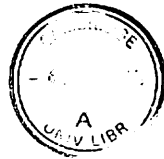


WILD INDONESIA

The wildlife and scenery of the
Indonesian archipelago

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Text by TONY and JANE WHITTEN

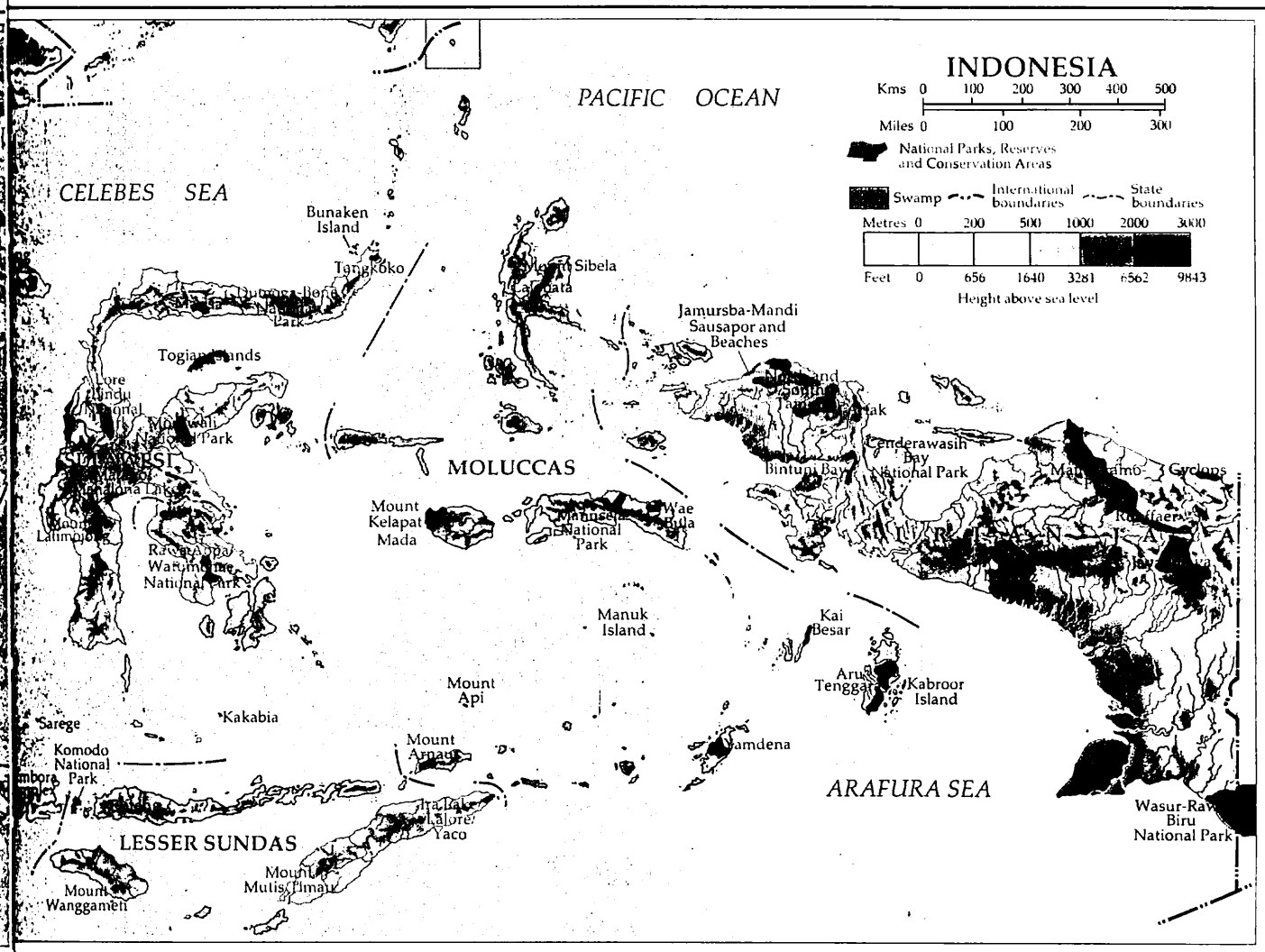


Produced in association with the World Wide Fund for Nature

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Not only are the percentages impressive, but many of the species concerned are endemic – that is, found here and nowhere else. This applies to about 430 of the roughly 1,500 bird species, 200 of the 500 mammal species, and over half of the 350 species of the economically important dipterocarp trees, with 155 species endemic to the island of Borneo alone. Although some countries have more species than Indonesia, it is unlikely that any has a more diverse and unique wildlife, because diversity measures not just quantity but variety. The spread of Indonesia across from Asia to Australia, and from torrid coastal swamps to glaciers, gives it an unmatched status among the countries of the world.

The species living today are only a snapshot of the life that has adorned the Earth through the millennia. About 700,000 years ago, when the Woolly Rhinoceros and Mammoth roamed northern Europe, the forests and plains of Java were inhabited at different times by eight species of elephants, as many as three living at one time. There were also three species of rhinoceros, three species of pig, large sabre-toothed cats, and a giant pangolin or scaly anteater. Try to picture also, in this unlikely community, groups of hippopotamuses and hyenas, animals which are now strictly African.

