upper S. Labuk, Pinangah on the S. Kinabatangan, and to Pensiangan district, where incursions are sporadic. The southern limits of their range have evidently extended into the north of East Kalimantan at least for several decades (Witkamp, 1932a) but is uncharted. According to available estimates, the population of Sabah has been stable at about 2,000 head since 1949 (Silva, 1968a).

ORDER PERISSODACTYLA

FAMILY TAPIRIDAE

Tapirus indicus Desmarest

MALAY TAPIR

Fossils excavated at Niah caves, Sarawak, have proved that the Malay Tapir was present in Borneo in the Pleistocene era and survived into Recent times at least to *c.* 6,000 B.C. (Medway, 1961a; Hooijer, 1963). Its continued existence to the present day is a point of controversy. S. Müller (1839-40) listed the species among the mammals of Borneo on the strength of a report from Pierre Diard. His account, kindly translâted from the Dutch original by Dr A. M. Husson, reads: "In the extensive lowland forests of the south coast of Borneo, we did not discover any trace of it. Mr Diard, however, obtained a tapir in the interior of Pontianak. In that region the animal seems to frequent mostly the forested mountain ranges, some of which extend from the deep interior of the island to close to the sea shore" (Müller, 1839-40 p. 44). There is no supporting specimen in RMNH. From Sarawak, a little later, Low (1848) wrote, "An animal resembling the Malayan tapir has also been described to me, but I have not seen it during my travels ... or even traces of its existence."

On the strength of these reports, the tapir was included in lists of extant Bornean mammals by, for instance, Temminck (1847) and Everett (1893). Since no specimen of any kind has been produced in historic times, later authors (e.g. Banks, 1931a; Chasen, 1940a) have excluded the species. Yet E. E. F. Pretty (in T. Harrisson, 1948-49, p. 62) claimed to have seen tapirs in Brunei as late as 1929. If the last animals were not finally exterminated in the ruthless hunting of rhinoceros (many of whose habits the tapir shares) which took place in the 1930s (see below), there is still a remote chance that this species survives in Borneo.

FAMILY RHINOCEROTIDAE

In the first report of rhinoceroses from Borneo in scientific literature, Müller (1839-40) could offer as authentication only a secondhand description of a one-horned animal, suggesting the occurrence of the Javan Rhinoceros, *Rhinoceros sondaicus* Desmarest. A skull of this species was among a small collection purchased by the British Museum in 1859 from a dealer (apparently named Wright) who said that the specimens came from Borneo. Since the other mammals represented in this collection included some species now known not to occur in Borneo (namely the pigs *Babirussa* and *Sus verrucosus*)

the provenance of all must be doubted. Nonetheless, this skull (reg. no. 59.8.16.1) was later described as *Rhinoceros nasalis* (Gray, 1867, Proc. zool. Soc. Lond.: 1012), with the repeated attribution to 'Borneo' (see Gray, 1869: 307; no. 723c). *R. nasalis* is now recognised as a synonym of *R. sondaicus sondaicus* of Java, and there have been no satisfactorily authenticated records of living members of this species from Borneo in historic times (van Strien, 1974; Rookmaaker, 1976).

Among fossil material, two teeth sent from Sarawak by Rajah James Brooke and attributed by Busk (1869) to very young *R. sondaicus* have been reidentified as *D. sumatrensis* by Hooijer (1946), and two molars recovered from gold workings in an alluvial cave deposit in the upper Sarawak river provisionally referred to *R. sondaicus* by Lydekker (1886: 129) have also been shown to be *D. sumatrensis* (Medway, 1966). Fossil remains of rhinoceros have been found in the archaeological deposits at Niah caves at depths corresponding to dates from the late Upper Pleistocene to historic times; these are all compatible with *D. sumatrensis* (Medway, 1966).

Genus *DIDERMOCERUS* Brookes, 1828

Application has been made (Boylan & Green, 1974) to the International Commission on Zoological Nomenclature to suppress the generic name *Didermocerus* in favour of its synonym *Dicerorhinus* Gloger, 1841. By this action, the valid systematic name of the Sumatran Rhinoceros would become *Dicerorhinus sumatrensis*, usage already adopted by several authors including Groves (1967) and Groves & Kurt (1972).

Didermocerus sumatrensis (Fischer)

SUMATRAN or ASIATIC TWO-HORNED RHINOCEROS

Didermocerus sumatrensis harrissoni Groves — PLATE 24

Didermocerus sumatrensis harrissoni Groves, 1965, Säugetierk. Mitt. 13: 128 — Suan-Lambah, Sabah.

