# Borneo Rhino Sanctuary Programme – 2012 Report

## *Last chance to prevent the extinction of the rhino in Borneo*

The Sumatran rhino (*Dicerorhinus sumatrensis*) remains on the brink of extinction. No evidence of the continued existence of the species in Kulamba, Kalabakan, Kuamut and even in Tabin Wildlife Reserve (TWR) emerged during year 2012. This is the first year since 1980 for which no wild rhino signs were found in TWR, leaving Danum Valley as probably the last location of fertile wild rhinos in Malaysia. The only remaining possible means to prevent the species extinction is to focus on the single objective of producing more baby rhinos, with the programme in Sabah as part of a coordinated global effort. Rhinos in the wild will not breed as long as they are wandering as isolated individuals in remote and marginal habitats, just awaiting death from poaching, snare traps, accident or old age. The priorities have to include bringing fertile female and male rhinos together under close management, salvaging and storing genetic materials from infertile rhinos, and development of advanced reproductive techniques.

The euphoria generated in December 2011 with the capture of the female rhino Puntung (so-named because her front left foot has been lost in a poacher's snare) from Tabin Wildlife Reserve became more subdued in February 2012. A visiting specialist veterinary team from Leibniz Institute for Zoo and Wildlife Research (IZW; Berlin) found that Puntung has endometrial cyst growth in her uterus and Fallopian tubes, which would have significant implications on her ability to be fertilized or implant an embryo. However, she produces follicles, indicating that she is fertile. At the same visit, Tam was anaesthetized and a fresh semen sample obtained and preserved in liquid nitrogen for potential future artificial insemination. Further visits were made by the IZW team in March (when the cysts were partially removed by flushing with antibiotics and buffer solution) and again in June, by ultrasound-guided laser treatment.

Examination of snare trap ropes, set by poachers to obtain wild cattle (March 2012 at Kretam), but posing a risk also to the last remaining wild rhinos wherever they exist near to plantations.

Discussions were held on the possibility of developing a prosthetic foot for Puntung but, as she has lived with this condition since infancy and her musculature is therefore abnormal, the professional consensus conclusion was that the best method to relieve stress on her damaged leg is to have her out in her forest paddock as much as possible, and to minimise her time on concrete.

Based on data from zoos and other facilities since 1990s, it is known that healthy, fertile female Sumatran rhinos are receptive to mating only for a period of 1-2 days, at intervals varying between roughly 21-27 days. Dangerous fighting may occur between male and female rhinos if put together at times of "non-receptivity". Males seem to detect when a female is receptive by hormones in her urine, and subtle behavioural cues. In the wild, female rhino can simply run away from males when they are not receptive. The methods developed during 2012 at Tabin for humans to determine receptivity

IZW veterinary team leader Dr Thomas Hildebrandt examines video ultrasound imagery of Puntung's reproductive tract (24 February, Tabin Wildlife Reserve), and she is found to have severe endometrial cyst growth.


The BORA and IZW teams with Sabah Wildlife Department easing Tam onto a mattress after anaesthetisation and prior to electro-ejaculation to obtain fresh sperm (25 February 2012).

First breeding attempt for Puntung and Tam, in a temporary breeding pen at Tabin, 18 August 2012 (credit : Stephen Hogg, Wildtrack Photography)

dates were a mix of frequent monitoring blood serum levels of the hormone progesterone, ultrasound scanning of the size of follicles, and keepers' observations of behaviour. Based on monitoring of Puntung's progesterone since January 2012, and the successful reduction of her endometrial cyst growth in June, 17 August was determined to be the most likely date for the first mating attempt. Six attempts to put Puntung and Tam together in the breeding yard were done (17-19 August). Tam showed increasing aggression over those days, and no copulation occurred. Puntung's drop in progesterone in September occurred sooner than anticipated, and the likely best date was missed for a second mating attempt. Specialist examination in November revealed that Puntung's endometrial cyst growth had worsened. Puntung's endometriosis seems to be linked to an irregular and unpredictable cycling. Only one further mating attempt was made, in December, but Puntung rejected Tam's advances, and appeared very fearful of him.

The post-fertile old female rhino Gelogob remained at Tabin through 2012, pending renovation of her enclosure in Lok Kawi Wildlife Park.

Infrastructure completed during 2012 at Tabin Wildlife Reserve included the rhino breeding yard, a new interim paddock ready for any new rhino captured, a forest night stall for Puntung, replacement of swing doors with sliding doors, gazebos for visitors, and renovation and extensions to the paddocks, field manager's house, staff quarters and garage. Work commenced on a "food garden" near to the interim rhino facilities, whereby fast-growing woody plant genera preferred as food by rhinos can be maintained by coppicing.

Pending construction of permanent rhino facilities at Tabin, no further suitable sites exist for building of temporary holding facilities, due to topographical constraints, along with unsuitable road conditions and unreliable water supply. Over the period 2009-12, about RM700,000 has been spent, mainly by Sime Darby Foundation, on building and improving the temporary facilities. It is not considered appropriate or viable to continue using donor funds beyond year 2012 for more temporary facilities.

