



## Borneo Rhino Sanctuary (BRS) programme

Six-monthly report : covering the period July – December 2014

### Programme objective

To prevent the extinction of the Sumatran rhinoceros

### Main participating agencies

Sabah Wildlife Department (SWD; [www.wildlife.sabah.gov.my](http://www.wildlife.sabah.gov.my)) with Avantea ([www.avantea.it](http://www.avantea.it)), Borneo Rhino Alliance (BORA; [www.borneorhinoalliance.org](http://www.borneorhinoalliance.org)), ITBC/Universiti Malaysia Sabah ([www.ums.edu.my/ibtp](http://www.ums.edu.my/ibtp)), Leibniz Institute for Zoo and Wildlife Research (IZW; [www.izw-berlin.de](http://www.izw-berlin.de)), Sabah Forestry Department (SFD; [www.sabah.gov.my/htan](http://www.sabah.gov.my/htan)), Sabah Foundation ([www.ysnet.org.my](http://www.ysnet.org.my)), WWF-Germany ([www.wwf.de](http://www.wwf.de)), WWF-Malaysia ([www.wwf.org.my](http://www.wwf.org.my)), Yayasan Sime Darby (YSD; [www.yayasansimedarby.com](http://www.yayasansimedarby.com)).

### Main financing agencies during this period

YSD, IZW and partners

### Targets for this period

(A) More options than previously for production of Sumatran rhino embryos. (B) Collaboration between Indonesia and Malaysia/Sabah on Sumatran rhino.

### Activities during this period

Reproductive work (1) Over 10 million sperm were obtained from Tam and two oocytes were removed from Iman on 9 July by the IZW veterinarian team under Dr Thomas Hildebrandt working with Dr Cesare Galli (Avantea) and BORA. The gametes were taken fresh to Europe, arriving about 24 hours after harvesting, but the quality of the oocytes proved to be unsuitable for intra-cytoplasmic sperm injection (ICSI). (2) In preparation for a third attempt at oocyte harvesting and ICSI within year 2014, both Puntung and Iman were administered an oral suppressant of oestrus cycling (Alternogest) commencing September. Meetings were held with WWF-Germany and IZW in September in Berlin. However, a combination of factors (including difficulty in identifying in advance the precise best dates for oocyte harvesting, timetabling of the team from Europe, and high cost of financing of a third attempt during an eight-month period) resulted in no further attempt during this reporting period. (3) Routine monitoring of the reproductive cycling of Puntung and Iman was done throughout the reporting period.

Wild rhinos (1) A new base camp was established via helicopter drop on 4 July to continue seeking rhinos in the western parts of Danum Valley (by direct signs, not camera trapping). Surveys conducted in upper Danum, upper Segama and east Danum Valley July, September, October, November and December found no signs of rhino. The November survey area involved a helicopter drop to a different site. Seven staff from BORA, 3 from WWF-Malaysia and 2 from Danum Valley Field Centre were dropped on the south side of Danum Valley, 7 November, and taken out by helicopter on 24 November. WWF and DVFC set 18 camera traps in this survey area, to be recovered in 2015. (2) Fresh signs of a group of about 10 men, likely Indonesian, were found in the November survey area. Reports were made to SWD and SFD. (BORA executive director was seeking rhinos about 7 km west of the same area in 1992, when there were four Indonesians following two rhinos in the area at that time.) (3) A report was received in late July from a person resident east of Tabin Wildlife Reserve that he had seen two rhinos in the north-east part of Tabin in May 2014. Three ground surveys by the BORA team in August – September found no rhino signs in this area.

Malaysian National level context (1) Senior representatives of national governmental institutions Ministry of Natural Resources & Environment and Department of Wildlife & National Parks Malaysia visited the rhino facilities and programme at Tabin in August. (2) A paper was drafted with a view to seeking national level support for use of advanced reproductive technology in Malaysia and collaboration with Indonesia.

Rhino facilities (1) Danum Valley BRS facility was completed in July, and handed to BORA for management on 7 August. (2) Construction of the permanent BRS Tabin facility continued during this reporting period.

Collaboration with Indonesia (1) Sabah was informed during this reporting period that Indonesia has established a “Rhino Joint Secretariat” within Ministry of Forestry Indonesia (since 26 October, re-formulated as Ministry of Environment and Forestry). (2) Based on an invitation from Ministry of Forestry Indonesia, the first bilateral Indonesia – Sabah meeting on Sumatran rhino was held on 26 August in Bogor, with BORA attending on behalf of Sabah. Sabah outlined the need to pursue advanced reproductive technology for Sumatran rhino, and suggested that collaboration between Indonesia and Malaysia should prioritise this approach. Indonesia expressed an interest to secure Tam as a means to enhance genetic diversity within the Sumatran Rhino Sanctuary (SRS) in Indonesia. The response from Sabah was to agree in principle to this request, subject to further discussion and a number of conditions, including that any loan of Tam would be for a short period, so that both Malaysia and Indonesia could continue to utilize Tam as a sperm source for further in vitro attempts. (3) A follow-up visit was made 29 & 30 October to pursue possible options. Meetings were held with Indonesia’s foremost Sumatran rhino reproductive specialist (Dr. Mohd. Agil), WCS Indonesia Country Director (Dr. Noviar Andayani), former YABI veterinarian at SRS (Dr Dedi Candra, who joined Ministry of Environment and Forestry in November), Prof. Dr. Arief Boediono (Department of Anatomy, Physiology & Embryology, Veterinary Faculty, Institut Pertanian Bogor), office of the Director-General of Forest Protection & Nature Conservation (Dr. Novianto Bambang Wawandono) and the (new) Director of Biodiversity Conservation (Bambang Dahono Adji). (4) By end of this reporting period, details of potential collaboration had not been worked out.

