate breeding in non-cycling female cheetahs. Baseline

physiological data were gathered for each of five females and comprised fecal steroid hormone levels and ovary status, as determined by ultrasound and laparoscopic examination. In each case, prior to treatment, estrogen and progesterone levels were low and static, and the ovaries contained multiple small follicles with no other structures indicating cyclicity. A single gonadotropin dose was administered to each female at the time of the initial exam, and response was measured by behavioral indicators of estrus and changes in fecal steroid metabolites. Subsequent treatments included gonadotropin hormone releasing factors or progesterone and did

not include immobilization for ovary examination. Husbandry-related stimuli comprised physical separation of the female and reintroduction to the cheetah colony, removal of a single rejected cub, and separation of weaned offspring.

Follicle growth was stimulated by hormone administration in four of five treated cheetahs. The single non-responsive female remained reproductively quiescent throughout three treatments. One female was treated immediately prior to scheduled euthanasia for chronic poor health, so estrus, ovulation, and breeding were not assessed. Hormone treatment resulted in estrus and ovulation within one week in the remaining three animals in six of seven trials.

Pregnancy was established on three separate occasions following hormone-stimulated estrus and natural breeding in one female, but all litters were spontaneously aborted. Following the loss of the third pregnancy, the female cycled without hormonal or behavioral manipulation and produced a litter of 1.4 cubs, which she is now raising.

Removal of two females, followed by reintroduction to the breeding facility, resulted in estrus, ovulation, and natural breeding in both. Each female gave birth for a total of 1.4 cubs. One female is currently housed with her litter. The second female spontaneously cycled following removal of a single, rejected cub and subsequently delivered a second litter of 2.3 cubs. Upon separation from this weaned and nearly-grown litter, the female cycled, bred naturally and is presumed pregnant.

In summary, hormonal and behavioral stimulation of acyclic female cheetahs resulted in the birth of four litters (a total of 4.11 cubs) and one ongoing pregnancy in the last two years. Three artificially stimulated females have resumed natural cyclicity stimulated by dispersal or loss of cubs.

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