

# 首次系统繁殖出穿山甲子二代、子三代

闫鼎羽<sup>1</sup> 郭小兵<sup>1</sup> 徐尚华<sup>1</sup> 贾苗苗<sup>1</sup>

(1. 广西壮族自治区林业科学研究院 南宁 530002)

**摘要:**【目的】穿山甲人工繁殖是一个极具挑战性的世界性难题,由于不能系统性繁殖出子二代、子三代,导致各穿山甲物种的繁殖生物学参数未知或不确定。本研究通过对极度濒危马来穿山甲的繁殖生物学、生长模式及育幼等的研究,系统揭示马来穿山甲的生物学特性,从而科学指导马来穿山甲人工饲养繁育,同时为其它穿山甲物种繁殖提供参考。【方法】通过长期的、大规模的360度红外监控录像,统计及分析该物种的重要繁殖学参数;跟踪幼崽从哺乳期到成熟期的体重变化,绘制幼崽增长曲线,总结育幼关键技术。【结果】首次系统性繁育出马来穿山甲子二代、子三代,建立了可自我维持的马来穿山甲人工种群。育出子代49只(其中子一代30只、子二代15只、子三代4只),存活20只,繁殖成活率40.8%;首次系统性研究并揭示了马来穿山甲的繁殖生物学特性,阐明马来穿山甲的成熟周期、发情周期、产后发情规律、怀孕期、生产周期、胎产数、出生性比、泌乳期、哺乳期、性成熟与体成熟年龄等重要繁殖生理参数,并且发现雌性随机第一次合笼交配怀孕的比例为78%~81%;总结育幼关键技术,依据幼崽纯母乳喂养体重峰值出现在130天左右,确定适宜开始诱食时间(日龄90-130天),适宜断奶期(日龄130-160天)。【结论】马来穿山甲具有高效的繁殖方式,即马来穿山甲的繁殖无季节性,无明显的发情特征、发情期和性周期等,雌雄第一次随机合笼交配怀孕的比例为78~81%;母兽的泌乳期约为分娩后0~5个月,幼崽的断奶期为出生后4~5个月,如果幼崽出生后3个月不跟随母兽吃人工饲料,可以开始用添加白蚁的人工饲料诱导,时间点不能晚于130天,否则不利于幼崽的生存。以上研究为马来穿山甲饲养繁育奠定了理论基础,同时也为其它穿山甲物种繁殖提供参考。

**关键词:** 马来穿山甲; 繁殖生物学; 育幼

## First breeding systematically to the second filial and third filial generations of pangolins

**Abstract:** 【Objective】 Artificial breeding of pangolin is a more difficult and challenging problem in the world and the reproductive biological parameters of pangolins are unknown or uncertain due to the inability to systematically reproduce the second filial and third filial generations of pangolins. This study systematically revealed the biological characteristics of the critically endangered Malayan pangolin through the study of reproductive biology, growth pattern and cub breeding, so as to scientifically guide the artificial breeding of Malayan pangolin and provide a reference for the breeding of other pangolin species. 【Method】 The important reproductive parameters of this species were statistically analyzed through long-term and large-scale 360-degree surveillance videos. The weight changes of the cub from lactation to maturity were tracked, the growth curve of the cub was drawn, and the key techniques of cub rearing were summarized. 【Result】 The second filial and third filial generations of Malayan pangolins were systematically bred for the first time, establishing a self-sustaining artificial population of Malayan pangolins. 49 offspring were born (including 30 in first filial generation, 15 in second filial generation, and 4 in third filial generation), 20 survived, and the reproductive survival rate was 40.8%. This study systematically revealed the reproductive biological characteristics of the Malayan pangolin for the first time, and clarified the maturity cycle, estrus cycle, postpartum estrus regularity, pregnancy period, birth cycle, number of births,

reproductive ratio, lactation period, sexual maturity and physical maturity age and other important reproductive physiological parameters. It was found that the proportion of female random first cohabitation and mating pregnancy was 78%-81%; To summarize the key techniques of cub rearing, according to the peak weight of exclusive breastfeeding of the pups appears at about 130 days, the appropriate time to start feeding induction (90-130 days old) and the appropriate weaning period (130-160 days old) are determined. 【Conclusion】 Malayan pangolins have a highly efficient reproductive mode, namely the reproduction of Malayan pangolins is non-seasonal, there is no obvious estrus characteristics, estrus period and sexual cycle, and the proportion of female random first cohabitation and mating pregnancy was 78%-81%. The lactation period of the mother is about 0 to 5 months after delivery, and the weaning period of the young is 4 to 5 months after birth. If the young do not follow the mother to eat artificial feed after 3 months, they can start to induce with artificial feed adding termites, and the time point should not be later than 130 days, otherwise it is not conducive to the survival of the young. The above research laid a theoretical foundation for the feeding and breeding of Malayan pangolins, and also provided a reference for the reproduction of other pangolin species.

**Key words:** Malayan pangolin; reproductive biology; cub rearing.