Caves in South Sulawesi have revealed something of the animals alive and sharing the country with man about 30,000 years ago. A number of these were giants, such as a huge pig and a tortoise with a shell nearly 2 metres (6½ feet) long, considerably larger than the giant tortoises found today in the Galapagos Islands. Elsewhere in the archipelago there is evidence of giant rats from Timor and Flores, and of a large lizard on Java and Timor, comparable in size to the fabled 'Dragon' living on Komodo Island today. Largest of all the land animals were the stegodonts, which looked much like modern elephants except that the males had large, curving tusks which grew so close together that the trunk must have been draped over one side. In contrast there was also a pygmy stegodont no taller than a man, remains of which have also been found on Flores and Timor. The different types of elephants found in Indonesia and on the neighbouring islands of the Philippines and Taiwan probably swam across quite wide expanses of water. (Modern elephants, too, are able to swim well, and the world record for distance is held by a luckless individual which was washed overboard from a ship in 1856, 48 kilometres (30 miles) from the South Carolina coast. Local residents must have been aghast when this exhausted beast walked out of the sea!



LEFT Asian Elephants (*Elephas maximus*) are distinguished from the larger African species by their highly curved backs, smaller ears, and the lack of tusks in the female. They have the peculiar distinction of being both a protected species because they are threatened by loss of habitat but also classified as a pest because they raid village crops and plantations

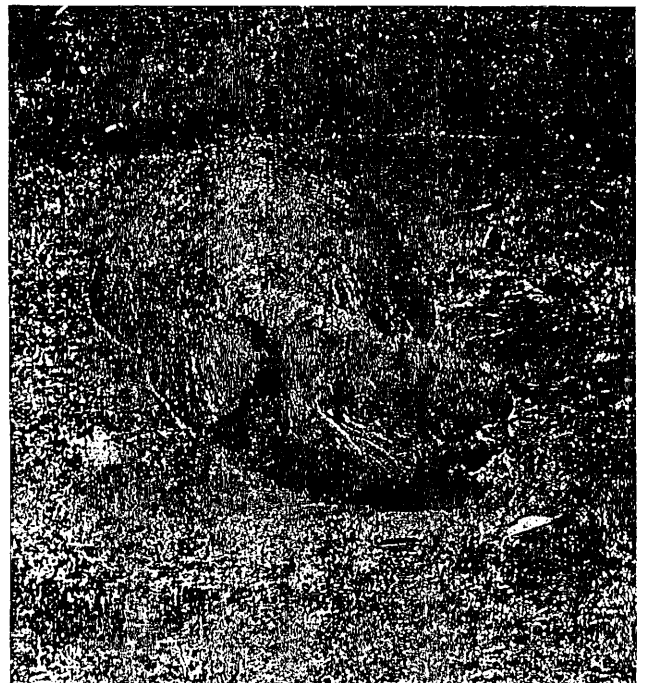
BELOW The Sumatran Rhinoceros (*Dicerorhinus sumatrensis*) is found in many of the forest patches in Sumatra, but the major population is in Mount Leuser National Park. It makes muddy wallows using its feet and front horn partly to keep cool during the heat of the day and partly to dislodge parasites from its skin which it scrapes clean on tree trunks. Such 'scraping' trees are a clear sign of the presence of rhinos.

