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Endangered Animals of Thailand

by

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Frontispiece. We dedicate this work to Boonsong Lekagul, here shown looking for birds in the mangroves at Bang Poo, in May 1980. Professionally a medical doctor, he also was a big game hunter when a young man. Later he became an active conservationist, museum curator, author, and patriot. Winner of the J. Paul Getty Prize for Conservation, he is best known for projecting a conservation ethic into the national conscience of Thailand. His life shows how much the good work of one person can influence his country and those around him.

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cates of origin, and trans-shipped through the Bangkok airport to Belgium and Japan (IPPL 1978, 1979). Capture for the live animal trade, overhunting, and massive habitat loss threaten the continued existence of this tapir. The nearly complete forest cover of southern Thailand has declined to 24 percent in 1978 (Myers 1980).

Responses to Habitat Modification: Tapirs apparently will feed in disturbed forest (Medway 1975), but not if primary forest is available (Williams and Petrides 1980). The exact nature of their responses to different forestry practices is unknown.

Demographic Characteristics: Breeding probably occurs in April or May. A single young, weighing 6-7 kg, is born after a gestation of 390-395 days. The young remains with the mother at least 6-8 months. Adults weigh 260-375 kg. A female may give birth as often as once every 2 years. Captives have lived 30 years (Medway 1969, Lekagul and McNeely 1977a).

Key Behaviors: Malayan tapirs are nocturnal and solitary. Groups of two or three are sometimes seen. Saplings and shrubs are commonly pushed or walked down, allowing browsing on the foliage and twigs from 6 m above the ground. Feeding is concentrated near water. Tapirs are excellent swimmers but do not normally wallow like rhinos (Medway 1969, Lekagul and McNeely 1977a, Williams and Petrides 1980).

Conservation Measures Taken: Thai law (WARPA 1980) prohibits hunting and regulates trade in this species. Tapirs are thought to survive in many protected areas in Thailand, some of which were established as tapir sanctuaries, including Khlong Nakha Wildlife Sanctuary (Ranong Province), Khlong Saeng Wildlife Sanctuary (Surat Thani), Khao Banthat Wildlife Sanctuary (Trang, Patthalung, Songkhla, and Satun), Huai Kha Khaeng Wildlife Sanctuary (Uthai Thani), Phu Kieo Wildlife Sanctuary (Chaiyaphum), Ton Nga Chang Wildlife Sanctuary (Songkhla, Satun), Khao Luang National Park (Nakhon Si Thammarat), and Thaleban National Park (Satun) (Seidensticker and McNeely 1975, Leng-Ee 1978, IUCN 1979, Prakobboon 1979).

Conservation Measures Proposed: Ratification of CITES by Thailand would ease the burdens placed on tapirs by the live animal trade. Survey work is needed to determine the population ranges of Thailand's remaining tapirs. Basic research on tapir biology is needed, with emphasis on the effects of different forestry practices.

Javan rhinoceros

Rhinoceros sondaicus Desmarest 1822
Mammalia, Perissodactyla, Rhinocerotidae

Status: Probably extirpated.

IUCN Red Data Book (1976): Endangered.

CITES (1979): Appendix I.

IUCN (1979): Endangered.

MAB (1979): Endangered.

USFWS (1980a): Endangered.

WARPA (1980): Reserved.

Population Size and Trend: At Ujung Kulon Nature Reserve in Java, the sole known remaining viable population of *R. sondaicus* increased from 20-30 individuals in the late 1960s to 50 in 1979 (Schenkel and Schenkel 1979). It is now generally believed to be extirpated from Thailand (McNeely 1977, K. Snidvongs personal communication).

Distribution and History of Distribution: This rhino formerly ranged from Bangladesh throughout Southeast Asia (including Burma, Thailand, Lao PDR, Kampuchea, Vietnam, and peninsular Malaysia) to Sumatra and Java. It may have also occurred in southern China. In Thailand it was once common in Trang, Krabi, Phangnga, and Ranong provinces. Tracks were reported in Khao Soi Dao Wildlife Sanctuary in Chanthaburi Province in February 1978, but there have been no confirmed sightings in recent years. There have been suggestions of surviving Javan rhinos along the Tenasserim on the Thai-Burmese border, on the Kampuchean-Lao border, and in extreme southern Thailand on the Malay border. Control by insurgents makes survey work dangerous in many of these areas, but it seems highly unlikely that viable populations of *R. sondaicus* have survived to this late date in Thailand and adjacent countries (Lekagul 1963, Milton and Estes 1963, IUCN 1968, Fisher et al. 1969, McNeely and Cronin 1972, IUCN Red Data Book 1976, Neese 1976a, b, Lekagul and McNeely 1977a, McNeely 1977, McNeely and Laurie 1977, Leng-Ee 1978).

