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RESEARCH NOTE

Rarity and possible new records of Sumatran rhinoceros in Taman Negara

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As part of the joint research project between University of Florida and Department of Wildlife and National Parks (DWNP), UF-Malaysia Tiger Project, between November 1998 and August 2001 we sampled about 600 km^2 of lowland to hill dipterocarp forest (70-898 m ASL) in Taman Negara using camera-trapping, sign survey, and 100-m transect track-counts. See Kawanishi et al. (1999) and Kawanishi (2002) for a detailed description of the study sites and methods. Among all the large mammal species known to occur in the park, we found that the Sumatran rhinoceros was the rarest. In this paper, we present data concerning rarity of the rhino and indicate new locations where tracks of rhinos were recorded. Thereby we call for a further investigation and protection of the animals in Taman Negara by the DWNP's Rhino Protection Unit.

With a total of 4533 wildlife photos collected with camera traps over 14,000 trap nights (1 trap night = 1 camera functioning for 24 hours), we successfully documented all the medium to large terrestrial mammal species known to occur in the park except for rhino. A small number of rhinos were, however, known to occur in all our sampling sites (pers. comm. RPU Taman Negara). Despite setting a camera trap wherever fresh sign of a rhino was encountered, we failed to photograph the animal. All the camera traps were maintained and animal tracks on the ground in front of cameras were recorded monthly. We found that once we came into an area where a rhino's presence was documented, the rhino never returned to the same site except for an area along the Sg. Kenyam Kecil near Gua Batu Besar in Pahang Taman Negara. At this site we twice documented a cow-calf pair in 2000 (Figure 1). The likely reasons for the failure to photo capture a rhino are 1) the extremely low density of the animals, 2) secretive nature of the animals, and 3) malfunctioning camera traps.

The rarity of Sumatran rhino is supported from the camera-trapping data and track-count transects. Compared to 6 other large ungulate species— elephants, tapirs, gaur, sambar deer, wild boar, and muntjac— the frequency of recording rhino was extremely low (Table 1). These data do not provide explicit population estimates of the animals by themselves, but indicate the extremely critical population status of the rhino.

The details of the rhino tracks recorded in our study are in Table 2. Although the sampling team always included at least one experienced DWNP ranger as the main tracker, none of us were formerly trained to identify rhino tracks. Thus mis-identification might have been possible. We are least confident about the record, Ref # TC425, because there was only one incomplete print available for examination. We initially used van Strien (1983) and Kanjanavanit (1997) for identification of rhino tracks, then later our judgement was based on the experience of positively identifying elephant and tapir tracks. In other words, a set of very

large, clear tracks that did not fit the description of elephant or tapir tracks were identified as rhino tracks. We admit the subjectivity in our judgement, therefore do not present the data as confirmed records of rhino in our study sites. Nevertheless, we covered a large area on foot during the 3-year study and recorded possible rhino tracks in areas that in fact coincided with existing RPU data (pers. comm. Abdul Kadir Abu Hashim, Head of RPU) and in new areas that are probably unknown to RPU (Figure 1). When a species is on the verge of extinction like the Sumatran rhino, every possible record of presence counts. We hope that these records can facilitate RPU in planning a further investigation and protection of the animals in Taman Negara in a timely manner.

