

World Wildlife Fund Malaysia

PROJECT MAL 39/80

OPERATION RHINO SABAH - PHASE I

Prepared By

Rodney W Flynn

Project Leader

RODNEY W. FLYNN  
D. VISION OF GAME MANAGEMENT  
ALASKA DEPT. OF FISH AND GAME  
230 S. FRANKLIN AVE.  
JUNEAU, AK 99801

Final Report

January 1981

C O N T E N T S

	<u>Page</u>
1. <u>BACKGROUND INFORMATION</u>	1
2. <u>RHINOS IN THE SILABUKAN AREA</u>	4
2.1 Faunal Survey Reports	4
2.2 Present Survey	4
2.3 Population Estimate	6
3. <u>THREATS TO THE RHINOS</u>	7
3.1 Status of the Silabukan Forest Reserve	7
3.2 Impact of Logging on the Rhinos	7
3.3 Poaching	8
4. <u>RECOMMENDATIONS</u>	10
4.1 Creation of a Silabukan Game Sanctuary	10
4.2 Intensive Rhino Survey	10
4.3 Protection of the Rhinos	10
5. <u>DISCUSSION</u>	11
6. <u>REFERENCES</u>	12
7. <u>MAPS</u>	
Figure 1	13
Figure 2	14

1. BACKGROUND INFORMATION

The Sumatran rhinoceros (Dicerorhinus sumatrensis) is one of the world's rarest large mammals. Its precarious status throughout the world has resulted in this species of Asian rhino being listed as an endangered species by the International Union for the Conservation of Nature and Natural Resources (IUCN Red Data Book). The total number of these animals remaining in the world has been estimated at under 300. Now these rhinos only occur in small isolated populations scattered from Burma on the Asian continent through southeast Asia to the islands of Sumatra and Borneo. Currently only 2 potentially viable populations of this rare species are known — the Gunong Leuser area in northern Sumatra and the Endau-Rompin area in southern Peninsular Malaysia.

The present status of the rhino in the East Malaysian State of Sabah is very uncertain. For many years, this rhino has been reported to occur in Sabah and other parts of Borneo, but very little detailed information has been collected. According to Groves (1965), the Bornean form of this rhino belongs to a distinct subspecies Dicerorhinus sumatrensis harrissoni based on skull characteristics. Rookmaaker (1977) provides a good summary of historical reports of rhino sightings and collections in Borneo. He suggests that Sabah may be the only place in Borneo where rhinos still exist. Recent reports (J McNeely, pers. comm., Schenkel and Schenkel 1979) indicate that this rhino probably no longer exists in the Kalimantan section of Borneo.

In Sabah, the Game Branch of the Forestry Department has been collecting information on rhino sightings within the State over the last few years. These reports indicated that the Silabukan Forest Reserve in eastern Sabah may still contain a sizeable rhino population. In March 1980, Game Branch personnel visited the Silabukan Forest Reserve to investigate the occurrence of rhinos within this area. In their report, Payne (1980) Faunal Survey Project, describes

recent rhino signs which were found at several places within the Silabukan Forest Reserve. Additionally, he notes recent reports by people working in the area extracting timber. Since the forest reserve has been opened to logging, people working in the area have had much contact with rhino signs. Poaching activities were also reported.

An evaluation of other recent rhino reports in Sabah indicates that the Silabukan Forest Reserve is probably the only area remaining in the State that contains a viable rhino population. Thus, the conservation of the rhinos in this area becomes the most important wildlife conservation priority in the State. The bleak prospects for this animal in Kalimantan and Sarawak means that the Silabukan Forest Reserve will be the only hope for saving this subspecies of Sumatran rhino.

Considering the previous information, it became apparent that the present rhino situation in the Silabukan area needed further evaluation by someone experienced in rhino biology and management. At the invitation of Mr Patrick Andau, Assistant Chief Game Warden, Sabah Forest Department, the present project was developed. I made a 10-day trip to Sabah from Peninsular Malaysia during 4 to 13 December 1980. A total of 4 days were spent at the Game Branch Office in Sandakan discussing various aspects of the rhino situation including the presentation of a workshop on rhino research methods for their staff. An additional 5 days were spent in the field within the Silabukan Forest Reserve. The primary purpose of the field trip was to confirm the presence of rhinos in the area, to gather additional information on their present distribution, and to make recommendations for the conservation of the rhinos in the area. The time spent in the field was too short to adequately complete all the objectives, but much useful information was obtained.

