

A SURVEY ON THE DISTRIBUTION OF LARGE MAMMALS IN ENDAU ROMPIN STATE PARK, JOHOR

by

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ABSTRACT

A survey to determine the distribution of wildlife especially the Sumatran rhinoceros was conducted in Endau Rompin State Park, Johor in February 1992. The survey recorded a total of 251 individuals of large mammals comprising of 17 species. Some of the common wildlife were tapir, elephant, sambar deer, wild pig and barking deer. In terms of elevation, most wildlife were observed between 30 to 859 m. Only 18 signs of rhinoceros were recorded during the survey mostly in the mountainous area above between 400-500 m and this is much lower than the number observed during previous surveys. Human intrusions and habitat degradation were considered to be the most important factors contributing to the decline of this species and serious efforts should be undertaken by the management authority and state government to protect and manage the remaining populations.

ABSTRAK

Satu bancian ke atas taburan hidupan liar terutamanya badak sumatra telah dijalankan di Taman Negeri Endau Rompin, Johor dalam bulan Februari 1992. Sebanyak 251 mamalia besar yang terdiri daripada 17 spesies telah direkodkan sepanjang bancian tersebut. Antara mamalia yang kerap ditemui ialah cipan, gajah, rusa sambar, babi hutan dan kijang yang direkodkan di antara ketinggian 30 hingga 859 m. Hanya 18

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kesan badak sumatra ditemui terutamanya di kawasan tinggi antara 400-500 m dan bilangan ini adalah lebih rendah berbanding dengan bilangan yang dicatatkan sebelum ini. Gangguan manusia dan kemusnahan habitat boleh dianggap sebagai punca utama yang menyebabkan pengurangan di dalam bilangan spesies ini. Usaha yang bersungguh-sungguh perlu diambil oleh pihak pengurusan taman dan kerajaan negeri untuk melindungi serta mengurus populasi badak yang tinggal.

INTRODUCTION

Endau Rompin was known to support viable populations of Sumatran rhinoceros since the early 60's. The presence of rhinoceros was reported in several areas like the upper Endau Rompin basin, Tanah Abang and the Tersap River along the lower Endau (Milton, 1963). Stevens (1968) found rhinoceros signs between several rivers namely Endau, Emas, and Semberong rivers. Rhinoceros signs were also found by the members of the Malayan Nature Society in the upper Selai, Segamat, and Endau watersheds (Ellis, 1971). An inventory conducted by Flynn and Tajuddin (1983) revealed the presence of between 20 to 25 rhinoceros in an area of about 1600 km². Their signs were consistently found in the upper Endau, Selai, Kemidak, Juaseh, and Segamat watersheds.

The Federal Government had proposed that this area be established as a national park in 1972 for the purpose of protecting the rhinoceros population in the area. Consequently, a management plan was prepared in 1980 which outlined important rhinoceros areas that need to be protected. However, the Endau Rompin area was only established as a state park in 1992 based on the recommendations made by the Department and Malayan Nature Society. The Endau Rompin (Johor) area is currently managed by the National Park Board, Johore as stated in the Warta Kerajaan Negeri Johor Vol 33 No. 19 dated 21 September 1989 Tambahan No.3; Enakmen Perbadanan Taman Negara Johor (1989). A technical committee with representatives from different agencies was formed to assist the Park Board in the management of this area.

A survey to determine the distribution of wildlife was conducted in the Endau Rompin State Park, Johor from 8 February to 16 February 1992. A total of 60 personnel from the Department took part in the inventory. The main objective of the survey was to determine the changes (if any) on the distribution and status of the Sumatran rhinoceros (*Dicerorhinus sumatrensis*) in the area since the last survey by Flynn and Tajuddin (1983). Some part of the area was logged during the 1980's and it was assumed that the logging activities had to some extent affected the distribution and status of rhinoceros population in the area. The survey also intended to

record the distribution of wildlife especially large mammals and birds in the state park.

STUDY AREA

Endau Rompin is located in the northern part of Johor, between latitude 2 22" and 2 35" north and longitude 103 7" and 103 25" east, approximately 45 km east of Segamat (Map 1). The area is drained by three main river systems namely area in Endau Rompin is accessible from two points, Selai in the south and Kepoh in the north.