Distribution: The original range of this rhinoceros undoubtedly covered all mainland Borneo, but by the time of the first scientific investigations of the mammal fauna, human depredations had already begun to take their toll and the species was rare in settled areas. That its natural habitat was not restricted to the remote hills of the interior, as often asserted, is indicated by early reports from eastern Sabah where Pryer (1881) found rhinoceros "not infrequent; the tracks of one or two may usually be seen in the course of a walk in the low districts." A contemporary handbook (Anon., 1886) noted that rhinoceroses "have more than once strayed inside the suburban line of Sandakan itself; on one occasion one went into a garden in the outskirts of the town and ate some melons; on another one managed to get into a chicken-house on the Beatrice estate ...; on still another occasion, one came in from the forest and trotted past Mr Pryer's house into town in the middle of the night."

Yet in 1836, in the neighbourhood of Banjermasin, Müller (1839-40) found no traces; his informant described a rhinoceros seen in the upper S. Kahayan, Central Kalimantan. Bock (1882) reported that the rhinoceros was 'very rarely captured' in southeastern Borneo (i.e. the region from Kutai to Banjermasin), and this must still have been true

in 1914 when Raven (unpublished diary entry, dated 14 March) at S. Merah, Mahakam, was "surprised to see fairly fresh rhinoceros tracks, as they are said to be rare hereabouts."

A similar situation prevailed in the settled parts of western Borneo. Here, during 1845-47 in the Sarawak district (i.e. approximately the present I Division), Low (1848) found no signs, although later in 1865-67 Beccari (1904) "once heard that the carcase of a rhinoceros had been seen in the Sarawak, carried down by the current"; Beccari himself never saw "any portion of one got in Borneo". In West Kalimantan, Büttikofer found tracks and fresh droppings on the higher slopes of G. Liang Kubung, upper S. Kapuas, although not in the surrounding plains; he also reported that Malay rhino hunters were active, and regretted his own bad luck in not getting a specimen (Jentink, 1897). In 1907, Abbott (quoted by Lyon, 1911b) noted reports of rhinoceros from coastal locations in more southerly parts of West Kalimantan.

By the early 1930s, rhinoceroses could still be found in most parts of Borneo, but under acute hunting pressure survived only in remote and inaccessible terrain (Banks, 1931a; Zondag, 1931; Keller, 1932; Witkamp, 1932a). Banks (1931a) concluded, rather surprisingly in the light of his own evidence, that "there can at the moment be no fear of Rhinoceros becoming scarce for as many as 36 trophies were brought into Belaga in two years not so long ago and I have met men who have shot over 30 in the course of their lifetime". By the end of this decade, in Sarawak the rhinoceros had been exterminated even in its last strongholds in the interior of the northeast. Banks (1937) wrote that during "a prolonged visit to the Ulu Trusan into a once populous rhino country, I saw only once a trace made about three years ago and nothing else under five years ago; the locality is remote and high up, but every one of the many old wallows passed had the remains of a Dayak hut within a few hundred yards, and even up on the highest peaks the wandering hunters had left their traces. A once populous rhino district has been wiped out . ." The situation elsewhere was equally extreme (Comyn-Platt, 1937; Anon, 1939).

Ten years later, T. Harrisson (1949) wrote, "There are now almost certainly no rhinoceros left in Sarawak", although he was able to report observations in 1946 from the upper S. Padas, in Sabah, and in 1945 from S. Raya and from high ground in the upper S. Bahau in Kalimantan. In the Kelabit uplands Harrisson later found (Harrisson, in Davis, 1958) that "the Sumatran rhinoceros, once common in the area — in the last century even breaking fences around padi fields — has not been reported anywhere in the area for twenty years. There are living Kelabits who have killed more than ten".

Harrisson (1961b) later suggested that there were then "probably not more than thirty in the whole island". J. L. Harrison (pers. comm., 1962) saw tracks on G. Kinabalu, and P. F. Burgess (*in litt.*, 1963) found reliable evidence of animals surviving at S. Bole on the Segama, the Dent Peninsula, upper S. Kalumpang and Ulu Kuamat, Sabah. A less pessimistic estimate of numbers in eastern Sabah was given in 1970 (Anon., 1970), but was not corroborated by detailed evidence. A 5-day search in 1972 of an area in Ulu Karamuak, Sabah, where rhinoceros had been present in 1960, produced no evidence of any surviving animals (Sandilands, 1974). In 1976, tracks were found, and a provisional sighting made, in the area of the proposed Danum reserve, S. Segama, Sabah (D. R. Wells, pers. comm.). The decline and near extermination of the species throughout its world range have been documented by van Strien (1974).

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Field keys and an annotated Checklist

by

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