Surveys were conducted through 2012 at least twice monthly in various parts of Tabin Wildlife Reserve, primarily where rhinos were present between 1980s-2006, but no signs of rhinos were found. Commencing July, cameras were placed in the central and northern parts of Tabin, in a grid pattern supervised by IZW, at specific sites chosen where rhinos had been detected in the past and along large mammal trails in the forest. The cameras represent 3,205 "trap days" (total number of sites where cameras were operational multiplied by number of days operational). Images of all species of larger mammals present in Tabin were obtained, except images of rhino.

Reports from two independent sources in mid 2012 of the presence of rhino in the Kuamut region, led to a preliminary survey in June jointly by Sabah Wildlife Department, Borneo Rhino Alliance and Sabah Forestry Department. By November, no proof was found of rhinos, and notice of a reward for information was posted in Kuamut village and logging camps.

Following the report of sighting of two rhinos on the fringes of Kulamba Wildlife Reserve in December 2011, a decision was made to build a trap. As most of the region is swamp forest, unsuitable for building and monitoring a trap for such a large mammal, the best location on dry land was selected, in a zone between Kulamba and alienated land under forest cover. The trap was designed for the possibility of two rhinos traveling together. Working with advice from the Malay Tapir Conservation Project (which has successfully captured several tapirs in Peninsular Malaysia) various practical problems were solved to ensure that the mechanism would work perfectly 100% of the time. The trap was operational by mid June. By end of 2012, despite regular monitoring the Kulamba forests on the ground, no further signs of rhinos were found.

Puntung enters her wallow. Daily wallowing not only helps in thermo-regulation for Sumatran rhinos during the hot daylight hours, but also exposure to soft clay represents a treatment for her debilitating foot injury, the clay-rich mud being possibly also bactericidal.

Rhino trap designed for the possibility of two rhinos traveling together : a small paddock with hardwood fence and door at each end, built on a rhino trail. When a large animal enters the trap, it will push a central arrangement of barely-visible, fine plastic-coated wires, that pull a steel plate downwards and simultaneously releases ironwood pegs, cables and both doors within 1 second.

A preliminary proposal was developed towards end of 2012 to capture rhinos from Danum Valley and to retain them nearby. By this means, the dual issues of removing rhinos from the chronic threat of so-called “gaharu collectors” (more likely rhino poachers) in the Danum region, and providing additional facilities for any rhinos captured, could be combined. Agreement was reached on this proposal at the departmental and NGO levels, and a specific 3 hectare site for the facility was identified in Ulu Segama Forest Reserve, close to Danum Valley, in December by the key agencies.

Collaboration was pursued with external institutions, in particular Indonesia, which has the last three remaining small wild breeding populations of Sumatran rhinos. A meeting of the Sumatran Rhino Global Management and Propagation Board (GMPB), an ad hoc group of governmental authorities, global experts, keepers and donors met in the Ministry of Forestry HQ in Jakarta, Indonesia, on 15 March, chaired by Director of Sabah Wildlife Department. A letter of intent was crafted and signed during the meeting, which formalised an intent of collaboration between the key institutions. Signatories included Director-General, Forest Protection and Nature Conservation, Indonesia; Director, Biodiversity Conservation Indonesia; Director, Sabah Wildlife Department; Executive Director, Indonesian Rhino Foundation; Executive Director, International Rhino Foundation; Director, Center for Conservation and Research of Endangered Wildlife, Cincinnati Zoo & Botanic Garden; Chairman, Borneo Rhino Alliance; Chief Executive Officer, Sime Darby Foundation; Coordinator, WWF-International Asian Rhino and Elephant Action Strategy programme; Chairman, IUCN Asian Rhino Specialist Group; Vice-chair, Asian Rhino Project. A male rhino was successfully born to Ratu and Andalas on 23 June in the Sumatran rhino Sanctuary in Way Kambas National Park Sumatra. This provided a significant boost to confidence that the programme in Sabah can yield results if the right combination of rhinos, professionally-designed facilities and expertise are all in place. At the four-yearly IUCN World Conservation Congress, held in South Korea, 6-15 September, Sabah successfully argued for the following clause to be included in the Congress’s statement on rhinoceros : “for the Sumatran rhinoceros, close management of rhinos in fenced, managed conditions will be necessary in order to explore all possible techniques that may boost birth rate above natural death rate, including super-ovulation, artificial insemination, in vitro fertilization and other advanced reproductive techniques.”

An unusual chance to see the inside of a Sumatran rhino’s mouth.

(L-R) Drs. Widodo Ramono, executive director, Indonesian Rhino Foundation; H. Zulkifli Hasan, Minister of Forestry Indonesia; Tun Musa Hitam, chairman, and Hjh. Yatela Zainal Abidin, chief executive officer, Sime Darby Foundation (5 November 2012).

Sime Darby Foundation and WWF-Germany continued to be the major financial supporters of the Borneo Rhino Sanctuary programme in Sabah. Sime Darby Foundation has provided consistent “hands on” support for the programme. The Foundation’s Chairman Tun Musa Hitam met with the Minister of Forestry Indonesia in November, noting that “the Minister agreed that both parties could and should work together to breed the rhinos in managed sanctuaries .. we can learn from their experiences and collaborate .. we should work on all areas of cooperation and consideration should also include exchange of rhinos”.