The inventory covered an area of approximately 400 km². A base camp was set up at Kepoh near an aboriginal village (Grid reference: 670760, altitude 73 m asl) where studies on small mammals and avifauna were conducted. Seven trails of various distances in the study area were identified prior to the survey and were assessed by each group respectively. The exact locations of each trail is presented in map 2.

The study area consisted of mainly lowland, hill and montane forest. However, logging was carried out during the 1976-1977 in the Sungai Pukin and Sungai Jemai area in the Pahang side. Consequently, logging activities were also carried out in the Johor side during the late 1980's and early 1990's.

METHODOLOGY

The survey on large mammals was carried out along predetermined trails which were selected prior to the survey. These trails were selected due to their accessibility as some parts of the park are made up of steep terrains and vertical hills. These trails also encompassed the areas surveyed by Flynn and Tajuddin (1984). Due to time and budget constraints, the survey was also concentrated in areas where rhinoceros were recorded in the past.

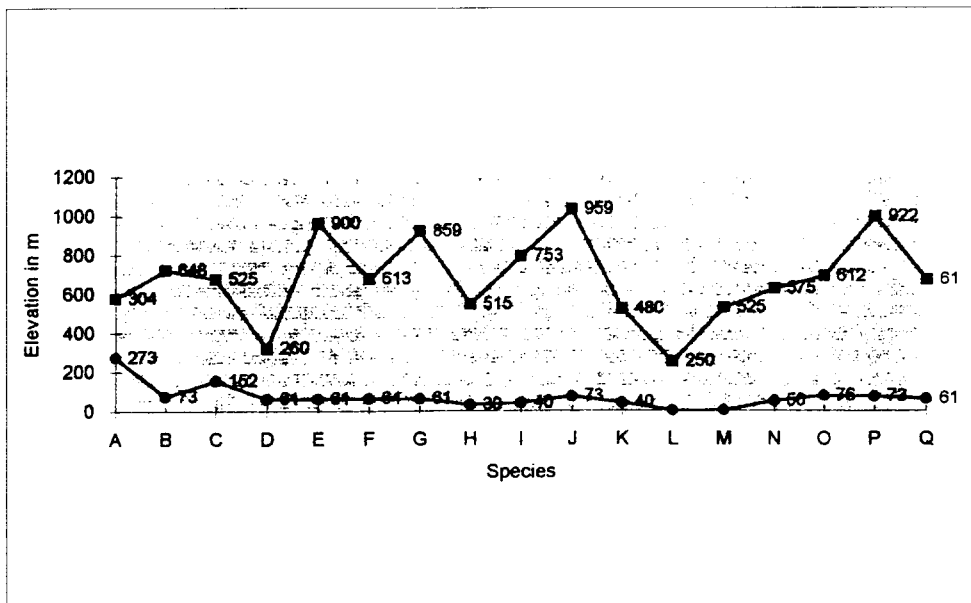
Teams consisting of between five to six members surveyed the trails on foot along natural landmark such as rivers and ridges in the area. The survey teams recorded both direct sighting and indirect signs of wildlife found on and alongside the trails. Wildlife tracks were identified and measured according to the method stipulated in the inventory form. The teams also surveyed areas perpendicular to the trails to ensure maximum coverage of areas surveyed. Observations were recorded in inventory forms which were supplied to survey teams prior to the survey.

Data analysis was done after the completion of field survey. The data gathered were systematically arranged and analyzed using D-base and Microsoft Excel programs.

RESULTS

The survey recorded a total of 251 large mammal individuals comprising of 17 species (Tables 1&2, Fig 1). Some of the mammal species frequently recorded during the survey were tapir (17.5%), elephant (15.9%), sambar deer (13.5%), wild pig (12.7%), and barking deer (11.6%) respectively. Large mammals were recorded at all elevations from 30 m to 859 m. However, most of these observations were recorded below 100 m (34.7%). Only 18 observations on the presence of rhinoceros were made in the surveyed area especially in the mountainous areas (Table 3, Fig 2). White-handed gibbon was more common in the area compared to other species of primates. Only four species of large mammals were recorded above 800 m, namely elephant, wild pigs, barking deer and Sumatran rhinoceros. The survey also showed that the majority of elephant, wild pig, and sambar deer were found below 100 m, tapir mostly occur between 500 - 600 m and rhinoceros above 800 m.