The Silabukan area is located in the centre of the Dent Peninsula in eastern Sabah about 65 miles south-east of Sandakan and 25 miles northeast of Lahad Datu (Fig. 1). This area lies at 5°20' ~~South~~ N latitude and

118° 40' E. longitude. The topography consists of undulating hills with the elevation ranging from 70 to 600m. The majority of the lands are within 200 to 400m in elevation. The climate is wet tropical with the entire area covered with tropical rain forest. Most of the forest consists of lowland dipterocarp forest.

I would like to acknowledge the support and assistance of the Game Branch, Sabah Forestry Department in this project. Particularly I would like to thank the Assistant Chief Game Warden, Patrick Andau for the information and help freely provided. John Payne and Glyn Davies, Faunal Survey Project, shared their quarters, provided much background information, and accompanied me in the field along with Game Branch staff Lawrence, Fidelis and Simon. The help of everyone was greatly appreciated.

## 2.1 Faunal Survey Reports

In March 1980, the Faunal Survey team, Game Branch, Sabah Forestry Department made the first attempt to confirm the presence of rhinos in the Silabukan Forest Reserve (Payne 1980). A follow-up trip was made in April 1980 by a similar group. These survey teams reported finding recent rhino signs in the Silabukan area. Most of the rhino signs were recorded near newly constructed logging roads in the upper reaches of the Tabin and Tagas Rivers, especially along the uppermost region of a western branch of the Tabin River (Fig. 2). The location lies within the Suria Jaya Company timber concession. Additional rhino tracks, thought to be a female with calf, were found near the upper Tagas River within the Trus Jadi concession. These areas are separated by about 15 km of heavily logged forest. It is probable that the animals in these 2 areas are now effectively separated because of the logging activities and represent different animals. These surveys concluded that at least 3 rhinos occur within this area. Also, they reported that most of the remaining primary forest habitat had been committed to timber extraction and the survival of the rhinos were in jeopardy because of the logging activities.

## 2.2 Present Survey

The Silabukan Forest Reserve was visited from 8 to 12 December 1980 by myself along with John Payne, Faunal Survey Project and Game Branch staff. During the first 2 days we made several short surveys of areas near present logging activity along the western edge of the remaining block of primary forest in the forest reserve (Fig. 2). We revisited 3 places where rhino signs had been previously reported and explored areas which had been recently opened by logging activity. The remaining 2 days were spent making 2 short surveys in the southern part of the primary forest block in the Kupulan Indoh timber concession. Rhino signs had not been previously reported from this area and I wanted to confirm the southern range of the rhinos in this block of forest.

5  
on the morning of 9 December, we drove along the present logging road from the Suria Jaya camp to the Trus Jadi camp. The logging of this forest is nearly completed with much of the area being logged for a second time. About 10 km from the Sabah Foundation camp at the road junction, we found rhino tracks crossing the logging road. These tracks were somewhat washed out, but several measurements of the maximum width of the lateral toes of the rear feet were possible (range: 19.8 to 20.3 cm, median = 20.0 cm, n = 8). On the return trip to camp, we visited an area previously found by John Payne to have rhino tracks, but no evidence of rhinos was found. The logging has been completed in this area and I suspect that the rhinos have moved to another location.

On 10 December, we drove along the new logging track east from the Suria Jaya camp along the Tabin River. This is the area where the Faunal Survey had reported recent rhino signs in March 1980. From near the end of the present new road, we hiked south along a small stream to the Tabin River. About 0.5 km into the primary forest we encountered fresh rhino tracks. A good series of measurements were taken (range = 20.2 to 21.0 cm, median = 20.9 cm, n = 13). Also 2 wallows, dung, and feeding signs were found nearby indicating that this animal had spent considerable time in the area. From here we split into 2 groups with one group surveying downstream the Tabin River and another upstream to the present logging activity. John Payne's group reported older rhino tracks (range = 20.7 to 22.2 cm, median = 21.7 cm, n = 8) along the Tabin River away from the logging activity. No recent sign was found upstream near the present logging activity where fresh signs had been found in March 1980 before the logging started.