### **Other updates**

Director of SWD wrote in September to the Sumatran Rhino Global Management and Propagation Board co-chair and members of the Board, seeking views on whether or not this Board should be closed down or revived, but no support was received.

An assessment of progress since the Sumatran Rhino Crisis Summit (SRCS; 31 March – 4 April 2013), based on the draft SRCS Emergency Plan Framework (prepared by Dr Mark Stanley Price in July 2013), was submitted in October to the IUCN Species Survival Commission (which convened the Summit) for further action.

The report on the study of chemical compounds in major Sumatran rhino food plants done by ITBC had not been completed by end of this reporting period. However, it was confirmed that no detectable traces of pesticides had been found by the ITBC lab on bananas fed to the Tabin rhinos.

Datuk Dr Laurentius Ambu retired from his position as Director of SWD at end of this reporting period.

### **Awareness**

A presentation was made at University of Nottingham Malaysia Campus, Kuala Lumpur on 17 December :  
[https://uni-of-nottingham.adobeconnect.com/\\_a908729032/p5mgoe1kwag/?launcher=false&fcsContent=true&pbMode=normal](https://uni-of-nottingham.adobeconnect.com/_a908729032/p5mgoe1kwag/?launcher=false&fcsContent=true&pbMode=normal) , with participation largely by Malaysian veterinary and biology students.

Reporting appeared in Malaysian national newspapers :  
<http://www.thestar.com.my/News/Nation/2014/12/19/Experts-turn-to-IVF-to-save-endangered-Sumatran-rhino/>  
<http://www.nst.com.my/node/66281>

A radio interview was recorded and made public on 23 December :  
<http://www.bfm.my/the-near-extinction-of-the-sumatran-rhino-john-payne.html>

### **Issues and solutions to be addressed**

#### Interest in advanced reproductive technology for Sumatran rhino

Skepticism continues to exist globally on whether ART can help save the Sumatran rhino from extinction. A rational approach should be to assume that protecting wild rhinos might not be sufficient to prevent extinction, and to accelerate in vitro fertilization attempts as an avenue to significantly boost production of Sumatran rhino embryos while gametes (sperm and eggs) are readily available in the aging captive rhinos. The production of just one embryo during year 2015 could serve to radically change attitudes.

#### Understanding of the role of Tam, Puntung and Iman

With a widespread perception of the three rhinos merely as aging and imperfect representatives of their species, and the status quo settling to a routine, the key role of all three rhinos as living sources of Sumatran rhino gametes tends to be understood only by a few persons involved in this species. The message that Sumatran rhinos might be saved through fusing of their gametes, rather than by simply keeping rhinos alive and hoping for the best, needs to be articulated and repeated by all concerned experts and institutions.

#### Wastage of precious gametes

Iman and Puntung continue to cycle approximately monthly, and oocytes are potentially available for harvesting in most months. Valuable oocytes are not being harvested from these females, who are now past their reproductive peak, due to a combination of the infrequency of visits to Sabah of

the IZW team, the difficulty in having the team in Tabin at optimum times for oocyte pick-up, and the absence of experts to perform oocyte pick-up and in vitro work within Malaysia. The establishment of a suitable in vitro laboratory within Malaysia and the development of an international “pool” of experts for each step of gamete harvesting to in vitro fertilization would allow much better use of the rhinos before their death.

### Plans for next quarter

#### Third ICSI attempt

Initiate establishment of an in vitro laboratory within Malaysia and the development of an international “pool” of experts for each step of gamete harvesting up to in vitro fertilization  
Continue to seek additional wild rhinos



Establishment of a new base camp to seek rhinos in the upper Danum river area on 4 July, (left) airlift of food and supplies, (right) the drop point on Danum river.



(left) removal of oocytes from Iman under general anaesthesia by Dr Cesare Galli and the IZW team (9 July), (right) Tam after a successful electro-ejaculation procedure to obtain sperm.



Disappointment (9 July) when it was found that no oocytes could be harvested from Puntung.



(left) 7 November drop site, (right) two other potential helicopter drop points in upper Danum for 2015 surveys were located on 7 November.



BRS facility at Danum Valley was completed in July. (left) the paddock perimeter fence, (right) water supply is harvested by gravity from the nearby Kalisun river and pumped to the night stalls.



(left) Ministry of Natural Resources & Environment and Department of Wildlife & National Parks Malaysia officials visiting the BRS facility under construction in Tabin Wildlife Reserve, (right) meeting in Bogor, 26 August (facing towards camera left to right : Dr Novianto Bambang Wawandono, Secretary to Director-General for Forest Protection & Nature Conservation; Sunaryo, Special Adviser to Minister of Forestry, meeting chairman; J. Payne, BORA; Anwar Purwoto, WWF-Indonesia; Dr Noviar Andayani , WCS Indonesia Country Director; Tony Sumampau (Taman Safari Indonesia).



Professor Dr drh Arief Boediono, Dr Zainal Z Zainuddin & Drh Dedi Candra discussing in vitro techniques at Institut Pertanian Bogor, 30 October