Fig. 1. Distribution of large mammals in Endau Rompin: Highest and lowest elevations



DISCUSSION AND CONCLUSION

The results showed that lowland and upper reaches of rivers in the study area were preferred by most wildlife species compared to the higher elevations. Some wildlife species especially elephant, wild pig, barking deer and Sumatran rhinoceros were also found in the higher elevations although most of these wildlife were found below 600 m except for the rhinoceros which were found mostly above 800 m.

The ability of these wildlife to occur in a wide range of elevations were probably due to the presence of food and shelter which were vital for their existence. Apart from this, human intrusions into these areas could also contributed to the concentration of wildlife in the remote part of the study area. As mentioned before, some parts of the study area were logged and this could also contribute to the distribution pattern of wildlife.

Generally, the inventory showed that the Endau Rompin area had undergone habitat degradation and reduction in wildlife diversity compared to their status a decade ago.

Habitat intrusions were mostly observed in the lower elevations of Endau Rompin especially along the Sungai Selai valley, Sungai Kemidak-Juaseh and Kepoh. The status of wildlife around the Sungai Kemidak - Juaseh for example, was critical due to heavy intrusions, logging and dam construction. Large tracts of forest were either logged or converted into dam. The areas around Sungai Juaseh, Sungai Kepoh and upper reaches of Sungai Segamat up to the western part of Endau Rompin were logged in 1991. A dam with the surface area of 272 ha is currently being constructed at Sungai Juaseh. The dam when completed will provide 33,200 M litres of water to the surrounding areas.

Human intrusions and poaching were also prevalent around Sg.Jemai, Sungai Endau and Sungai Semerong although the occurrence of wild pig, elephant, and tapir were quite high in the area. The number of shotgun cartridges and snares found by the survey teams in the areas reflected this fact. A jeep track of 6 m wide was built by commercial rattan collectors in the Sungai Kemidak and Sungai Selai area despite the status of the area as a state park. The presence of this jeep track further provide accessibility to human especially poachers into the remote areas of the park.

The number of rhino signs recorded during the survey were much lower than anticipated . No fresh rhino tracks were found in areas where they were reported by previous surveys and researchers. Flynn and Abdullah (1984) estimated the occur-

rence of between 20 - 25 individuals in an area of 1600 km². However, the survey only found 18 signs of rhinoceros which were old. Survey teams in other part of the survey areas also failed to record fresh signs of rhinoceros. The present distribution of rhino in the area is mostly concentrated in the mountainous areas and upper reaches of Sungai Selai, Sungai Lemakoh, and Sungai Endau. Highest number of rhinoceros signs were recorded at 401-500 m and above 800 m in elevation. The survey also showed that the forest in these areas remained intact and human disturbances were minimum. This could be due to the inaccessibility of the area to human although Orang asli were known to reach these areas in search of food and other forest products such as rattans and damar.

