

## Conservation Program for Sumatran and Javan Rhino in Indonesia, Malaysia and Vietnam

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The Javan rhino (*Rhinoceros sondaicus*) is the rarest, and the Sumatran rhino (*Dicerorhinus sumatrensis*) is the most vulnerable species of rhinoceros. Historically both species shared large parts of SE Asia from the foothills of the Himalaya in the north to the large Sunda islands in the south. Currently only scattered remnant populations remain in the wild, about 50-60 Javans<sup>1</sup> in two locations in Indonesia and Vietnam, and about 300 Sumatrans<sup>1</sup> in Indonesia and Malaysia. Although habitat reduction has played a role, the major reason for the decline is hunting for the horn and other body parts for traditional medicine. Rhino parts, in particular the horn, are a major ingredient in the Oriental pharmacopeia, and can fetch a very high price. Legal protection and creation of conservation areas has not been able to stop the poaching of rhinos and the trade in their parts, and both species could become extinct in the near future if not given more effective protection in their native habitats. Therefore the conservation programs for both species stress the establishment and operation of dedicated Rhino Protection Units (RPU) in all major rhino areas. RPU patrol rhino areas to prevent poaching, destroy traps, gather evidence and apprehend poachers and other trespassers in conservation areas. The RPU are composed of regular wildlife officers and specially recruited and trained personnel and are funded by the respective governments with significant support from international donor agencies. Currently more than 200 persons are involved in RPU activities in SE Asia, protecting almost the same number of wild rhinos. Another component of the conservation program is managed breeding for future re-introductions. The Sumatran rhino breeding program started in 1985, but has not yet succeeded in reproducing the species under captive conditions although a pregnancy seems close.

### Anesthesia Management in White Rhinos for Reproductive Evaluation, Semen Collection and AI

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In order to elucidate the problems of poor reproductive performance in captive white rhinoceros (*Ceratotherium simum*),\* the EEP committee has encouraged intensive and serial reproductive monitoring in this species. Although the reasons for these problems have not been identified definitively, a multi-disciplinary, multi-institutional research proposal aims to work on possible solutions. During the period March 1999 to January 2001 a total of 37 anesthetic events were performed on 14 individual animals. All animals

(estimated weight range 2000–2800 kg) were induced with a combination of Detomidine-HCL and Butorphanol followed by Etorphine - Acepromazine. In most procedures an additional i.v. application of Ketamine was applied as a "drop dose" in order to reduce the time to lateral recumbancy, and thus facilitate the correct placement of the animal within the enclosure.

A heavy-duty tire inner tube was placed beneath the shoulder in order to alleviate possible compressive trauma. All animals received supplemental oxygen at a rate of 15 l/min through a nasal tube. The mean duration of anesthesia was 76 ± 48 min. Anesthesia was reversed in all cases with an i.v. combination of Naltrexone and Atipamezole. Reversal was smooth and without signs of excitation. All animals were standing and alert approximately 2 min following administration of the antagonists. Once in lateral recumbency, rhino monitoring included measurement of heart by direct cardiac auscultation and respiratory rate by direct observation of thoracic excursions. The percent oxygen saturation of hemoglobin (SpO<sub>2</sub>) was continuously monitored using a hand-held pulse oximeter. Additionally sequential venous and arterial blood samples for monitoring purposes were drawn. The arterial blood samples were processed immediately with a portable blood gas analyzer. Prolonged recumbancy in white rhinos is associated with hypoventilation resulting in hypercapnia and respiratory acidosis. Through the provision of supplemental oxygen the severity of hypoxemia can be limited. Pulmonary shunting and ventilation/perfusion mismatch also likely play a role in recumbent anesthesia of the white rhino.

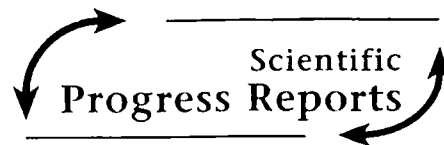
## Poster Sessions - Elephants

### Ultrasound Evaluation of the Pleura Space and Associated Connective Tissue in the Asian Elephant (*Elephas maximus*)

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The intimate connection between the lung and the chest wall of all extant elephant species is well documented. This relationship is critical in the anesthesia of elephants, necessitating that they be positioned in lateral recumbency. Clinical evaluation of the respiratory system is fairly limited at the present time and consistent of general health evaluations, blood gas determinations, trunk washes, and radiography in very young animals. More extensive diagnostics, such as bronchiole-alveolar lavage (BAL) may be feasible in given circumstances but would certainly necessitate a high-risk anesthesia. Thoracic ultrasound exams in clinically normal Asian elephants reveals a connective tissue layer of approximately 2cm with a fluid layer sandwiched between the parietal and visceral layers of 2-3mm. A culture positive elephant had findings that differed from the anatomy described in non-TB animals. Ultrasound evaluation may be a useful adjunct to pre-anesthetic screening once



Harald M. Schwammer  
Thomas J. Foose  
Michael Fouraker  
Deborah Olson



## **Recent Research on Elephants and Rhinos**

Abstracts of the  
International Elephant  
and Rhino Research Symposium,  
Vienna, June 7-11, 2001