leaves a feeding area looking devastated. However, the scattered leaves and branches, and trampled saplings, are useful as food sources for other large herbivores such as tapir and deer, enabling them to feed on plants which they could not previously reach. At least as important to the elephants as food, and the 70-90 litres (15-20 gallons) of water they need each day, are sources of minerals, which are generally lacking in the main constituents of their diet. Several earth 'licks' are usually visited for different minerals. In some places veritable caves have been dug out by generations of elephants using their tusks or toe nails to get at the earth.

As Indonesia's largest animal, the elephant faces serious problems with its human neighbours, and these have been described in the Introduction to Indonesia.

Rhinoceroses

Two species of rhinoceros, the one-horned Javan (*Rhinoceros sondaicus*) and the two-horned Sumatran (*Dicerorhinus sumatrensis*), have been recorded on both Sumatra and Borneo. The Sumatran Rhinoceros frequents deep forest where it feeds on woody plants. In contrast, the larger Javan Rhinoceros, now extinct on both islands, preferred the rather succulent vegetation that grows in disturbed areas and so it often crossed the paths of people. Unfortunately, it resented human intrusion and made itself a target of man's aggression. The last Javan Rhinoceroses on these islands were shot in South Sumatra



between 1925 and 1928, and the only remains from Borneo are from cave deposits in south-east Sabah dating from 10,000 years ago.

The Sumatran Rhinoceros would rarely come in casual contact with man, preferring forests in the lowlands, hills and even mountains – we have found footprints at 3,300 metres (10,825 feet) in Mount Leuser National Park. It has been recorded from the Chittagong Hills of Bangladesh to Sumatra and Borneo, but never in Java, suggesting it arrived in Indonesia after the rise in sea level isolated Java. It used to be found throughout Borneo, but it has not been confirmed in Kalimantan since the 1930s. Small populations of five to ten animals remain in Malaysian Borneo, Peninsular Malaysia and Vietnam, but it is probably only on Sumatra that there is even a faint glimmer of hope for its long-term future, and that can be kept alive only if the regulations controlling hunting and forest destruction are enforced. The possible extinction of Sumatran rhinos in the wild has important ramifications for the forest ecosystem as a whole: certain trees produce seeds which must pass through a rhinoceros gut before they can germinate. Such trees may include the many wild species of mango. The loss of the rhinoceros would, therefore, eventually cause the extinction of these wild mangos, and in turn the extinction of the species which depend on them. This may have happened already in parts of Sumatra and Kalimantan. In addition to fruit, rhinos eat leaves, particularly the rather fleshy leaves of plants growing in forest clearings and river banks, as well as bark. Sumatran rhinos have been observed to eat so much of the tannin-rich bark of the mangrove tree *Ceriops tagal* that their urine was stained bright orange; tannin is an ingredient in some anti-diarrhoea drugs and it may be that such food is sought by rhinos for medicinal reasons.

Adult male rhinos live in more or less exclusive ranges within which single females, with any dependent calves, live in rather smaller, overlapping ranges. The male attempts to maintain exclusive breeding rights over these females and communicates this to other males by regularly visiting dung or urine sites.

Likewise the sexual receptivity of a female is communicated by the smell of her urine which is sprayed onto leaves at rhinoceros nose height. Even in a pristine area, these large animals probably live at a density of only one every 100 square kilometres (40 square miles) and they are suffering terribly from forest loss and hunting pressure.

