

The First Twin Birth at Pinnawala Elephant Orphanage, Sri Lanka

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Introduction

The Sri Lankan elephant (*Elephas maximus maximus*) is one of the four subspecies of the Asian elephant and is listed as endangered (IUCN 2021).

The Pinnawala Elephant Orphanage (PEO) was established by the Department of Wildlife Conservation (DWC) in 1975 to take care of wild elephant calves that were orphaned (Rajapaksa 2007). It was started with five such calves (DNZG 2020). In 1982, its administration was transferred to the Department of National Zoological Gardens (DNZG 2020). The Elephant Orphanage received calves orphaned in the wild through the DWC till 2013 after which the DWC promoted the program of caring for them at the Elephant Transit Home in Udawalawe and returning them to the wild. The PEO currently cares for 75 elephants, consisting of 34 males and 41 females (DNZG 2022).

The main objective of the PEO is the conservation, breeding and welfare of Sri Lankan elephants. A captive breeding program has been in place since the beginning of the PEO. The first elephant born at the PEO, "Sukumali", a female, was born in 1984 (DNZG 2022). There have been many successful births at the facility, with 75 captive births so far. The highest number of births in a single year was recorded in 2011, with 17 births (DNZG 2022).

On 31st August 2021, PEO reported its first twin birth (DNZG 2022). In Asian elephants, twin births are rare and have been mainly observed in captivity (Pastorini *et al.* 2020). The first twin birth recorded in Sri Lanka was from the wild and was recorded from Minneriya National Park in 2020 (Pastorini *et al.* 2020).

Breeding at the PEO

Elephants at PEO are managed as a herd and individually. The herd comprises of females and males up to around 10 years old. Males are then separated from the herd and cared for individually. Adult males have no access to females under normal management. Mahouts identify female oestrus by observing changes in the behaviour and external signs. The main behavioural signs looked for are, the female approaching a male and turning her back to him, or the male following a female and touching the vagina with the trunk. The main external sign looked for is discharge from the vagina. To maintain an optimal population size, active intervention to mate oestrus females is regulated. To prevent inbreeding, pedigrees of the oestrus females are examined and candidate males are selected for mating. PEO has more elephants originating from the wild than captive borns. Consequently, pedigree analysis does not indicate non-mating between most males and females. A pair for mating is chosen according to the elephants' behaviour. Some females avoid some males and some males or females attack certain males or females. For example, the female Manika does not accept any male in the PEO, and the female Mayuri attacks other elephants. Consequently, although both are of wild origin but are not used for mating. Similarly, a male's behaviour such as aggressiveness and preference towards particular females is considered, based on experience of the staff. When breeding a female in oestrus is desired the chosen male is released to the herd at the free-roaming area and river Ma Oya or the female and male are taken to an isolated area if the male is aggressive. Sexual contact with the female can last from 3 days to a week or more. Sometimes, if there are additional matching males to the female in oestrus,

the males are switched each day but only one male is put in at a time.

The parents of the twins

The mother of the twins is "Surangi" and the father is "Pandu", both of whom were wild born. When the twins were born, Surangi was 26 years old and Pandu was 17 years old. Surangi was brought to the PEO from Surangalgama, Trincomalee on 3rd December 1997 as an orphan about 1 year old. The twins are Surangi's second pregnancy. Her first born is a male named "Kanaka", born on 24th May 2011. Pandu was brought to the PEO from Settikulam, Vavuniya, on 26th September 2004 as an orphan about two months old. This twin birth is the first time Pandu fathered any offspring.

Surangi became pregnant through a mating intervention conducted in 2019. Pandu and Surangi successfully mated on 14th December 2019, which was the only successful mating recorded by Surangi this time.

Birth of the twins

Signs of pregnancy were not seen in Surangi until near the end of the gestation period. However, once pregnancy was suspected, she was separated from the herd and kept in a special room two weeks before delivery (Fig. 1). A few hours before delivery, she showed an unusual brownish vaginal discharge. At 4:50 am on the 31st August 2021 Surangi delivered a calf (Fig. 2). The placenta is usually expelled a few hours after delivery. However, in this case, it did not happen for about three hours after delivery. The



Figure 1. Mother Surangi 13 h before the twin births.



Figure 2. Shortly after giving birth to the first calf (Sajjana).

staff tried to get the calf to suckle from the mother for about three hours after birth by lifting the calf behind its forelimbs so that the calf's mouth touched the mother's nipple, but it was unsuccessful. Unexpectedly the mother delivered another calf at 10:12 am (Fig. 3). The mother tried to break the embryonic sac by kicking it and the staff quickly moved her away, safely broke it and took the calf out. After about an hour of the second calf's delivery, the placenta was discharged (Fig. 4). Presumably the twins shared the placenta.

