Borneo Rhino Sanctuary in Tabin Wildlife Reserve

Last chance to prevent the extinction of the rhino in Borneo

Tam in his 2.5 hectare paddock at Tabin.

The Sumatran rhino is one of the most endangered animal species anywhere in the world. The current number of living individuals of the Bornean subspecies of the Sumatran rhino (*Dicerorhinus sumatrensis harrissoni*; also known as the Bornean rhino) is possibly around forty or less, almost all in Sabah. With a birth interval of at least three years under optimum conditions, probably no more than two rhinos are now being born annually in Borneo.

The African and Indian rhinos species were in a similar situation about a century ago, as were several other large mammal species such as the European bison, Arabian oryx and Pere David's deer, all of which were built up to much larger numbers with appropriate actions by a small number of dedicated people. Sabah now offers the only likely prospect for saving this sub-species, and the best prospect for saving the species in Malaysia.

Protection of wild rhinos "in situ" has for many years been the mainstay of rhino conservation work in Malaysia and Indonesia. This has involved stiff penalties for killing or possession of rhino parts, and regular patrols by "rhino protection units". Yet wild rhino populations have continued to decline or go extinct locally. Sumatran rhino populations which only a few decades ago probably numbered in the hundreds (in the Gunung Leuser mountain complex of northern Sumatra) or tens (in Endau-Rompin, Peninsular Malaysia), have been wiped out. Poaching and habitat loss continue to be named as the big threats to Sumatran rhinos, but there is now a much bigger threat : very low numbers of rhinos. As numbers of individuals of a species decline drastically, the various factors associated with very low numbers (e.g. narrow genetic base, locally skewed sex ratio, difficulty in finding a fertile mate, reproductive pathology associated with long non-reproductive periods) conspire to drive numbers even lower, to the extent that death rate eventually exceeds birth rate, even with adequate habitat and zero poaching. In the absence of specific actions to bring Sumatran rhinos together and boost production of offspring, therefore, there is a strong possibility that the species may go extinct. Monitoring and protection of rhinos and rhino habitats represent a necessary but insufficient approach to preventing rhino extinction.

Zero poaching and zero illegal snare-trapping of rhinos are efforts that need to be sustained. But more importantly, there needs to be a way to bring fertile female and male rhinos into conditions which maximize their chances of meeting and breeding. This is the purpose of "*Borneo Rhino Sanctuary*" inside Tabin Wildlife Reserve, a fenced, managed area to be populated by rhinos translocated from other sites where those rhinos are reproductively isolated and unable to contribute to the species survival.

The Borneo Rhino Sanctuary concept dates from a workshop held in Kota Kinabalu in July 2007, arranged by the non-governmental organization SOS Rhino and Sabah Wildlife Department, with participation by many local, national and international experts. The workshop participants agreed that (1) Sabah rhinos are heading to extinction largely because numbers of fertile individuals is low and these rhinos are not meeting and reproducing, and (2) Sabah's rhinos need to be concentrated into one designated area in order to promote breeding.

In early 2008, the national government of Malaysia launched the Sabah Development Corridor programme, to promote a more organized and rapid approach to development in Sabah. The official programme document, page 189, section 7.4.9 Rhino Rescue Program, states : "*guaranteeing the sub-species protection is no longer sufficient to ensure its survival. .. Lack of breeding and inbreeding .. now present the most immediate threat. .. it will be necessary to establish a closely-managed population in a designated area ..*".

An old paddock at Tabin, dating from the 1990s, was renovated to form an interim home for the rhino, Tam.

Following the 2007 workshop, a task force was established, chaired by Sabah Wildlife Department, with members from other governmental and non-governmental agencies. The task force decided to identify a managed site, to be known as Borneo Rhino Sanctuary, to which scattered rhinos could be brought, in order to have a greater number of genetically unrelated rhinos. Eight sites were reviewed between November 2007 – February 2008, including Tabin Wildlife Reserve and forests adjacent to Danum Valley. Following preliminary identification of Taliwas in Ulu Segama Forest Reserve, Tabin was subsequently chosen as the best location overall for a fenced sanctuary to which scattered isolated rhinos should be brought. The main reasons for selecting Tabin included the existence of extensive forest habitat known to be suitable for rhinos, and the option at a later stage to mix existing and introduced rhinos for breeding.

The 2007 workshop did not prescribe how rhinos should be concentrated. Some experts believed that Sabah should follow the model used at Way Kambas National Park, Sumatra, established in 1998. In this model, rhinos are held individually in adjacent 10 hectare forest paddocks, arranged like the segments of a cut orange fruit, within a single large circle, with constant intensive monitoring. Individual females and males are brought together when the female is receptive, based on constant monitoring of her reproductive condition. Tabin Wildlife Reserve, however, (along with all other available potential sites in Sabah) differs from Way Kambas, in being undulating and steep terrain. The arrangement of paddocks in Way Kambas depends on the availability of flat terrain. At the time the Sabah concept for a rhino sanctuary was being discussed initially (mid 2007 – mid 2008), the rhinos in Way Kambas (three females, two males) had not reproduced. Other experts believed that a better approach was to catch as many rhinos as possible, and release them into a single very large forest enclosure, with rhinos allowed to mate without human interference.