Tigers

The Tiger (*Panthera tigris*), sleek, powerful and beautiful, is without doubt the King of the Sumatran forests. It is not found on Borneo and probably never was. The Sumatran Tiger is quite small in relation to the other races, and quite diminutive compared with the enormous Siberian Tiger. Even so, it is a deadly predator and large enough for most people. It is not unusual to read in newspapers of villagers being killed or carried off by tigers, the prime victims being children and squatting women, who look small and manageable. Even when standing up in a forest at night, it is difficult not to shine a torch behind one occasionally in the dread of catching the red reflection from a pair of large, intent eyes. Yet we have been asleep in the forest and woken in the morning to find tiger footprints only a short step from our heads, the only sign of the nocturnal visitor being a chewed pair of rubber sandals. While not strictly nocturnal, tigers do most of their hunting by night, and it is said that they may travel up to 30 kilometres (20 miles) in a single night searching for food. They have catholic diets, taking anything from fish and insects to deer and, most commonly, pigs.

Sumatran Tigers face acute problems. Being predators they live at very low densities – typically one every 50 square kilometres (20 square miles) in relatively undisturbed habitats with adequate prey such as pigs and deer. They can be found in all forested habitats, from lowland swamps to the high altitude plateaux in Mount Leuser National Park. A male's range overlaps the ranges of the females and juveniles and he will try to keep exclusive breeding rights over the two or three females within his range. Thus, to maintain a reasonable population of,



The Tiger (*Panthera tigris*) is the Asian King of the Jungle. Strong and sleek, it prowls through the forest at night looking for likely prey, which may be small animals or deer and pigs. The tigers' status is desperate in many areas of Sumatra as they have suffered from habitat loss and excessive hunting. Man-eaters do occur, but they are a rarity.

beautiful alpine flowers that grace the mountain meadows are in the same predicament; for example, the endemic Busy Lizzie (*Impatiens radicans*) and the rare, endemic red-flowered orchid, *Dendrobium jacobsonii*, from East Java.

Edelweiss of the Spirit World

Up on the highest slopes of the volcanoes one can find groups of shrubs with white furry leaves and white-and-yellow flowers reminiscent of the Edelweiss of the European alps. Known in English as the Javanese Edelweiss (*Anaphalis javanica*), it is in fact found from central Sumatra and West Java through to Lombok in the Lesser Sundas, as well as in Sulawesi. The flowers are generally seen between April and August and are visited by many bees, flies and butterflies on sunny days.

On most mountains one can now find only small specimens up to a metre (3 feet) tall, but this giant daisy is, in fact, capable of growing up to four or even eight times this height on the infertile, volcanic screes which it favours. The largest specimens in Java are apparently in sheltered spots on Mount Sumbing where the 8-metre (25-foot) tall specimens have rough, fissured trunks 15 centimetres (6 inches) thick; they may be over a hundred years old. The most impressive mass of them, however, is in the field behind the crater of Mount Gede which can be visited easily, depending how wobbly your legs feel after the ascent of the mountain – the climb back up Gede from the field can be pretty devastating if you are feeling tired.

On Mount Gede and Mount Agung, Bali's mightiest peak, pilgrim climbers regard this beautiful plant as a gift from heaven and it is their custom to take a fragment down with them as a divine blessing. As one might guess, this habit has not greatly served the needs of the Edelweiss, but enterprising villagers on the lower slopes of Mount Agung near Besakih cultivate the plant and offer pieces for sale, probably for divine profit.

Mammals

Java has seventeen endemic species of mammals: six bats, one leaf monkey, one gibbon, one squirrel, six rats, one deer and one pig. A further five species (three bats, a hare and the leopard) are not known from anywhere else in Indonesia although present elsewhere in Asia. Four of the larger and rarer species are described below.

Javan Rhinoceros

The Javan Rhinoceros (*Rhinoceros sondaicus*) is the largest animal in Java with a shoulder height of over 1.5 metres (nearly 5 feet), a body length of 3 metres (10 feet), and a weight of up to two tons. It has three distinct folds of skin, one around the neck, one over the shoulder blades and one around the hips. Its upper lip is long and prehensile and it uses this to pull leaves and twigs towards its mouth when browsing. All males have a horn, visible even in a new-born calf, but most females have only the suspicion of a bump. Even in males the horn never grows very long, with the record being a meagre 25 centimetres (10 inches) and the average a mere 15 centimetres (6 inches).