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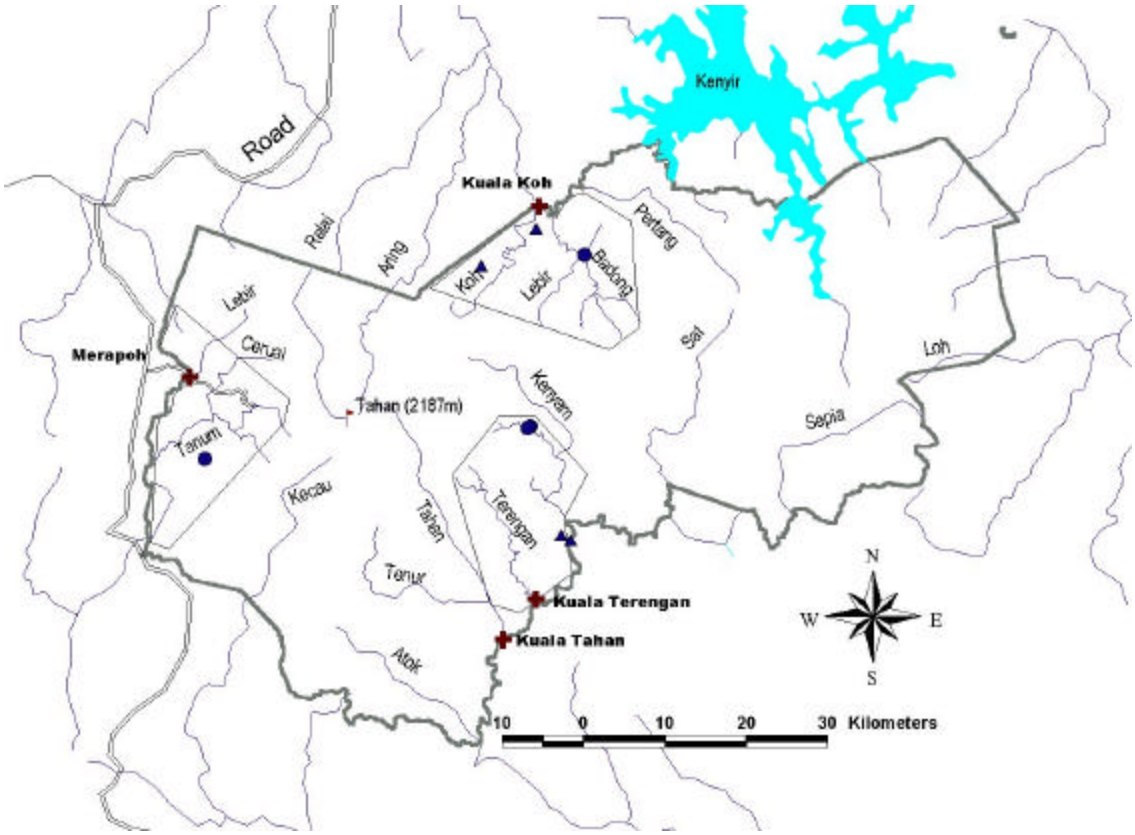

Figure 1. Location of the tracks of Sumatran rhinoceros found in the three sampling areas (line polygon), Merapoh, Kuala Terengan, and Kuala Koh in Taman Negara between 1998 and 2001. The specific locations corresponding with existing RPU data (pers. comm. Abdul Kadir Abu Hashim, Head of RPU) are in circle, and possible new locations are in triangle. The cross indicates the DWNP posts.

Table 1. Results of camera-trapping and track-count sampling of the large ungulate species in Taman Negara between 1998-2001.

Species	No. photographs	No. transects on which tracks were recorded
Wild boar (*Sus scrofa*)	505	451
Muntjac (*Muntiacus muntjac*)	555	257
Tapir (*Tapirus indicus*)	532	206
Elephant (*Elephas maximus*)	290	192
Sambar deer (*Cervus unicolor*)	321	160
Gaur (*Bos frontalis*)	9	54
Sumatran rhinoceros (*Dicerorhinus sumatrensis*)	0	3

Table 2. Records of possible rhino tracks found by the UF-Malaysia Tiger Project field team in Taman Negara between 1998 and 2001.

Ref #[1]	Site[2]	Date (m/d/y)	GPS (E)	GPS (N)	Camera[3]	Record[4]	Location	Note[5]
SU151	KT	3/3/00	493200	511300	y	Existing	Sg. Keynam Kecil, about 1.5 km E of Gua Batu Besar	190 mm W
SU148	MP	5/3/00	453500	507500	n	Existing	Sg. Kepung, 3 km SW of Gua Peningat	No measurement
SU161	KT	5/15/00	498500	497500	n	New	Kuala Luas	230 mm W
TC110	KT	5/15/00	497300	498200	y	New	Sg. Luas, about 1 km W of Kuala Luas	225 mm W
SU168	KT	7/17/00	493500	511500	n	Existing	Sg. Keynam Kecil, about 2 km E of Gua Batu Besar	190 mm W
TC163	KT	7/17/00	493200	511300	y	Existing	Sg. Keynam Kecil, about 1.5 km E of Gua Batu Besar	A cow (190Wx220L) and a calf (143Wx170L)
SU199	KK	12/1/00	494200	535800	y	New	3 km S of Kuala Koh, between Sg. Koh and Sg. Lebir, on jalan balak	3 prints, 180 mm W
SU205	KK	1/5/01	500200	532500	y	Existing	Sg. Badong, opposite Kuala Ampul, 100 m from an orang asli village	180 mm W, fresh
TC425	KK	2/15/02	487500	531300	y	New	"Bukit Serow" near the Peak 898, between Sg. Koh and park boarder	Only one incomplete print, 160 mm W

1 Reference number in the UF-M Tiger Project Database. SU denotes survey data and TC denotes track-count data.
2 The three study sites were Merapoh (MP), Kuala Terengan (KT), and Kuala Koh (KK).
3 Presence of camera trap in the vicinity: yes (y) or no (n).
4 General location of the track record, corresponding with the existing RPU records (pers. comm. Abdul Kadir Abu Hashim, Head of RPU) or representing a new site.
5 Measurement of the track Width (W) and Length (L) in mm.