The following day we returned to the main road then drove to the Kupulan Indoh timber concession camp which is located about 15 km directly east of the Suria Jaya camp on an eastern branch of the upper Tabin River. From this timber camp, we hiked north about 5 km into the primary forest along the river,

No rhino sign was found here. The camp manager also reported finding no rhino sign while working on the timber concession.

A brief survey of another branch of the Tabin River about 5 km west of the Indoh camp was completed the following morning. Just beyond the concession boundary we encountered rhino tracks along the river. These tracks were several days old and difficult to measure, but confirmed the presence of rhinos in this area (range = 22.3 to 22.5 cm, median = 22.4 cm, n = 3). Because we were very short of time, additional areas could not be surveyed and I returned to Sandakan.

### 2.3 Population Estimate

/minimum

The /number of rhinos in the Silabukan Forest Reserve is estimated at 4 to 6 animals. This estimate is based on an evaluation of the results reported by Payne (1980) and this survey. The total number is probably somewhat higher because only a small portion of the total area was surveyed.

An analysis of track measurements recorded during this survey indicated a minimum of 3 animals with median track width measurements of 20.0, 20.9 and 21.7 cm. The older set of 22.4 cm tracks could possibly be a fourth animal. The March survey by J Payne recorded a possible cow/calf pair near the Trus Jadi camp. These animals are probably different from the ones noted during this survey. If the entire remaining block of primary forest (about 250 sq km) is occupied by rhinos at the same density as found in the Endau-Rompin area of Peninsular Malaysia, then the total population could easily approach 8 to 10 animals. Additional survey work will be needed to confirm the total number of rhinos in the Silabukan area and the above figures should be considered a minimum number.



Most of the Silabukan Forest Reserve has been given to the Sabah Foundation by the State Government for the primary purpose of timber extraction. This includes all of the known rhino area. The Sabah Foundation contracts out the actual timber removal to small logging companies. A typical timber concession consists of several 2,000 acres blocks. Usually, the individual blocks are logged over a 1-year period. If usual State Government procedure is followed, the Sabah Foundation will give the lands back to the Forestry Department after the logging has been completed. Next, all areas suitable for agriculture may be excised from the forest reserve and planted with plantation crops. About 50% of the remaining primary forest land may be suitable for agriculture according to the Land Capability Classification of Sabah (J. Payne, pers. comm.).

3.2 Impact of Logging on the Rhinos

My studies of the Sumatran rhino in the Endau-Rompin area of Peninsular Malaysia have clearly shown that primary rain forest is the preferred habitat of this rhino species. Almost every location within this study area has been in primary forest (Flynn 1978, unpublished). A similar study of this rhino in northern Sumatra has reported similar results (Borner 1978, van Strien pers. comm.) The Endau-Rompin study has provided strong evidence that logging has a very negative impact on a rhino population. The monitoring of this population over the past 5 years has shown that the rhinos will avoid forest opened by logging. The disturbance caused by the workers and machinery will cause the rhinos to leave the immediate area of activity soon after the logging has started. After the logging activity has been completed, the animals will continue to avoid the logged habitat because the forest structure has been drastically changed. The opened canopy results in greatly increased solar radiation which the rhinos find unsuitable. Also, the timber extraction results in a large number of fallen logs which cause difficulty in movement for the animals through the forest.

reduction or total elimination in the amount of suitable rhino habitat. In addition, the rhino population is splintered into small isolated sub-populations and the continuity of the population is lost. This usually results in a cessation of breeding activity because the animals are now separated from one another while in reproductive condition. The rhino numbers are now so critically low that any interference in reproductive activity may result in a complete loss of reproduction in the population. An end of reproduction means the extinction of the species.

Information collected during this survey indicates that the same pattern is presently occurring in the Silabukan Forest Reserve. All of the reported recent rhino signs, except one set of tracks, have been found in primary forest or along recently constructed logging roads in primary forest. After the timber extraction has started, rhino signs can no longer be found in these areas. This is definitely the case in the Suria Jaya concession near the Tabin River. Rhino signs were only found in primary forest. Areas where J Payne had found rhino tracks in March no longer contained rhinos after being logged. Construction workers reported finding rhino tracks in newly opened areas, but the animals disappeared after timber extraction was started. The camp manager for the Indoh concession had never found rhino tracks in their logging areas, but we found tracks less than 1 km into the primary forest from the boundary of their timber block. Adjacent blocks which had been logged 1 to 2 years ago contained no rhino signs.

