Notes on twinning in the Malayan tapir (*Tapirus indicus*)

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Introduction

Tapiridae falls under the order Perrissodactyla, which also includes Equidae (horses) and Rhinocerotidae (rhinoceros). It is represented by four living species, with the Malayan tapir being restricted to Southeast Asia. All tapirs are very similar in their reproductive biology and relatively easy to breed in captivity, giving birth to a single offspring after a gestation of 13 months. Twinning is very rare in this taxa as observed in very few publications. In the last decade, captive breeding at the Malayan Tapir Conservation Center (MTCC), Malaysia, accounted for six single births and a pair of twins.

Case Study

A displaced adult female Malayan tapir, *Tapirus indicus*, was bred at MTCC on the 17th and 18th May 2006, and again on the 20th, 21st and 22nd May 2006. Intromission only lasted between 1 – 1 ½ minutes. No breeding was observed on the 19th May 2006. On 27th May 2007, she gave birth to a female, followed by a second birth to a male on the 8th June, 2007, 13 days apart (Fig. 1). This is the first recorded twinning in the Malayan tapir and the longest intervals between two parturition in an ungulate twin. The female calf weighed 10kg (0 – 1 day), while the male weighed 9kg. The gestation period for the first and second twin calves ranged between 371 – 376 days and 383 – 388 respectively. A 24-hour observation, indicated that suckling period of the male calf was 1/3 of the total amount suckled by the female calf. Subsequently, the poor condition of the bull calf prompted its removal on the fifth day for hand – rearing. The calf was fed fresh ultra heat treated (UHT) low fat milk (Dutch Lady ®) at a rate of 10 – 15% its body weight. Milk was also expressed from the dam on the 17th day of lactation for proximate analysis. The calf's intake of milk at 4 weeks of age ranged from 5.6 – 6 litres per day increasing to 9 litres at 8 weeks. The calf defecates every 2 – 3 days and urinates 3 – 4 times daily. The two lower incisors were visible at 2 weeks of age with the upper incisors emerging at 4 weeks. Nibbling of foliage started as early as one week of age. Birth weights of the female and male calf were 10kg and 9kg respectively. The daily weight gain for the female calf was 900 grams as compared to 768 grams in the male calf. The transition of colour from stripes/ speckled (black, brownish, white) to plain black and white were seen at three weeks of age, with the spread of white or silver moving from the rump cranially. More intense change to adult coloration was seen in the female calf at seven weeks.

Discussion

In single births, the gestation period in Malayan tapir ranged from 383 to 405 days (Kuehn, 1986). A shorter gestation period of 371 – 376 days was recorded for the first twin, followed by 383 – 388 days for the second twin. Using serum progesterone profiles, gestation length for Baird's tapir was plotted at 392±4 days (Janine et al., 1994). Single births were reported frequently in all species of tapirs (Alvarez Del Toro, 1966; Bonner, 1978; Janine et al., 1994). However, twins are rare in tapirs and few were reported or published (Dittrich, 1969; Todd and Wilson, 1971). A twin birth was reported in Detroit Zoo in 1988 (Barongi, 1993). In all cases of twin birth, one or both pair of twins died soon after birth. In horses, the prevalence of twins in Thoroughbred is 1 to 3.8% of births. Twins are reported to occur frequently in draft breeds. However, the outcome of twin pregnancy in mares is frequently unfavourable with 64.5% resulting in abortion or still birth, 21% delivered a single live foal, and 14.5% delivered both twins alive (Youngquist and Threlfall, 2007). The twinning in the Malayan tapir is a result of an asynchronous double ovulation as observed

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in some horses (Blanchard et al., 2003). This is also supported by their significantly different birth size and a long birth interval.

The birth weights of the twins averaged 9.5kg and are higher than reported previously (Barongi, 1986; Barongi, 1993; Reeds, 1986; Teare, 2006). The Tapir Specialist Group Veterinary Committee reported an average of 8.4kg for a 0 – 1 day old Malayan tapir. The body weight of the female twin calf increased by 100% at 3 weeks of age, whereas the male twin calf body weight increased by only 60% at the same age. This was due to the deprivation of colostrum, inadequate suckling and reduced milk intake during the initial stages of hand rearing. The milk of the Malayan tapir at 17*th* day lactation contained a very low fat composition of 1.74% as compared to 3.4% in the lowland tapir, *Tapirus terrestris* (Omrod, 1967; Kuehn, 1986). Similarly, the low fat composition of 0.99% was also observed in the milk of Sumatran rhinoceros, *Dicerorhinus sumatrensis* (Zainal – Zahari et al., 1998).

In the wild, only one calf will likely survive in a twin birth, because of competition with its sibling. In this case study, the behaviour of the older female calf at MTCC was dominating her younger brother to the extent that she deprived him from feeding naturally. At the same time, the mother did not exhibit any behaviour to prevent feeding being monopolised by the elder sister. Consequently, the younger and weaker brother had to be hand-raised and ensure its survival. Determining twin birth can be accomplished via ultrasonography, which is also important in preparing the mother for parturition, because it might not occur on the same day as seen in an asynchronous pregnancy.

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Figure 1. The Malay tapir, *Tapirus indicus*, twins at approx. 6 weeks of age. The female (left) was born 13 days before the male (right) and already exhibits the classic black-white adult colour pattern.

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