

concentrations ranged from 348–7,525 ng/ml across all samples and all rhinos with individual overall means ranging from  $1,267 \pm 227$  to  $2,603 \pm 1,200$  ng/ml. For rhinos maintained in S.E. Asia, the mean serum ferritin concentration was  $(4,985 \pm 4,197$  ng/ml) with individual values ranging from 858 to 14,900 ng/ml. Results from the horse and rhino assays differed with correlation coefficients ranging from negative to highly positive values ( $R = -.36$  to  $.93$ ) for individual profiles. Data from this study indicate that Sumatran rhino serum ferritin concentrations: 1) are not accurately determined with antibodies to horse ferritin; 2) are dynamic over time; 3) may decrease during pregnancy; 4) are elevated in rhinos suffering from hemochromatosis; and 5) are elevated in many rhinos not suffering from hemochromatosis. In conclusion, serum ferritin concentration is not diagnostic of hemochromatosis in the Sumatran rhino. (This study was funded by a grant from Mr. and Mrs. Jeremy S. Hilton and Family with supplemental support provided by Dr. Tom and Rita Bell.)

**Clinical case: Gross examination on left rear leg of Sumatran rhinoceros (*Dicerorhinus sumatrensis*)  
Harapan by using digital X-ray**

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The Sumatran rhinoceros (*Dicerorhinus sumatrensis*) is one of the most critically endangered of large mammals on earth today. Based on IUCN's Red List of Threatened Species, Sumatran rhinoceros is classified as Critically Endangered (and also listed in CITES Appendix 1). The critically endangered Sumatran rhino's future is questionable with a shrinking wild population currently estimated at fewer than 100 rhinos and which needs serious action to save this species. Sumatran Rhino Sanctuary (SRS) is a breeding center for Sumatran rhinoceros in its native habitat run by Yayasan Badak Indonesia (YABI) in collaboration with the Ministry for Environment and Forestry, Government of Indonesia, and financially supported by the International Rhino Foundation (IRF). This sanctuary of about 100 ha is located in Way Kambas National Park. Since 1985, about forty Sumatran rhinoceros have been captured from the wild and translocated around the world. Three wild caught Sumatran rhinoceros were relocated to the Cincinnati Zoo and they successfully produced three calves - Andalas, Suci, and Harapan. Andalas and Harapan were returned to Indonesia, but Suci passed away due to health problems. Harapan, an 8 year old male, was moved to Indonesia by using air, land, and sea transportation. The journey took about 60 hours and he was placed in a crate about 3m x 1.5m x 2 m (l x w x h). A few days after arrival, he was observed with a limp on his left rear leg. Based on daily observation, Harapan's problem was thought to be located in the bone or tendon in the digitalis pedis area. X-ray examination was done without sedation with the rhino inside the stall. The crack observed on X-ray healed by itself, but it took 3-4 months due to the minimal blood vascularization of the phalanx bone. The bone is also actively used when the animal walked. Oral medicines like NSAIDs were not recommended for this case due to long term use. Symptomatic treatment was provided by giving calcium supplement (bone supplement) and by putting mattresses inside his stall for cushioning.