Borneo Rhino Sanctuary (BRS) programme

Six-monthly report: covering the period January – June 2014

Programme objective

To prevent the extinction of the Sumatran rhinoceros

Main participating agencies


Main financing agencies during this period

YSD, SFD, 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

Female Sumatran rhino “Iman” (1) Two additional traps were built during February to increase chances to capture the female rhino named Iman in Danum Valley. (2) Iman was captured on 10 March, in the first trap built in 2013, and moved from the trap site on 21 March, by helicopter to Taliwas, then by road to Tabin Wildlife Reserve. (3) In March, it was thought that Iman was likely pregnant and therefore fertile. She was examined by IZW specialists in collaboration with BORA and SWD on 3 April, and found not to be carrying any foetus, but instead to be suffering from over 10 massive tumours in the uterus (the origin of her bleeding and “aggressive” behavior observed from date of capture).

Rhino work at Tabin (1) In the absence of custom-built facilities, and the desire to keep Iman close to Tam for reproductive work, the paddock occupied by Puntung was modified, to accommodate both
Iman and Puntung in separate, adjacent facilities. (2) Routine monitoring of the reproductive cycling of both Puntung and Iman was done throughout the reporting period by a combination of frequent ultrasound (US) examination (new US machine obtained in January) and serum progesterone levels. (3) No natural mating attempt was done during this period.

**Advanced reproductive technology (ART)** (1) A small quantity (about 10 million) sperm were obtained on 8 May, and 3 oocytes were successfully removed from Iman on 9 May by the IZW team in collaboration with Dr Cesare Galli. (2) A small portion of the sperm was made available, and intracytoplasmic sperm injection (ICSI) was achieved on 11 May in 2 oocytes, but no cell cleavage occurred. (3) In preparation for a second attempt at oocyte harvesting and ICSI, both Puntung and Iman were administered an oral hormonal contraceptive (chlormadinone acetate), May-June, which will synchronise both females for potential oocyte pickup in July. (4) Skin and other tissues were obtained from Tam, Puntung and Iman (7-9 May) and derived cells successfully cultured, initially by Dr Vasil Galat at Tabin, then at Friedrich-Loeffler Federal Research Institute for Animal Health. The cell cultures will be transferred to IZW for maintenance and development of induced pluripotent stem cells (iPSCs) in collaboration with Stanley Manne Children’s Research Institute of Northwestern University, Chicago. These stem cells can be used in a variety of ways, such as development of sperm cells and eggs pending further advances in stem cell technology and ART. (5) To allow for possible alternative experimentation in the future, cell lines were also taken by Dr Oliver Ryder, and are held in San Diego Zoo’s Institute for Conservation Research “Frozen Zoo”. (6) The full genome of all three rhinos is now preserved, along with that of Gelogob (see below), in living cell culture.

**Wild rhinos** (1) Additional rhinos were sought by surveys in Danum Valley (10-22 April, 12-21 May and 9-20 June) without success, and by WWF-Malaysia through camera traps set in Danum Valley. (2) No signs of rhino other than Puntung have been detected in Tabin Wildlife Reserve since around 2008. The last camera traps were removed (27 March – 2 April) from the Tabin forest.

**Rhino facilities** (1) The BRS Danum Valley rhino facility was completed by end of this reporting period. (2) The BRS Tabin facility remains to be completed.

**Collaboration with Indonesia** BORA participated in a WWF Asian Rhino & Elephant Action Strategy (AREAS) meeting in Lampung, Sumatra, 10-11 April, as well as in one-to-one meetings with other NGO partners in Indonesia, and the Indonesian Rhino Foundation (YABI) Board meeting in Jakarta 26 May. No specific work was done to promote collaboration with Indonesia, other than periodic discussions with existing and potential Indonesian partners. A relevant paper entitled “Preventing the extinction of the Sumatran rhinoceros” (by BORA) was published and made available in public domain in Journal of Indonesian Natural History (http://jinh.net/wp-content/uploads/2014/03/JINH-DEC-2013-03-Preventing-the-extinction-of-the-Sumatran-rhinoceros.pdf) on 14 February.

