

ANALYSIS OF PAST RECORDS ON CAPTIVE BREEDING OF *ELEPHAS MAXIMUS* AT PINNAWALA ELEPHANT ORPHANAGE (PEO), SRI LANKA

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Pinnawala Elephant Orphanage (PEO) was established in 1975 to house abandoned wild Asian elephants in Sri Lanka. The elephants are housed in semi-captive conditions where they have the freedom to roam within large enclosures during the day. Elephant Orphanage currently houses 66 elephants. The first captive-bred elephant birth was reported in 1984 at PEO. However, the captive birth rate has declined in the past decade. This study aims to improve the captive breeding facilities at PEO in the future. Retrospective breeding data of PEO elephants from 1984 to 2022 were analyzed. A total of 70 successful births (excluding 5 stillbirths) from 32 mothers were recorded. The sex ratio of live births was 1:0.84, with one birth per mature cow per 20 years and a stillbirth rate of 0.1 ± 0.4 per year recorded, respectively. Fifteen live births were recorded in 2011, making it the most successful year in terms of births. The number of live births per year ranged from zero to 15 and appeared to have decreased over time. The main reason for this was the lack of breeding bulls at PEO. The births and deaths show a negative relationship (0.8). Currently, for 15-year-olds or older, the captive-born: rehabilitated from the wild ratio is 1:3, whereas, for 14-year-olds or younger, it is at 1:0.5, suggesting that the captive population is on the rise. This could result in inbreeding and the reduction of the population's genetic diversity in the future. Therefore, breeding within PEO has to be managed to ensure genetic diversity. Additionally, noninvasive endocrinological monitoring should be introduced to improve our understanding of female and male elephants' reproductive endocrinology.

Keywords: Captive breeding, *Elephas maximus*, Endangered, Pinnawala Elephant Orphanage