Javan rhinos enjoy wallowing in mud and their habitat is well supplied with suitable wet places. They prefer low-lying areas, but there are records from the last century of rhino tracks extending all the way up Mount Gede-Pangrango to just over 3,000 metres (9,800 feet). They tend to live largely solitary lives, forming adult pairs only temporarily at breeding time and cow-calf pairs for the three or four years that a mother looks after its young. They are browsing animals, eating young leaves, shoots, twigs and fallen fruit along the forest margins.

About 150 food-plant species have been identified, most of these being typical of secondary growth. Interestingly, the damage a rhino causes to a plant when it feeds is not enough to kill it, and the plant generally responds by growing new shoots at precisely the height a rhino finds convenient for feeding. The rhino is, therefore, a positive influence on its habitat for its own needs, and the paths it regularly travels take on a distinct and unique appearance.

This rhinoceros is not very aptly named. Until recently it was thought to survive only at the western tip of Java in Ujung Kulon National Park but a hundred years ago it was found from the Sundarbans of Bangladesh and northern Vietnam (where a small population persists) through to Sumatra and Java. In prehistoric times it may even have lived on Borneo but, if so, it has been extinct there for a long time. Today the main population is in Ujung Kulon where some sixty animals remain in an apparently stable population. Some visitors to the park may catch a glimpse of a large grey behind or hear a snort and crashing of branches in the undergrowth, but the majority are not so lucky. The rhino used to occur throughout Java and favoured disturbed vegetation, which brought it into contact with people. It was apparently a belligerent beast, and when people obtained firearms they started to get their own back.

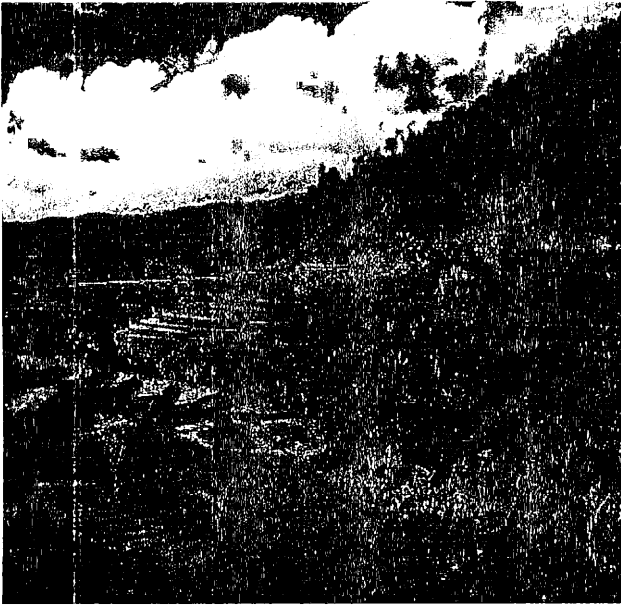
Hunting used to be a major threat to the Javan Rhinoceros, but with so few animals remaining it is no longer the rhino's biggest problem. Perhaps the greatest present threat is its own rarity and confined distribution. A few years ago a disease similar to anthrax caused the death of a number of animals and it is possible that some disease could wipe out the entire population, or at least such a large proportion that it would be unable to recover. In the light of this, a major captive breeding programme has been proposed. However, the lack of appropriate biological information, the large numbers that would have to be removed from the park, the lack of any assurance of success, and the proven ability of the animals to withstand both disease and the enormous Krakatau eruption one hundred years ago, all argue strongly against such a programme.

Banteng

The second largest wild animal in Java and Bali is the Banteng (*Bos javanicus*). Large handsome cattle, standing 1.5 metres (nearly 5 feet) at the shoulder and weighing up to 800 kilograms (1,760 pounds), male and female Banteng are very distinct: the male is a dark chestnut brown and the female mid-brown, but both have a contrasting white rump-patch and stockings. Distributed from Burma to Borneo and Bali, Banteng are missing from Malaysia and Sumatra although they did once occur in Malaysia. They are probably the ancestors of the domestic Asian cattle and in some areas where both are found it can be difficult, even for the cattle owners, to tell young wild and domestic animals apart at a distance. The adult male wild Banteng is highly conspicuous, however, by his colour and the high ridge along his back.