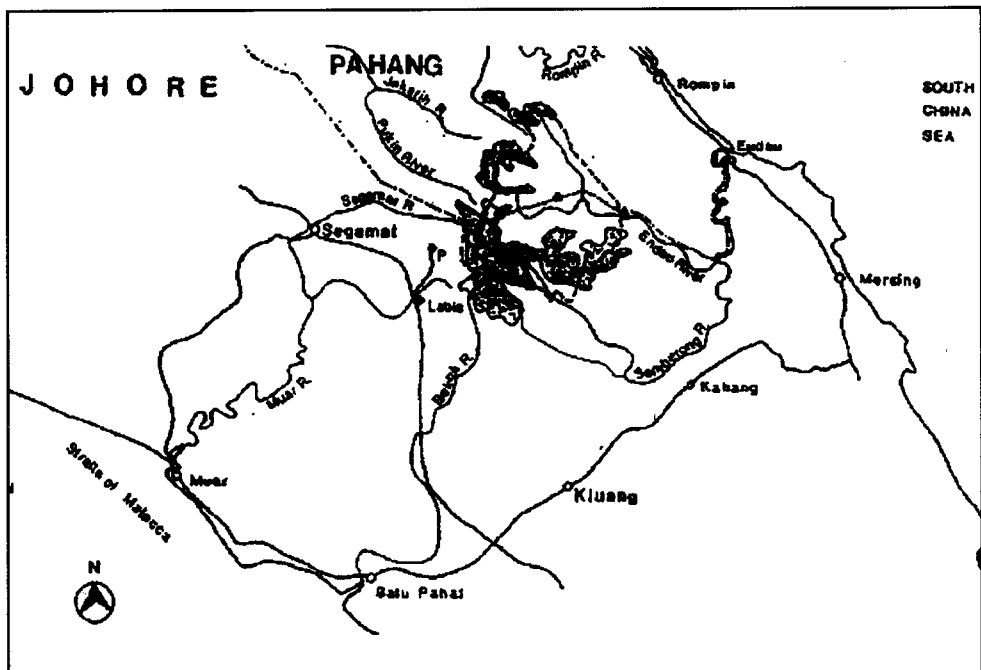
The wildlife population especially Sumatran rhinoceros has declined over the years due to reduction of habitat and to some extent human intrusions. During the survey we were informed by the Orang asli in Selai that several large parties of Orang asli from Rompin, Pahang have been frequenting the areas to gather rattans and hunting. The illegal possession of home-made shotguns among these people further escalated the possibility of wildlife being shot.

Despite the status of the park, human intrusion was rampant as evidenced during the survey. There was no coordinated effort among the agencies involved in the management of the park to patrol the areas except for staff of DWNP who were involved in rhinoceros conservation program. The staff shortage on the part of the National Park Board prevented it from carrying out enforcement work to prevent human intrusion and poaching in the park area.

There is a need to protect the remaining population of rhinoceros in the area due to their dwindling population size. Regular patrolling and enforcement activities by the various agencies involved in the management of the area should be stepped up to protect the remaining population. Population surveys should also be carried out annually if possible as part of population monitoring. However, these will require close cooperation among the different agencies apart from large amount of funding. Being one of the most endangered wildlife species in the country, no effort should be spared to protect and manage these threatened wildlife. The state government could play bigger role in the conservation of these animals apart from establishing protected areas. Unless major steps are undertaken, the Sumatran rhinoceros might suffer the same fate as its relative, the Javan rhinoceros in the near future.

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Map 1: Study area in Endau Rompin State Park

Table 1: Distribution of large mammals at different elevation (m) in the surveyed area

Elevation (m)	Frequency observed Species																TOTAL		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		
<100	4	5		3	15	8	16	3	1	9	21					2		87	34.6614
101-200		8	1		6	9	3	2		3	6							38	15.1394
201-300	3	2		1	5	4	3	1		3	6	1				1		30	11.9522
301-400	1					1	2			3						1		8	3.18725
401-500		3			4	6	2	1		5	1		1			7		29	11.5538
501-600		6	1		8	12	5	1		1			1	2		1		38	15.1394
601-700		1				4										1	1	8	3.18725
701-800																1		1	0.39841
>801					2		1			5						4		12	4.78088
TOTAL	8	25	2	4	40	44	32	6	1	29	34	1	1	2	1	18	1	251	100
PERCENT	3.1873	9.9602	0.7968	1.5936	15.936	17.53	12.749	3.1873	0.3984	11.554	13.546	0.3984	0.3984	0.7968	0.3984	7.1773	0.3984	100	100

Notes

- A *Presbytis cristata*
- B *Hylobates lar*
- C *Hylobates agilis*
- D *Felis bengalensis*
- E *Elephas maximus*
- F *Tapirus indicus*
- G *Sus scrofa*
- H *Tragulus javanicus*

- I *Tragulus napuh*
- J *Muntiacus muntjak*
- K *Cervus unicolor*
- L *Panthera pardus*
- M *Panthera tigris*
- N *Aonyx cinerea*
- O *Helarctos malayanus*
- P *Dicerorhinus sumatrensis*
- Q *Presbytis melalophus*