Geographic Status: This animal is restricted to Ujung Kulon Nature Reserve (360 km²) in Java.

Habitat Requirements and Habitat Trend: The Javan rhino is a forest-dwelling browser, consuming primarily low branches, saplings, and other young growth. "Compared with the Sumatran

rhino, the Javan rhino is better adapted to lowland, flat terrain, soft and wet soil, to disturbed forest and to the vegetation transitional between forest and low growing vegetational cover. It not only wallows, but frequently lies in river basins, also in brackish water" (Schenkel and Schenkel 1979). Schenkel et al. (1978) showed that selectively cutting the dense palm understory in Ujung Kulon increased the availability of rhino food. In natural situations, their cropping activities acted to help maintain the young growth upon which they depend. Typical densities are 7-10 km² per individual under favorable conditions.

Vulnerability of Species and Habitat: In recent years, most killing of rhinos has resulted from a cultural belief in aphrodisiac qualities. Though the horn is most highly desired, all parts of the animal are valued. Sport hunting and damage to agriculture contributed to this rhino's decline. Rhino hunting methods are thought to be selective for females (Lekagul and McNeely 1977a, Schenkel and Schenkel 1979).

Causes of Threat: Clearing of nearly all the lowland forests, combined with relentless hunting, caused loss of this animal from Thailand. Poaching is still a threat in Java.

Responses to Habitat Modification: This species tolerates disturbed forest reasonably well, but the intense human settlement of lowlands in Southeast Asia drove the survivors into suboptimal upland habitats. The penetration of mangrove forests by man may have been important in extirpation of *R. sondaicus* in Thailand (Schenkel and Schenkel 1979).

Demographic Characteristics: Because few *R. sondaicus* have been kept in captivity or followed in the wild, much of what follows is extrapolated from our knowledge of the Indian rhino, *R. unicornis*. Mature females probably do not breed more frequently than once every 4-5 years. They probably are polyestrous, coming into heat every 46-48 days. The single young is born after a gestation of about 16 months. Young may nurse for several years. Females reach puberty in 3-4 years, males in 6. They may live as long as 40 years, but the greatest longevity of the few captive Javan rhinos was 21 years (Medway 1969, Lekagul and McNeely 1977a).

Key Behaviors: Javan rhinos are predominantly solitary, but mated pairs may form for short periods. Individual home ranges overlap. Vocalizations and scent marking with glands on the forefeet may help to maintain individual separation and communication

(Lekagul and McNeely 1977a, Schenkel and Schenkel 1979). For a detailed account of its behavior, see Hoogerwerf (1970).

Conservation Measures Taken: Thai law (WARPA 1980) prohibits hunting of this species. Suitable habitat is preserved in several of Thailand's national parks and wildlife sanctuaries, including Khao Soi Dao. Thai conservation officials promptly react to reported rhino sightings. Only six individuals are known to have been kept in captivity (Reynolds 1960) and none are known to exist today outside of Ujung Kulon.

Conservation Measures Proposed: Any individuals discovered in Burma, Thailand, Lao PDR, Kampuchea, or Vietnam should be captured and moved to areas where their protection is assured. Students and wildlife officials should learn to recognize the tracks of the Javan and Sumatran rhinos and to distinguish them from those of tapirs. The government of Indonesia, WWF, FAO, and IUCN should be encouraged to continue their worthy efforts to preserve the population in Ujung Kulon Nature Reserve. Improvements in the guard system and caution in the development of rhinos as a tourist attraction have been recommended. Because of the dangers inherent in maintaining a species near extinction in a single population (e.g., diseases, catastrophic storms), Schenkel and Schenkel's (1979) suggestion of the establishment of a second population should be considered seriously. At some future date, if the Indonesian herd overpopulates and the government makes animals available, Thailand should seize the opportunity to reintroduce the species to protected areas.

Sumatran rhinoceros

Dicerorhinus (Didermocerus) sumatrensis (Fischer 1814)

Mammalia, Perissodactyla, Rhinocerotidae

Status: Endangered.

IUCN Red Data Book (1976): Endangered.

CITES (1979): Appendix I.

IUCN (1979): Endangered.

MAB (1979): Endangered.

USFWS (1980a): Endangered.

WARPA (1980): Reserved.

Population Size and Trend: The total population was estimated

in the low hundreds in the IUCN Red Data Book (1976), as follows: 17-24 in Burma, 10-20 in Thailand, 11-23 in Malaya, 6 in Sabah, and 45-85 in Sumatra. The population in peninsular Malaysia is 50-75 (Flynn and Abdullah 1984). These are very rough estimates, and the number is still declining. A few animals also remain in Borneo (van der Zon 1977). Whether any still occur in southern Vietnam (Groves 1967) is unknown.

