

Asian Rhino Specialist Group

Zainal Zahari bin Zainuddin

Biology of the Sumatran Rhinoceros

The Sumatran rhinoceros is the smallest of the rhinoceroses, with adults weighing 529-747 kg and having a shoulder height of 118-123 cm. A newborn female weighed 24 kg, with a shoulder height, body length, and heart girth of 45, 92, and 75 cm respectively. The average daily weight gain of the female newborn at Zoo Melaka for the first year was 0.86 kg.

In the wild, the body is covered with dense grayish-black hairs ranging in length from 0.2-2.0 cm. However, in captivity, the hair increases in length to 4-5 cm after 3 months. In its natural habitat, the short hair length results from the constant abrasive action of forest vegetation as the animal rubs against vertical and horizontal objects. The skin is slate grey in color and ranges in thickness from 5.2-14.0 mm in the medial thigh and abdomen. There are sweat glands situated deep in the dermal layer of the skin. Profuse sweating was observed in a Sumatran rhinoceros at Ragunan Zoo, Indonesia, after excessive wallowing. In the Sumatran rhino, the horizontal grooves on the tail were different in the 14 animals compared. There are also some differences in the shape and position of the tail tip, including curves, stumps, and angulation.

Based on root length, the Sumatran rhinoceros has a pair of upper incisors and lower canines. The canines are much longer in the male. In contrast, the incisors are flattened to almost the level of the gums. In captive males, the canine reaches a length of 4 cm and is commonly used in the initial period of courtship.

In female Sumatran rhinos, spray urination has been observed on four occasions: post partum female, excessively disturbed animal (renovation work, etc.), newly introduced rhino into a new paddock/night stall, and in a mature adult for no apparent reason. Associating spray urination to estrus is still premature, and more studies need to be carried out to determine the significance.

In the Sumatran rhinoceros, the rectal temperature, pulse, and respiration rate are 36.6°-37.9°C, 56-68 per minute, and 12-32 per minute respectively, recorded at ambient temperatures of 22°-31°C and a relative humidity of 58-98%. A comparative study at Zoo Melaka showed that the rhino preferred the mud wallow to the water pool or shower.

Determining the pulse rate was possible by palpating the middle coccygeal artery. Blood collection was possible from the marginal ear vein, coccygeal vessels, and the cephalic vein. Some of the blood parameters of the Sumatran rhino are presented in Table 1.

Table 1. Normal blood parameters of Sumatran rhinoceros at Zoo Melaka

Parameters	Range
R.B.C. (/cmm x 10 ⁶)	5.37-5.45
W.B.C. (/cmm x 10 ³)	7.80-11.0
P.C.V. (%)	34.0-45.0
Hemoglobin (g%)	13.0-14.1
MCV (u3)	62.0-84.0
MCHC (%)	31.0-38.0
Plasma protein (g%)	7.2-8.0

The milk of Sumatran rhino contains 0.99% fat, 4.17% protein, 5.38% lactose, and 10.27% non-fat solids. The milk fat decreases to 0.37% at four months lactation.

Dr. Zainal Zahari bin Zainuddin
Department of Parks and Wildlife
Malaysia

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