



Short communication

Behavioral and physiological changes in a juvenile Bornean orangutan after a wildlife rescue



Renata S. Mendonça^{a,*}, Rafaela S.C. Takeshita^a, Tomoko Kanamori^a,
Noko Kuze^b, Misato Hayashi^a, Kodzue Kinoshita^a, Henry Bernard^c,
Tetsuro Matsuzawa^a

^a Primate Research Institute, Kyoto University, Japan

^b National Museum of Nature and Science, Tokyo, Japan

^c Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, Malaysia

ARTICLE INFO

Article history:

Received 24 June 2016

Received in revised form 6 August 2016

Accepted 6 August 2016

Keywords:

Rescue

Hematology

Biochemistry

Stress

Activity budget

ABSTRACT

We report a case of a juvenile female orangutan (*Pongo pygmaeus morio*) that remained in a durian tree (*Durio zibethinus*) for about one month, nearby a road delimiting Danum Valley Conservation Area (DVCA), East Borneo. The juvenile was rescued and brought to Sepilok Orangutan Rehabilitation Centre (SORC). Before rescue and after release, we recorded the juvenile's activity and collected fecal samples for the determination of fecal glucocorticoids (fGC). We compared the behavior and stress levels between the two conditions and made comparisons with DVCA juveniles. Additionally, we obtained hematological and biochemical parameters pre and post-quarantine, to monitor her health condition and recovery. The pre-quarantine diagnosis revealed dehydration, malnourishment and slight anemia, but after quarantine her condition stabilized. The juvenile showed abnormal activity in both conditions, with high bark consumption before rescue and a high proportion of resting time after release. fGC levels were higher in comparison to DVCA juveniles, and showed a marked increase after the release. The results suggest that rescue programs help reestablish health parameters, but release processes are stressful for wild orangutans. Early separation from the mother in orangutans may occur more often than reported, particularly in fragmented habitats, and result in poor health that could hasten death.

© 2016 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Orangutans have the longest inter-birth interval and exceptionally long developmental phases among the non-human primates (Galdikas and Wood, 1990; van Noordwijk et al., 2009). They attain independence at around 8.8 years old in Sumatra and at around 6.9 years old in Borneo (van Noordwijk et al., 2009). An earlier independence from the mother may expose immature individuals to various threats, such as predation (Kanamori et al., 2012; Rijksen, 1978), harassment from conspecifics (van Noordwijk et al., 2012) and human activities (Meijaard et al., 2011).

According to the IUCN Red List of Threatened Species, both species of orangutans are listed as critically endangered (Borneo, *Pongo pygmaeus*; Sumatra, *Pongo abelli*). Their prolonged developmental period and low birth rate in combination with habitat deforestation (Morrogh-Bernard et al., 2003) and hunting pressure (Marshall et al., 2006), have hampered conservation efforts (Marshall et al., 2009).

* Corresponding author.

E-mail address: renatadasilva.mendonca@gmail.com (R.S. Mendonça).