### 3.3 Poaching

Human access to the rhino area has been greatly increased by the logging activity. This increased access has greatly exposed these rhinos to poaching. Payne (1980) reports that at least 2 rhinos have been illegally killed in the Silabukan area since 1975. The actual number is probably higher because poachers are difficult to capture. The large number of workers in the logging camps greatly increases the chance of poaching.

potential poachers encountering a rhino and gathering information on where the rhinos can be found. The knowledge that rhinos occur in the area has rapidly spread throughout the region. During my visit, we found evidence of snares and hunting for small game, especially wild pig. Poaching must be considered a major threat to the rhino population in Silabukan.

4.0 Recommendation

4.1 Creation of a Silabukan Game Sanctuary  
Considering the above information, I strongly recommend that a game sanctuary be created out of the remaining primary forest lands presently occupied by the rhinos in the Silabukan Forest Reserve. This action will be necessary if the rhino population is to have any chance of survival. No further logging of the sanctuary should be allowed and all access to the area should be strictly regulated. A moratorium of the granting of new timber licences in the area should be put into effect. The actual boundaries for this sanctuary will depend on the results of a more intensive study of the present rhino distribution in the area. The results from this survey suggest that the rhinos use most of the remaining primary forest in the upper Tabin and Lumpongong Rivers. A preliminary proposal for a Silabukan Game Sanctuary would include most of this area (Fig. 2) about 250 sq km (100 sq mls).

4.2 Intensive Rhino Survey

A more intensive survey of the Silabukan Forest Reserve is needed in order to fully document the present distribution of the rhinos in the area. The primary forest lands to the east and north of the known rhino area would be of highest priority. I suspect that the rhinos use most of the remaining contiguous primary forest habitat, especially the more hilly areas. A lower intensity survey should be completed of the entire Dent Peninsula to determine if small isolated populations of rhinos still exist. Much of this area will be cleared for agriculture in the near future.

4.3 Protection from Poaching

Because of the strong evidence of rhino poaching in the area, a protection programme should be implemented immediately. The rhino areas should be regularly patrolled by staff from the Game Branch. A guard post should be established near the Sabah Foundation camp along the main access road to the Suria Jaya concession. The Trus Jadi road should be closed to vehicle traffic soon after the logging has been completed. All fire-arms should be banned from the forest reserve

5. DISCUSSION

The Silabukan Forest Reserve in eastern Sabah has been found to contain a significant Sumatran rhino population. At this time, it is believed that this area contains the only potentially viable population of this endangered species in Sabah and the entire island of Borneo. Because Borneo is the only place where the subspecies Dicerorhinus sumatrensis harrissoni of this rhino is found, the survival of the Silabukan population will be critical to the preservation of this subspecies.

All available information suggests that primary rain forest is the preferred habitat of this rhino. Any form of timber extraction is very detrimental to a rhino population. The logging activity drives the animals from the area and the timber extraction alters the habitat to the point where it is unsuitable for the rhinos. Thus logging results in a reduction in suitable habitat and the splintering of the population into small non-reproductive sub-populations.

The only hope of maintaining a viable rhino population in the Silabukan area is the protection of an adequate area of primary forest as a game sanctuary. A protection system should be implemented to reduce the exposure of the rhinos to poaching. A moratorium on all timber licences in the rhino area should be put into effect until a sanctuary proposal can be fully considered. Meanwhile, a more intensive survey of the Silabukan Forest Reserve should be completed to determine the present rhino distribution. This information should be incorporated into a comprehensive sanctuary proposal to be submitted to the State Government. A protection system must be implemented immediately to reduce the exposure of the rhinos to poaching.

6. REFERENCES

- Borner, M. 1978 A field study of the Sumatran Rhinoceros. PhD Thesis, Basel University, Switzerland.
- Flynn, R. 1978 The Sumatran Rhinoceros in the Endau-Rompin National Park of Peninsular Malaysia. Malay. Natur. 4(2):5-12.
- Groves, C. 1965 Description of a new species of Rhinoceros from Borneo. Didermocerus sumatrensis harrissoni. Sangetierk. mitt. 13: 128-131.
- Payne, J. 1980 Report on Rhinoceros in the Silabukan Forest Reserve, Sabah. Unpublished Report. Game Branch, Sabah Forest Dept., Sandakan, Sabah, Malaysia. 9p.
- Rookmaaker, L. 1977 The distribution and status of the rhinoceros Dicerorhinus sumatrensis in Borneo - a review. Bijdragen Tot de Dierkunde 47(2): 197-204.
- Schenkel, R. & L. Schenkel 1979 Report from the SSC Asia Rhino Group Special Meeting. Bangkok, Thailand.