Banteng are not beasts of dense primary forest, preferring instead rather more open areas such as clearings and river banks, where they graze on grasses. They generally live in herds of twenty-five or more animals containing one adult male; the surplus males group together to form bachelor herds. Herding is to their advantage because animals in a group are less likely to fall prey to leopards (and, in the past, to tigers). The herd, as in the case of elephants, is generally led by an old cow.

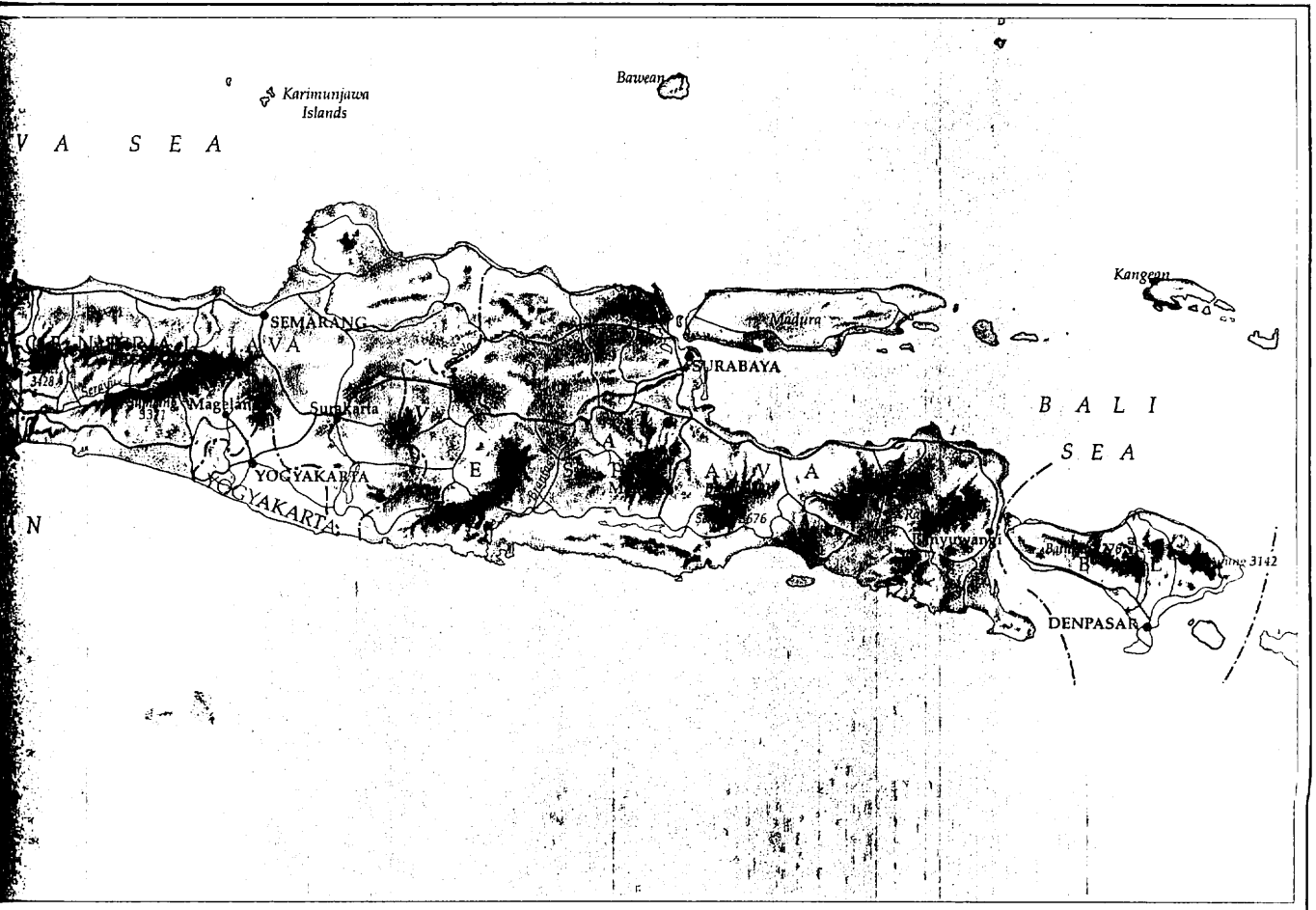
Wild Banteng are largely nocturnal but this may be a reaction to human hunting pressure. When guns became available, the wild populations suffered severely and they have been exter-