Distribution and History of Distribution: The species formerly ranged widely from Assam and Bangladesh through Southeast Asia to Vietnam, south to Sumatra and Borneo. Now isolated and very small populations occur in Burma, Thailand, Malaya, Sabah, Sumatra, and Borneo. Possibly some remain in Lao PDR, Kampuchea, or Vietnam (IUCN Red Data Book 1976, McNeely and Laurie 1977). In Thailand, the four areas last reported to be occupied by Sumatran rhinos were Phu Kheo Wildlife Sanctuary and Nam Nao National Park in Chaiyaphum Province, Khao Soi Dao Wildlife Sanctuary in Chantaburi Province, Huai Kha Khaeng Wildlife Sanctuary in Uthai Thani Province, and Thung Nakha and Khlong Saeng wildlife sanctuaries in Surat Thani Province. Possibly some occur along the Thai-Malaysian border also (McNeely and Laurie 1977, Schenkel and Schenkel (1979).

Geographic Status: The present range represents fragments of the original range, with Thailand located in the north-central part of it.

Habitat Requirements and Habitat Trend: Originally a large variety of habitats was used, including lowland forests and swamps. Now Sumatran rhinos are restricted to the forests of steep mountains, particularly steep upper valleys with thick undergrowth (Lekagul and McNeely 1977a, McNeely and Laurie 1977). Loss of habitat has been extensive. Population density is typically low--1 animal per 10 km² (Strickland 1967). The diet consists of leaves, twigs, bark, and fruit, with a majority of the species being characteristic of disturbed forest or forest edge in some areas (Strickland 1967), and of primary forest in other areas (IUCN Red Data Book (1976).

Vulnerability of Species and Habitat: Though rhino habitat is vulnerable to conversion to agriculture andalang grassland, much suitable, unoccupied habitat occurs in national parks and wildlife sanctuaries. The high demand for body products with supposed

medicinal and religious properties maintains heavy hunting pressure on the species.

Causes of Threat: Legal protection offered the Sumatran rhino is inadequate to counteract the strong economic incentive for hunting. A rhino carcass is valued at more than US \$2,000, or 10-20 years' income for a Thai farmer, and poaching of the last populations is rampant, even in protected areas (McNeely and Cronin 1972, McNeely and Laurie 1977). Poachers use superior numbers and weaponry in opposing law enforcement efforts.

Responses to Habitat Modification: This species avoids areas where the primary forest has been modified by logging. Therefore parks or sanctuaries designed for rhino conservation should include large tracts of primary forest (Flynn 1978).

Demographic Characteristics: The gestation period is about 7-8 months, much shorter than in other rhinos. The maximum longevity in captivity was 32.6 years (Lekagul and McNeely 1977a). In other rhinoceros species, the age at sexual maturity is about 3 years in females and 6 in males, and one young is born every 3 years.

Key Behaviors: These rhinos are solitary. Females have relatively stable home ranges, which are very large and partially overlapping. Males are nomadic and wander along stream beds, old game trails, or just cross-country. Communication is largely olfactory, by means of sexually distinct scent during the mating season (July to October). The same wallows and salt licks are used year after year (Lekagul and McNeely 1977a). The front horn is used to remove the bark from saplings.

Conservation Measures Taken: Hunting of the Sumatran rhinoceros is prohibited (WARPA 1980). Most recent reports in Thailand are from areas protected by the Royal Forestry Department in Khlong Nakha, Khlong Saeng, Thung Yai, Huai Kha Khaeng, Khao Soi Dao, and Phu Kheo wildlife sanctuaries and in Nam Nao National Park.

Conservation Measures Proposed: Emergency measures are needed to prevent the imminent extirpation of the Sumatran rhino from Thailand. As pointed out by McNeely and Cronin (1972), these steps will be unpopular. To effectively halt the market in rhino products, new legislation is needed prohibiting their possession and sale. Trade then should be eliminated at both ends by active monitoring of medicine shops and by adding large numbers of

well-armed guards to undertake aggressive patrolling of sanctuaries and parks in which rhinos live. As a second priority, once the capability to protect these areas is in place, acquisition of the suggested addition to Phu Kheo Wildlife Sanctuary (McNeely and Laurie 1977) would protect more rhinoceros habitat. An up-to-date survey, research, and public education also have been called for by Schenkel and Schenkel (1979). Tracking is a very effective means of documenting rhino distribution (Flynn and Abdullah 1984).