7. MAPS

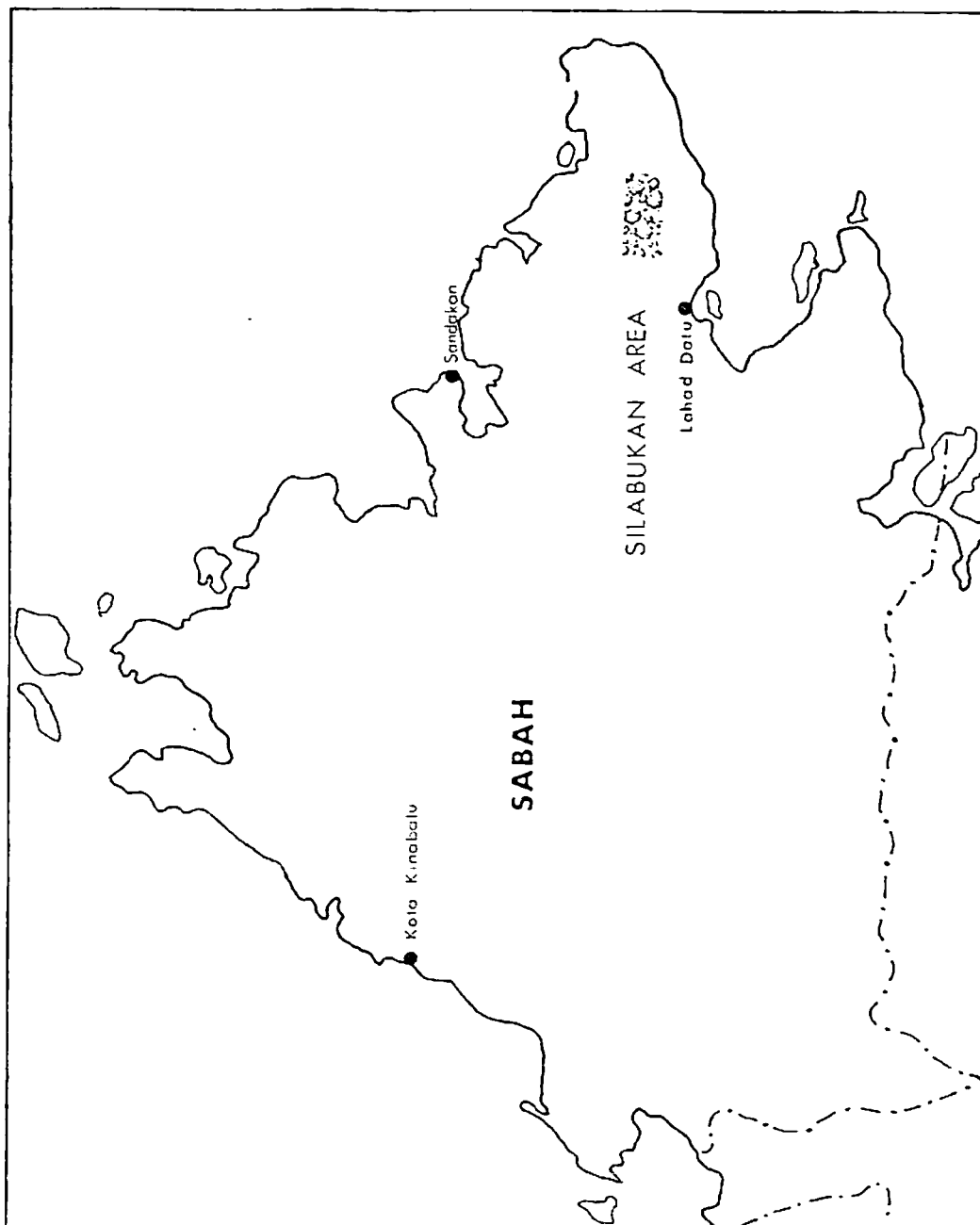


Figure 1 - The general location of the Silabukan area within the East Malaysian State of Sabah.