In November 2008, African rhino translocation expert and veterinarian Dr Jacques Flamand, visited several potential "sanctuary" sites in Sabah. He suggested that the single large enclosure model should be tried, as Way Kambas had not succeeded in breeding rhinos, while large enclosure models had worked well in Africa. In December 2008, a 4,500 hectare perimeter road for a large enclosure was identified in Tabin Wildlife Reserve. Agreement was reached to build such a large fenced sanctuary. Formal approval by the State Cabinet for Borneo Rhino Sanctuary was granted in May 2009.

It was intended that the 4,500 ha Borneo Rhino Sanctuary boundary would consist of three main elements : a narrow gravel perimeter road, 3 strands of electrified wire along the roadside (a method used commonly in Sabah to prevent elephants from entering oil palm plantations), and an additional visual cue, such as painted stones, to show rhinos and other wildlife the presence of the electrified fence. Rhinos would be sensitized to electrified fence before being released into the Sanctuary, so they would know that it gives a shock. It was anticipated that falling trees, elephants and pigs would frequently push down the electrified fence, and so constant monitoring would be needed to allow the fence to be re-erected at any breach.

Construction of a temporary 2.5 hectare rhino paddock at Tabin, financed by Sabah Forestry Department.

However, the single large enclosure concept in Tabin has very significant problems. The chosen alignment for the large single-enclosure Sanctuary had a perimeter of 33 kilometres, through rainforest on predominantly rugged terrain. Of that, about 11 km was already existing road, while the remainder was old overgrown logging roads, that would need major rebuilding. The 22 km of new road would cross 9 rivers and about 100 small ephemeral streams and water courses, yet all the old bridges had long since been washed away. The establishment of a fenced area with perimeter road in such conditions would have been unprecedented for wildlife conservation in South-east Asia and globally in tropical rainforest.

Subsequently, through 2009, several concerns became increasingly apparent. Firstly, this model assumed that several fertile rhinos could be located and captured within a few years, yet there was a growing realisation that there are extremely few fertile rhinos remaining that, for logistical and policy reasons, could be caught and moved. Secondly, the bulk of evidence from Indonesia and Malaysia is that a high percentage of adult Sumatran rhinos (female and male) are infertile; close management is needed to treat and manage the infertility; putting rhinos in a single large enclosure without close human monitoring may mean simply releasing rhinos that cannot breed. Thirdly, the cost of building and maintaining such a large sanctuary would be enormous. Then, in February 2010, it was confirmed that a young female rhino in Way Kambas was pregnant (previously, there were concerns by some experts that stress due to intensive human presence and monitoring was the reason for no successful breeding between 1998-2009; in fact, the problem previously was that the old male was infertile and the young male – born in

Interior of the old rhino night stall at Tabin after renovation

Cincinnati Zoo in 2001 - too young to breed). By end of 2009, it was considered that the Way Kambas model would be the better bet and should be adopted in Sabah for the Borneo Rhino Sanctuary in Tabin Wildlife Reserve.

In the mean time, a rhino "caught" by a WWF-Malaysia video camera "trap" at Kretam (the imagery was released in April 2007) was actually caught in real life on 13 August 2008, having walked out of the forest into an oil palm plantation, from where it refused to return to the forest. This rhino, a mature male named Kretam, or Tam for short, was enticed into a crate and moved into a small temporary paddock in Tabin Wildlife Reserve. This event was caused by a series of unforeseen circumstances, and had not been intended to take place until 2009. Funds made available at short notice by Sabah Forestry Department, the State Ministry of Tourism, Culture and Environment, and WWF-Malaysia, enabled the old paddock to be improved with new facilities, and extended to include 2.5 hectares of forest. The core permanent Borneo Rhino Sanctuary facilities are expected to be developed under the Sabah Development Corridor programme. In July 2009, the programme was given a significant boost with the announcement of a substantial three-year funding commitment from Yayasan Sime Darby, which will go towards developing staff quarters, seeking and translocating rhinos, and operating the Borneo Rhino Sanctuary. At end of 2009, it was decided that priorities for year 2010 should include immediate identification of the permanent Borneo Rhino Sanctuary site within Tabin Wildlife Reserve, the rescue of additional rhinos from reproductively isolated sites (prioritizing female rhinos), addition of interim rhino facilities and staff quarters at Tabin, and commencement of building the permanent Borneo Rhino Sanctuary structures.

Wildlife and BORA staff at the rhino paddock site with vehicle donated by Yayasan Sime Darby for Borneo Rhino Sanctuary.

Preventing the extinction of the rhino in Sabah requires focused, collaborative work, involving government and NGOs. Corporate assistance is needed not only in the form of financial sponsorship but also "in kind", particularly from land owners surrounding Tabin and other Forest Reserves where rhinos exist. Sabah Wildlife Department takes the lead role for rhinos, Sabah Forestry Department for the forests. SOS Rhino Sabah changed its name to Borneo Rhino Alliance (BORA) and, based at the Institute for Tropical Biology and Conservation at Universiti Malaysia Sabah, this NGO works to support Sabah Wildlife Department at Tabin Wildlife Reserve, while WWF-Malaysia continues essential rhino monitoring work at other rhino sites in Sabah.