**Other updates**

**Gelogob** The old female rhino Gelogob (also spelled Gelugob) died in Lok Kawi Wildlife Park on 11 January.

**Suci & Tam** Formal approval to loan Tam to Cincinnati Zoo was obtained by a Cabinet decision in February, and a loan agreement was then drafted, but the decision became obsolete due to the death of Suci in Cincinnati on 30 March. The death of Suci at age only 9 years represents a major blow to hope for captive breeding efforts with captive Sumatran rhino.
Sumatran rhino documentary A Malaysian film production company received permission in the early part of this reporting period to make a documentary on the Sumatran rhino in Sabah, and filming commenced immediately.

Malayan tapir health and reproductive training workshop
This practical workshop on tapirs was conducted in Sungai Dusun, Selangor, 26-29 May, led by BORA veterinarian Dr Zainal Z Zainuddin, with Dr Rosa Sipangkui of SWD and others participating. In addition to its primary role of assessing the status of captive tapirs, the workshop was arranged to facilitate experience for Malaysian wildlife veterinarians to perform general anaesthesia and artificial insemination that would be applicable to work on Sumatran rhino.

Awareness

A Malaysia media visit to Tabin (13-14 May) resulted in three articles in The Star (2 June):
http://www.thestar.com.my/News/Environment/2014/06/02/Raising-hope-for-baby-rhinos/,
http://www.thestar.com.my/News/Environment/2014/06/02/Keeping-them-safe/ and
http://www.thestar.com.my/News/Environment/2014/06/02/Our-fatal-blunders/

Issues to be addressed

Female Sumatran rhino reproductive tract pathology
After capture, Iman’s behaviour, daily bleeding from the vagina and torn ear suggested that she might be pregnant, and an ultrasound examination on 16 March indicated a likely pregnancy. The bleeding (roughly 200 ml daily on average in the weeks post capture) was a source of very serious concern. Blood, mucus and pieces of pathological tissue were expelled daily for the first month after capture, and blood loss eventually stopped by medication (tranaxemic acid). Iman’s reproductive condition is poorer than that of Puntung, and her health (due to the tumours and associated toxicity) may decline rapidly at any time. The previous Sabah “wild caught” female Sumatran rhino (killed illegally in Kalabakan Forest Reserve in March 2001, and examined by Dr Sen Nathan, SWD) had severe reproductive tract pathology. The likelihood that any remaining female Sumatran rhinos in Borneo (Malaysia and Indonesia), and possibly some of those in Sumatra, have similar pathology has to be acknowledged, and taken into account when making decisions on all efforts to prevent the extinction of the species.

Difficulties in capture and translocation of Sumatran rhino from remote sites
The Iman trap location represents the most remote site ever for capture of any Sumatran rhino to date. The translocation of Iman to Tabin involved several very significant challenges. Based on experience of BORA staff, she was the most “aggressive” rhino captured in Malaysia, a feature probably linked to discomfort from her pathology. On the date she fell into the trap, the ground monitoring team was minimal (four, the smallest agreed number) and there was concern that she might escape (by 12 March, on-site manpower had grown to 13 BORA, 6 Sabah Foundation, 5 Sabah Wildlife Department, 5 Wildlife Rescue Unit, and 4 WWF-Malaysia). The helicopter lift also experienced problems including (a) lack of clarity over final decision-making on key details (SWD in Lahad Datu or ground staff at trap site), (b) stress and over-heating of Iman in the lift crate on 20 and 21 March, (c) “last minute” changes in the pick-up point for BORA veterinarian and essential staff from the field and the crate landing site at Taliwas, (d) by 21 March, staff at the trap area had run out of food, yet it was not possible to extract them on same day. Taken together, these issues point to the fact that capturing and moving Sumatran rhinos from remote sites is not only a matter of choosing which rhino to capture, based on data and policy, but equally a matter of logistical possibility. It is possible that some remaining wild rhinos simply cannot be removed from the forest because logistical problems are too great.
Interest in advanced reproductive technology for Sumatran rhino

The first attempt at oocyte pick-up was achieved on 9 May, representing an early step in seriously pursuing advanced reproductive technology (ART) for Sumatran rhino under the BRS programme. Undue skepticism exists in whether ART can help save the Sumatran rhino from extinction, even though similar skepticism existed in the years before the birth of the first human “test tube” baby in 1978. Not all Sumatran rhino specialists are sympathetic to ART, but the dire situation of the Sumatran rhino seems still not to be adequately understood globally. Rationally, the correct approach is to either abandon the species to extinction, or accelerate and extend all possible approaches to using ART. A meeting was hosted by WWF-Germany in Berlin (29 April), at which the case for ART was made by IZW and BORA. Letters were sent by BORA seeking the collaboration of zoo associations and zoos with reproductively-compromised Indian and African rhino species, for practising ART procedures that might potentially be useful for Sumatran rhino work.