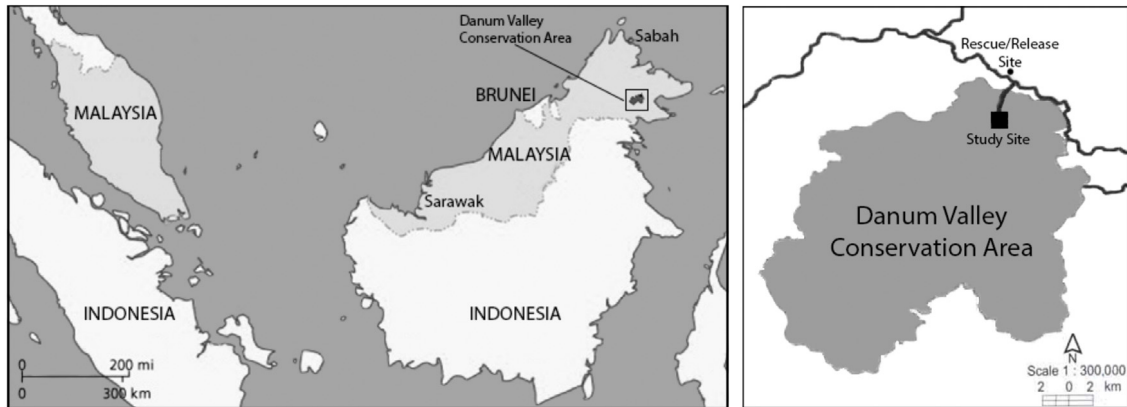


Fig. 1. Map of the Danum Valley Conservation Area (left) and the study site, including the location where the juvenile orangutan was rescued/released (right).

Reports on orangutan mortality or disappearance are scarce given their low mortality rate (including infants), when compared to the other great apes, like chimpanzees and gorillas (Wich et al., 2004). Therefore, events that report threatening situations for orangutans are crucial for understanding the possible causes of mortality/disappearance in this species.

Our study is the first to report a case of two wild female juvenile orangutans (*Pongo pygmaeus morio*) isolated in a durian tree outside Danum Valley Conservation Area (DVCA), East Borneo, and the rescue of the youngest female. The two juveniles survived for about one month after the durian fruits finished, with limited access to food resources and the absence of maternal care. For the youngest female, we combined behavioral and hormonal data, hematological, and biochemical analyses to address her relative health status before rescue and after release. Additionally, we compared her behavior and stress levels with wild juvenile orangutans living in DVCA.

2. Methods

2.1. Study area

The rescue and release of the youngest juvenile female orangutan took place 200 m from the border (consisting of a road) of Danum Valley Conservation Area (DVCA) (05°02.277'N, 117°45.689'E), East Borneo, Sabah, Malaysia. The area consists of a secondary forest, 2 km away from a palm oil concession (Fig. 1). Additionally, we collected data from five dependent immature individuals (infants and juveniles) living in a 2 km² area in the DVCA, where studies on orangutans have been ongoing since 2004. DVCA is one of the largest lowland dipterocarp forests remaining in Southeast Asia with a total area of 438 km² (Hazebroek et al., 2012) and was established as a Government as a Class I protection Forest Reserve by the Sabah State in 1996. East Borneo is subjected to mast fruiting events that are known to affect orangutan activity, especially their feeding behavior ((Ashton et al., 1988; Wich and Schaik 2000). However, fruit census data collected during the study period showed no mast fruiting event. A small-scale fruiting season occurred in August 2014 (Kanamori et al., in press).

2.2. Data collection

RSM and three trained field assistants watched the youngest juvenile female for 33 h 18 min, from 23 to 25 August 2014, in the pre-rescue phase and for 47 h during the post-release phase, from 8 until 12 November 2014. Activity budget data (feeding, resting, traveling) was collected using focal instantaneous sampling every 2 min. Food items consumed by the individual were identified and classified as either low caloric (bark and leaves) or high caloric value (fruits). Fresh fecal samples were collected in the pre-rescue ($n = 3$) and post-release ($n = 4$) phases for the determination of fecal glucocorticoids (fGC). To make comparisons with normal juvenile behavior and fGC levels, we analyzed data from five wild infant and juvenile orangutans (three females and two males) living in DVCA, aging from 3 to 7 years old. Fecal samples ($n = 11$) and behavioral data (276 h) were collected using the same methods described above.

The methods used for collecting data were approved by the Sabah Wildlife Department (SWD) and the Danum Valley Management Committee.

2.3. Hormonal assay

All samples were lyophilized using a freeze-drier (EYELA FDU-1200, Tokyo, Japan), pulverized and extracted by adding 5 ml of 80% methanol to 0.1 g of feces. The supernatant was taken to assay the samples after centrifugation ($100 G \times 1$

Download English Version:

<https://daneshyari.com/en/article/4379438>

Download Persian Version:

<https://daneshyari.com/article/4379438>

[Daneshyari.com](https://daneshyari.com)