Fea's muntjak

Muntiacus feae (Thomas and Doria 1889)

Mammalia, Artiodactyla, Cervidae

Status: Endangered.

IUCN Red Data Book (1972): Endangered.

IUCN (1976): Endangered.

IUCN (1978): Endangered.

IUCN (1979): Endangered.

USFWS (1980a): Endangered.

WARPA (1980): Protected-2.

Population Size and Trend: This small barking deer was apparently never very abundant. It is now quite rare. Its total numbers are unknown but are certainly small. There is no reliable information on population trends (Lekagul and McNeely 1977a, IUCN 1978).

Distribution and History of Distribution: Until recently, Fea's muntjak was considered restricted to the Tenasserim range, from Rat Buri to Tak provinces in Thailand (Fig. 100) and from the districts of Thaton, Amherst, Tavoy, and Mergui in Burma (IUCN Red Data Book 1972, Whitehead 1972, Lekagul and McNeely 1977a). However, in 1981 an individual was captured in Surat Thani Province. Local villagers were unfamiliar with the species, so it must be quite rare there (Conservation News Volume 3, Association for the Conservation of Wildlife, Bangkok).

Geographic Status: Uncertain. This muntjak may be endemic (possibly relictual) in the Tenasserim range along the Thai-Burmese border and in a few mountainous areas of southern Thailand.

Habitat Requirements and Habitat Trend: *M. feae* inhabits the evergreen forest of the hills and mountains (Gairdner 1914, Lekagul and McNeely 1977a, IUCN 1978).

Vulnerability of Species and Habitat: Its relatively diurnal activity patterns probably make it vulnerable to human predation. Its flesh is said to have a most delectable flavor.

Causes of Threat: Human settlement in the range of Fea's muntjak has increased in recent years. The flesh is relished in Thailand. Armed insurgents living off the land, especially in the Burmese part of its range, probably account for much mortality. In general, overhunting and the destruction of native habitats threaten this cervid with extinction (IUCN Red Data Book 1972, Lekagul 1980 and personal communication). Gairdner (1914) recorded a Fea's muntjak killed by a leopard.

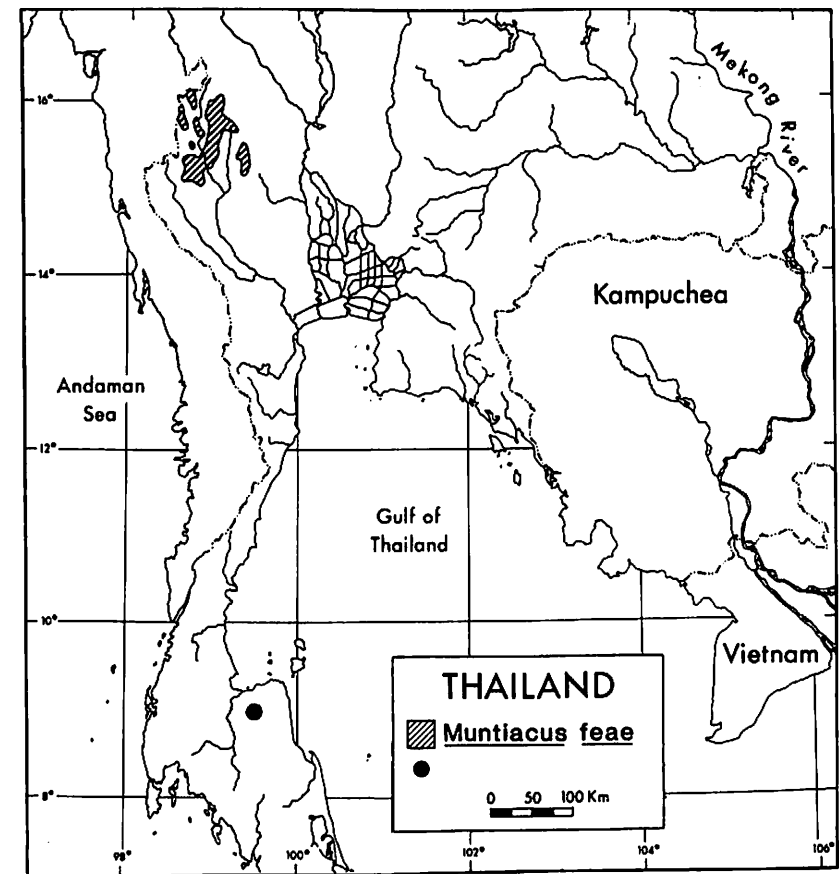


Fig. 100. Former distribution of Fea's Muntjak (*Muntiacus feae*).