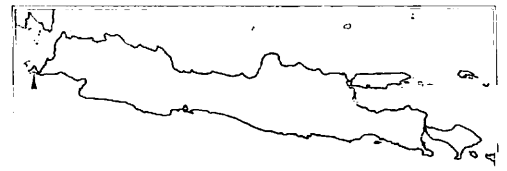


The many volcanoes on Java and Bali have produced very fertile soil from which, with the hard work of the farmers, bounteous rice crops are harvested. This scene is on the edge of Mount Halimun Reserve in West Java.

seasonal than neighbouring East Java.

Despite the industry and high population density, there most certainly is some wild Java, albeit rather restricted in area. In the west there is lowland forest in the Ujung Kulon National Park, a peninsula that took the full force of the enormous Krakatau explosion and which now is the sole home in Indonesia for the Javan Rhino. In the east, there are patches of lowland rain forest along the south coast, notably in Alas Purwo National Park and Meru Betiri National Park, where the Javan Tiger has almost certainly become extinct but much else still remains. The small island of Rambut, not far from Jakarta, is a major breeding and roosting site for a host of water birds. The Halimun Mountains due south in West Java get their name from the grey mist that seems to perpetually enshroud them, and local beliefs in the spirits within them have saved them from being cleared. Further east in West Java are the tall twin, forested volcanoes of Gede-Pangrango which have considerable biological interest. Mount Bromo in the east is justly famous for the sheer spectacle of the sunrise from its crater rim. Finally, there is the interest of the savannah landscape of the dry Baluran National Park in the far north-east corner where grazing animals and peacocks can be seen with ease. Bali has proportionately more forest than any province in Java, some 30 per cent of the land area. There are two major wild areas, Bali Barat National Park in the west and the forests in the centre of the island around Mount Batukau and the three lakes of Tamblingan, Buwan and Bratan. Neither of these areas is visited to any extent but they do offer great landscapes and wildlife interest.





Ujung Kulon National Park

Ujung Kulon National Park comprises the rectangular peninsula at the western tip of Java along with the adjoining Mount Honje region on the east of the isthmus. Ujung Kulon is possibly Indonesia's best known national park because of its famous inhabitant, the Javan Rhinoceros, which was thought, until recently, to survive only here. There is now known to be a small second population in Vietnam. The elusive rhinoceros apart, the 786 square kilometres (303 square miles) of the park have much else to offer such as the herds of cattle known as Banteng, the Peatowl, the deer, Leopard, Wild Dog, Javan Gibbon and three other primates, excellent turtle nesting beaches, and also some wonderful scenery first noted 150 years ago by the pioneer naturalist, F.W. Junghuhn. The area was made a nature reserve in 1921 and comprises mangroves, coastal forests and various types of lowland forest. The forest on the flat areas is largely of

the mature secondary type and there are a number of tree species which are known only from the park. There are also grasslands which are used for grazing by the Banteng and deer. Access is hardly simple, requiring the hire of a boat from Labuan on the west coast of Java, but the park is becoming increasingly popular and tourist facilities are steadily improving. The World Wide Fund for Nature has assisted the park in many ways over the past two decades, and an education officer has recently been assigned to work with local staff.

The beautiful rocky coast of Ujung Kulon National Park.





ABOVE Sambar Deer (*Cervus unicolor*) come down to the beach to drink, not for the water but for the salt. All herbivores need salts and these are obtained either from mineral-rich rocks, mineral water springs, or from the sea.

BELOW The elusive Javan Rhinoceros (*Rhinoceros sondaicus*) has its major population in the park. About fifty rhino live here but they are extremely difficult to see in the thick undergrowth.



BELOW A handsome Barking Deer or Muntjac stag (*Muntiacus muntjak*). This species would once have been an important prey for the now extinct Javan Tiger, and is still taken by the Leopard, the largest predator in the park.