Table 2: Distribution of large mammals in Endau Rompin :
Highest and lowest elevations

Species	Lowest elevation (m)	Location	Highest elevation (m)	Location
A <i>Presbytis cristata</i>	273	Jelutong-Duri	304	Tebrau 1
B <i>Hylobates lar</i>	73	Kem Kepoh	648	Kem Kepoh
C <i>Hylobates agilis</i>	152	Kem Kepoh	525	Ptg Menatwang
D <i>Felis bengalensis</i>	61	Kem Kepoh	260	Sg. Endau
E <i>Elephas maximus</i>	61	Sg. Tebing	900	G. Pukin
F <i>Tapirus indicus</i>	64	Sg. Jemai	613	Permatang
G <i>Sus scrofa</i>	61	Kem Kepoh	859	G. Besar
H <i>Tragulus javanicus</i>	30	Kg. Peta	515	Sg. Jemai
I <i>Tragulus napuh</i>	40	Sg. Jemai	753	Bkt. Selai
J <i>Muntiacus muntjak</i>	73	Sg. Endau	959	G. Besar
K <i>Cervus unicolor</i>	40	Sg. Jemai	480	Sg. Selai
L <i>Panthera pardus</i>			250	Sg. Endau
M <i>Panthera tigris</i>			525	Ptg. Metawang
N <i>Aonyx cinerea</i>	50	Sg. Semerong	575	Sg. Selai
O <i>Helarctus malayanus</i>	76	Sg. Tebing	612	Bkt 2012
P <i>Dicerorhinus sumatrensis</i>	73	Kem Kepoh	922	G. Pukin
Q <i>Presbytis melalophus</i>	61	Sg. Tebing	610	Tebrau 1

Table3. Distribution of Sumatran rhinoceros in the surveyed area at different elevations (m)

Elevation (m)	Frequency observed	Percentage
0-100	2	11.11
101-200	0	0.00
201-300	1	5.56
301-400	1	5.56
401-500	7	38.89
501-600	1	5.56
601-700	1	5.56
701-800	1	5.56
>801	4	22.22
TOTAL	18	100

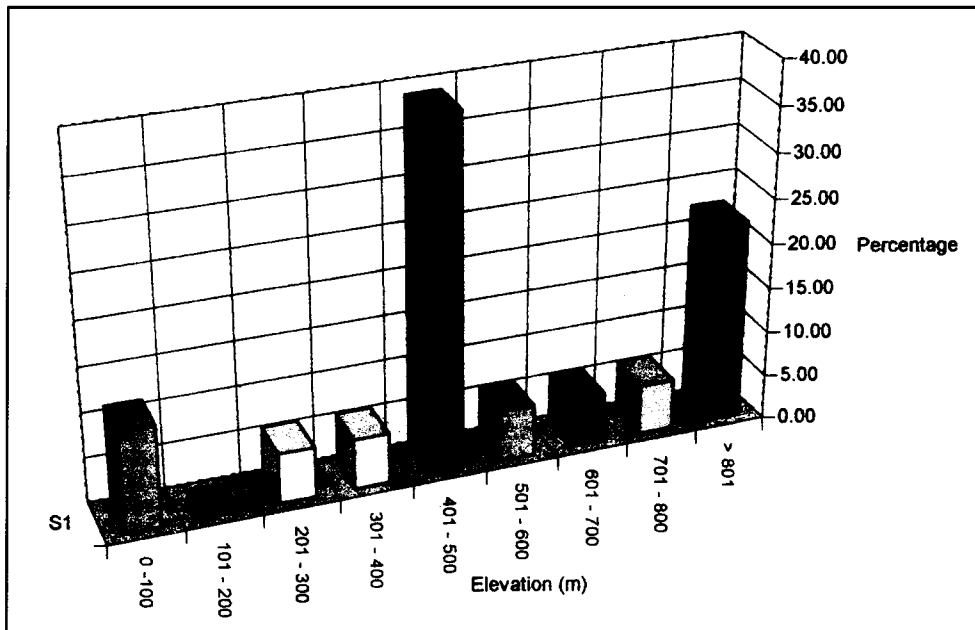


Fig 2. Distribution of Sumatran rhinoceros at different elevations