

Reproductive Cycle Studies and Artificial Insemination of Asian Elephant for Conservation at Khao Kheow Open Zoo, Thailand.

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The Asian elephant (*Elephas maximus*) has been listed as Appendix I of the CITES. The population in the wild is in decline and many female elephants in captivity never have a reproduction. This study aims to increase the captive population by using newer controlled reproductive techniques. From March 2014 to May 2019, blood samples were collected from eight females (between 20-45 years old). Then the samples were measured for progesterone and Luteinizing hormone (LH) to monitor the estrous cycle and ovulation time to do artificial insemination (AI) by using double antibody Enzyme Immune Assay (EIA) techniques. Semen samples were collected from three males (between 20-45 years old) by manual stimulation. The results showed that the average estrous cycle length was 14-17 weeks (n=43). From the study, we detected two surges of LH. The second LH surge was the ovulation time and right to do AI in this period. Seven AI were attempted with fresh semen in four females from April 2015 to December 2016, and one female became pregnant. After AI, the progesterone concentration maintaining a high level at 0.56-6.31 ng/ml and declining to a low level at 0.18 ng/ml within one day before parturition. The gestation period was 650 days. From the analysis of the testosterone level in maternal serum samples, it was possible to identify the sex of the calf in the womb. The study also found that the pregnant female had temporal gland secretions and the progesterone would decline while cortisol increase to a high level during this period.

Keywords: Reproductive cycle, Elephant artificial insemination, Luteinizing Hormone (LH), Progesterone, Cortisol

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