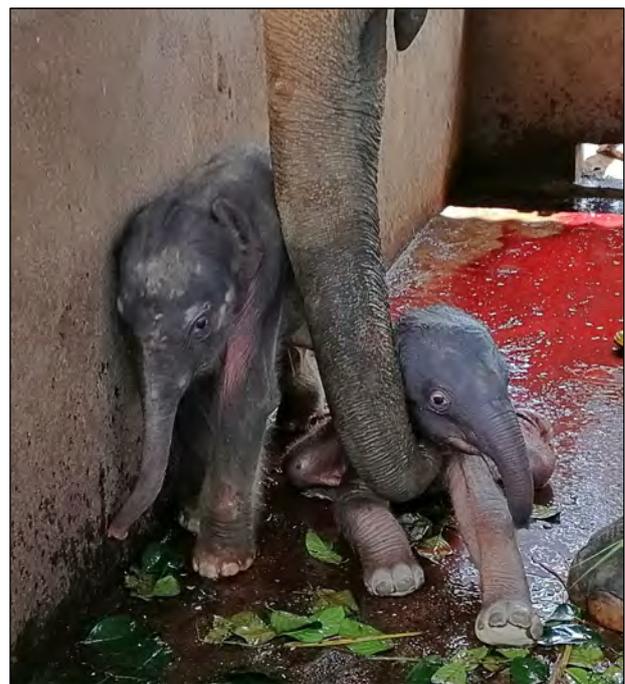


Figure 3. Shortly after giving birth to the second calf (Disa).



Figure 4. The placenta.

The elder of the twins was named "Sajjana" and the younger "Disa". Both calves were males, but their body size was relatively small compared to other calves. The birth weight of the elder calf was 67 kg, while the younger was 55.5 kg. In comparison, the birth weights of 20 calves at the PEO (14 male and 6 female) were 83.1 ± 4.6 kg (range 49–114 kg) for males and 82.8 ± 8.4 kg (range 50–103 kg) for females (Pushpakumara *et al.* 2016). The elder calf was about 10 cm taller than the younger (Fig. 5, 6 & 7).



Figure 5. On the evening of the day of birth.



Figure 6. Third day after birth.

Care of the calves

Both calves were a little weak at birth and at the lower end of normal weight and height. Initially, they had difficulty suckling because they could not reach the mother's breast due to insufficient height. The mother's milk was also thought to be insufficient to feed the two calves. In the first three days after birth, the staff milked the mother and fed the calves using a saline tube (Fig. 8). Then a bench around 20 cm in height was made, so that the calves could get on it and suckle (Fig. 9). The first to use the bench to suckle was the younger calf and then the elder calf also adapted.

However, by seven days after birth, both calves had lost some weight and the elder calf's weight was 66.4 kg and the younger calf 52.8 kg. Several attempts were made to give the twins milk formula for 2-year children, but they did not



Figure 7. Fourth day after birth.



Figure 8. Mahouts feed the calves using a rubber tube.

take it. Eventually, a soya milk formula was found which they accepted. Subsequently the two calves have been suckling together on either side of the mother at the same time and in addition feed on soya milk formula three times a day.

The mother was observed hitting the younger calf with the trunk and kicking, when the twins were around two weeks old, presumably rejecting him. Even at 10 months old, the mother sometimes tries to reject the younger calf. The staff pays close attention to the younger calf and reprimands the mother when she tries to hit him. Due to the quick response of the staff, any adverse result has been avoided.

Issues such as small size, low birth weight, feeding problems and rejection by the mother as observed with the PEO twins, may contribute to the rarity of twins observed in the wild.



Figure 9. Younger calf getting on the bench and suckling from the mother.

On 6th January 2022, the 4-month-old twins went to the river Ma Oya to bathe with the mother for the first time (Fig. 10). When they were 7 months of age, they adapted to solid foods by sampling the food provided to the mother (Fig. 11).

Most external features of twins are similar to each other, but a few features differ. The elder calf is a little taller. The tail of the younger calf is longer and has more hair at the end. There are slight differences between the two in the ear folds with the folds in the younger calf on left and right ears being different (Fig. 12).

On 20th February 2022, the elder calf's weight was 131 kg, and the younger calf's 105 kg. At 10 months old they are living healthily under care of the PEO. The twins will be released to the main herd at PEO very soon.



Figure 10. Twins enjoying the river bath.



Figure 11. Twins trying to sample the solid food provided to the mother.

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References

DNZG (2020) *Annual Performance Report*. Department of National Zoological Gardens (DNZG), Dehiwala, Sri Lanka.

DNZG (2022) *Animal Inventory*. Elephant Orphanage, Pinnawala, Rambukkana, Sri Lanka.

IUCN (2021) *The IUCN Red List of Threatened Species*. International Union for Conservation of Nature and Natural Resources. Version 2021-3. <<https://www.iucnredlist.org>>

Pastorini J, Pilapitiya S & Fernando P (2020) Wild Asian elephant twins in Sri Lanka. *Gajah* **52**: 48-50.

Pushpakumara PGA, Rajapakse RC, Perera BMAO & Brown JL (2016) Reproductive performance of the largest captive Asian elephant (*Elephas maximus*) population in Sri Lanka. *Animal Reproduction Science* **174**: 93-99.

Rajapaksa RC (2007) Captive breeding of elephants at Pinnawala Elephant Orphanage in Sri Lanka. In: *Managing the Health and Reproduction of Elephant Populations in Asia*. EU-Asia Link Project Symposium. pp 23-28.



Figure 12. Elder calf Sajjana (top) and younger calf Disa (bottom).