Solutions and plans for next quarter

(A) Continue to seek additional wild rhinos. (B) Obtain more fresh semen from Tam, along with a second attempt at oocyte harvesting, from both Iman and Puntung. (C) Pursue the possibility for zoos to make available reproductively compromised African and Indian rhinos for practice in rhino ART methodologies. (D) Continue to seek opportunities for collaboration between Indonesia and Malaysia/Sabah on Sumatran rhino.
(left) 11 March, Sabah Wildlife Department senior ranger Mr Herman Stawin examines the pit trap in which Iman was caught (foreground; the same trap as shown on page 8 of the July-December 2013 report), filled with soil, which on night of 10-11 March enabled Iman to scramble out of the pit and run into the crate, (right) side view of the same scene, with Iman held in the crate pending construction of a boma (temporary small stockade).

Construction of the boma, 11 March, collaboration involving BORA, Wildlife Rescue Unit, Sabah Foundation staff and others, (left) placement of sections of hardwood fence into the perimeter trench, (right) Iman inside the crate on the left with fence construction ongoing to the right.
Scenes from the camp built adjacent to the boma to house over 30 personnel, (left) building additional sleeping quarters, (right) preparing for an initial attempt at ultrasound examination of Iman (15 March)

Iman in her boma showing (left) wallowing through hot mid-day hours, (right) her sliced right ear

(lef) helicopter used for the airlift, (right) Iman inside crate being transferred from truck to her night stall at Tabin (22.30 hours on 21 March).
(left) Iman in night stall, 22 March, (right) continuing daily loss of blood with mucus and tissue from the reproductive tract gave rise to grave concern over Iman’s reproductive health (26 March)

Local media reported the capture of Iman (Daily Express, 13 March) BRS rhino facility under construction at Danum Valley 7 March (centre) and 27 March (right)

Iman was examined by ultrasound on 3 April and found to have massive tumours in the uterus, (left) under general anaesthesia during the examination, (right) ultrasound image of the largest tumour
(left) Tam under general anaesthesia for electro-ejaculation to obtain fresh semen (8 May), (centre) Tam recovering after the procedure, (right) media visit to Tabin (14 May)

(left) the oocyte pickup procedure underway, (right) Dr Rosa Sipangkui (Sabah Wildlife Department) (9 May)
A 64-year-old female rhino was found dead on Monday morning in Tabin Wildlife Reserve, northern Sabah, with bullet wounds to its head and body. The rhino was believed to be pregnant, with a calf expected to be born in the next few weeks. The death of the endangered species has sparked a wave of shock and outrage among conservationists and wildlife enthusiasts. The incident has raised questions about the safety of wildlife in protected areas and the effectiveness of anti-poaching efforts.

It is not the first incident of poaching in Sabah, where wildlife law enforcement has been facing challenges due to the remote and rugged terrain. Questions have been raised about the accountability of those in charge of the reserve, with some calling for a more robust approach to poaching prevention.

Conservationists and wildlife organizations have condemned the incident, calling for an immediate investigation to determine the cause of death and those responsible. They have also called for increased efforts to protect endangered species and their habitats.

The death of the rhino, which was thought to be pregnant, adds to the growing concern about the future of the species in Sabah. Conservationists fear that the loss of this valuable resource could have significant impacts on the ecosystem and the local economy.

The incident has also reignited the debate about the effectiveness of wildlife reserves in protecting endangered species. Conservationists argue that more needs to be done to ensure the safety of these creatures, while others believe that the incident is a wake-up call for authorities to take action.

In response to the incident, authorities have announced additional security measures to protect wildlife in the reserve. Conservationists hope that this incident will serve as a reminder of the importance of protecting endangered species and their habitats.