

Is Rhino Population in Kalimantan on the Edge of Extinction ?

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1. Introduction

Rhinos were infamous as extinct in Kalimantan prior to the year two thousand, where a new track was recorded in Muara Pahu, West Kutai by Boer (2002). Furthermore, WWF and Boer successfully photographed three females in 2013, and one named "Najaq" was captured to ensure freedom from the sail (meshes in the form of car slank) of illegal hunting, nurtured, fed and slept in boma (captive, or a large artificial cage), but unfortunately died. However, the second one, Pahu has survived to this moment in Kelian forest.

Recently, there have been great challenges in finding wild rare animal species, resulting from the scarcity of forest areas in Borneo. In addition, technological development (camera trapping), in terms of advanced monitoring system, has increased the possibility of detection. The Indonesian government has prohibited hunting rhinos, leading to an increase in population of these endangered animals, and one has been spotted at sub-district Damai, West Kutai Regency. This area is prone to forest degradation, resulting from coal mining activities, illegal logging and illegal hunting, thus indicating poor achievement of safety requirements. The next threat is the long dry season, continuous destruction of habitat, and illegal hunting. Therefore, it is important to evaluate population conservatory methods for Rhino and other big mammals, including Orangutan, elephant, Deer, Bear etc. with a wide home range (the term to describe the range of wildlife). Also, there is a need to assess the forest dimension required to ensure protection, alongside the population size developed to guarantee survival, and any other questions related to viability (Term used to describe the population that can be genetically sustainable or ratio male and female).

2. Conservation Problem

From the pre-historic era, rhinos, elephant and tapir have existed in Borneo island, but competition for food and illegal hunting has brought these majestic animals to the brink of extinction. However, tapir and Sumatra elephants are predicted to already be extinct in Borneo, although the currently reduced hunting practices provide opportunity for repopulation. This is possibly achieved through a different approach, and results from the adaptative ability to various terrains, ranging from low lands to high mountains. The already extinct Javan rhinos are lacks these traits and are, therefore, incapable of surviving the anthropogenous impacts in lowland area. In addition, some individuals are unable to differentiate between the Sumatra and Kalimantan Rhinos.

The critically endangered Sumatran Rhinoceros, specifically the Bornean sub-species *Dicerorhinus sumatrensis harrissoni*, was rediscovered in East Kalimantan. This observation occurred 25 years after being declared extinct in the region, thus providing hope regarding the survival of a few. However, the absence of males in Sumatra, Kalimantan and Malaysia is indicative of possible conservation problems in the future. Hence, In vitro fertilization technology is required to aid this course.

The following picture shows the track and one of the mud wallow where rhino were first photographed.



The finding of foottracks surrounding the mud wallow (left) and the mud wallow inside the forest where the camera was set (right).

The camera captures the sumatra rhino in Kalimantan island, thus creating an impression of non-extint existence.



Individual rhinos captured by camera trapping (left). This sophisticated picture is convincing of Sumatran rhinos existence in Kalimantan Indonesia (right).

3. Scientific and strategic Discussion

The Sumatran Rhino (*Dicerorhinus sumatrensis*) is listed as Critically Endangered and competes with the Javan specie for the bleak title of world's most endangered rhino species. The population of *D. sumatrensis* has declined by more than 80%, with an estimation of only 250 individuals surviving in the wild and fewer than 400 in total, existing today. This specie lives in the isolated pockets in the dense mountain forests, especially in Malaysia, and Indonesia, representing the only significant range countries, and possibly Myanmar (IUCN 2013). Both countries share two subspecies, including *Dicerorhinus sumatrensis sumatrensis*, reported mainly on Sumatra, with a total population of 170 to 230 individuals, and *Dicerorhinus sumatrensis harrissoni* from the Tabin National Park and Danum Valley, both in Sabah, Malaysia. The total population of *D.s. harrissoni* in Sabah is approximately only 50 individuals, based on a two year survey conducted from 2000-2002, where 6 were indicated as known, with 10 probable, and an additional 35 possible (Van Strien, 2005).

The following table shows rhino population in Sumatra based on SRK Badak 2007-2017 and PVA 2015.

No	Location/ National Park	year 2007 (individual)	PVA 2015 (individual)
1	Gunung Leuser	60-80	37-44
2	Bukit Tiga Puluh	-	-
3	Kerinci Seblat	< 5	-
4	Way Kambas	15-25	26-30
5	Bukit Barisan Selatan	60-80	17-24
6	Kalimantan	Not determined	Not determined

SRK = Strategi dan Rencana Konservasi (Conservation Strategic and Development)

PVA = Population Viable Analysis

Prior to the year, 1974, the population of Sumatra rhino was 400 – 700 individual. However, an Assessment of the Viable Population in 2015 estimates the existence of only 72, indicating a two time population loss in Indonesia, during a 40 year period. Furthermore, the goal of increasing the number was not successful, compared with the higher outcome of Javan rhino.

D.s. harrissoni was declared extinct in Indonesian Borneo (Kalimantan) in the early 90's, and rediscovered in East Kalimantan in August 2013. Furthermore, remote cameras set in West Kutai captured the pictures and video of some in an undisclosed location, although the exact number was not verified. Most of the remnants are small and fragmented, and therefore implicated in restricted breeding. Moreover, rhinos sometimes live individually in small forest, and the solitary lifestyle poses difficulties in discovery attempts and during counting. Therefore, protection becomes a challenge, as saving the species require the introduction of males from other regions for mating.

The two principal threats facing the Sumatran rhino are poaching and reduced population viability, resulting from fragmentation (IUCN 2013). Furthermore, hunting is primarily driven by the demand for potential medicinal properties of rhino horns and other body parts. Recent researches suggested the inability for minor habitat disturbance and low impact timber extraction to negatively affect sumatran rhino. This is due to the high adaptability to most forest conditions. Therefore, it is important to discover, protect and help these populations breed. This is the only means to prevent extinction.

A multi-pronged approach must be devised to ensure the protection of any rhino in Kalimantan, This includes first, working with local communities and district governments to immediately establish adequately trained rhino patrol teams with sufficient funding to ensure efficiency. Therefore, a successful establishment is followed by considerations for long term conservation measures. These include rhinos discovery in other regions of Kalimantan (Wehea, Berau and Long Nawang), seeking saltlick (salt water source) places in the

forest as habitat, and also engaging trained individuals in education campaigns and long-term monitoring projects. In addition, more drastic measures ought to be applied in the relocation of animals to protected areas. This is to ensure controlled breeding, and the ultimate protection of rhino population from extinction.

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