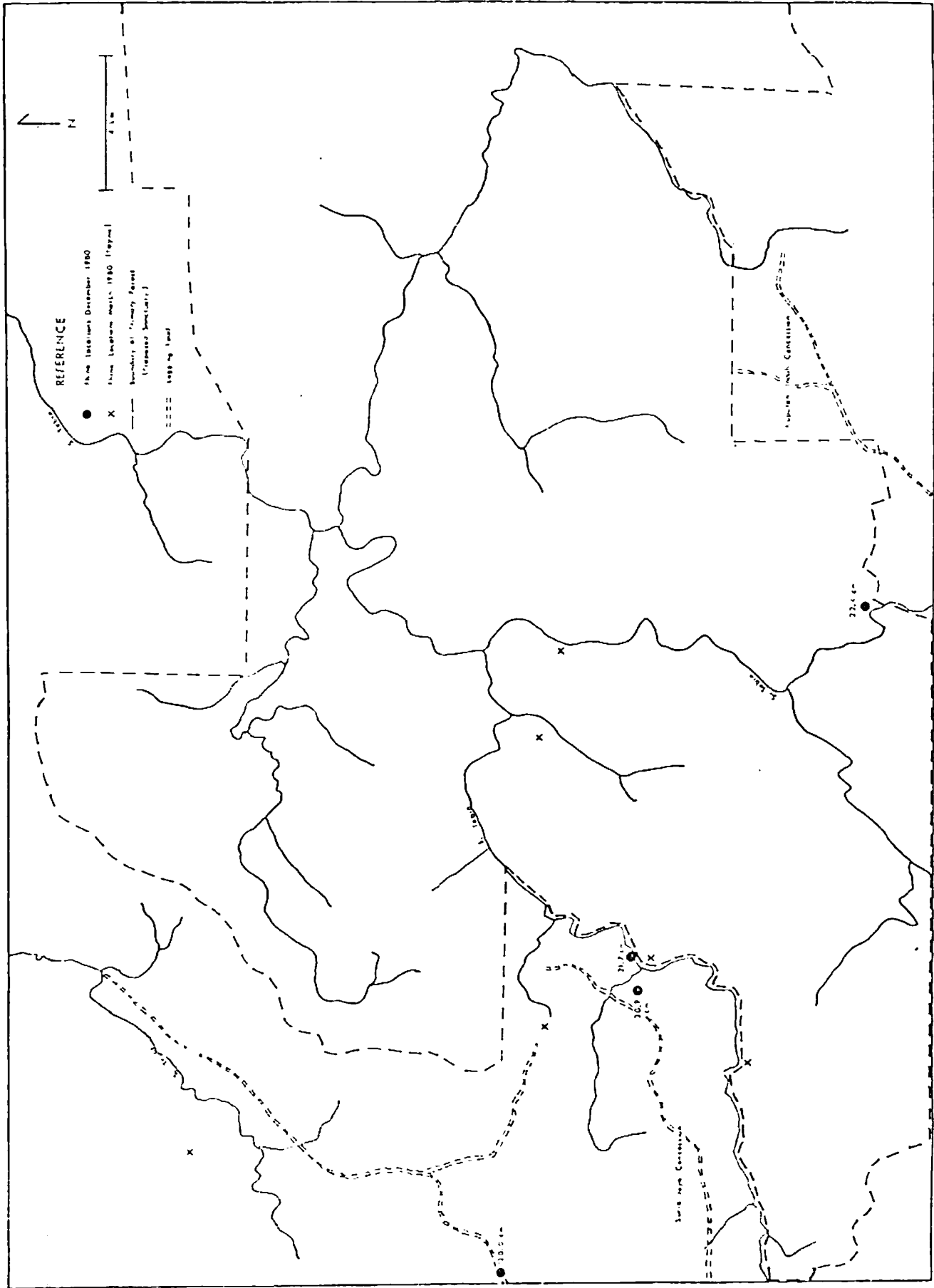


Figure 2 - Sumatran rhino track locations within the Silabukan area of eastern Sabah. The number by the location represents the median of a series of measurements