



Bali's Endangered White Starling

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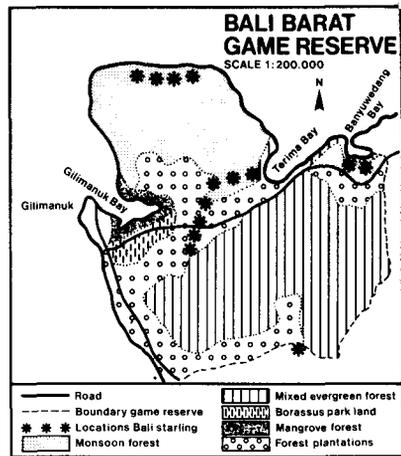
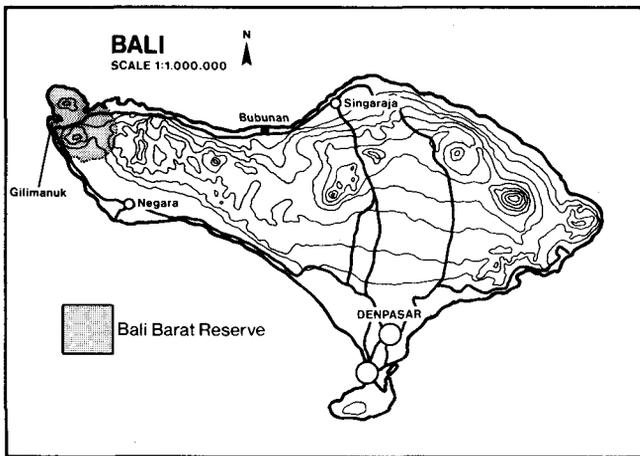
Bali's endemic white starling, Rothschild's starling, is one of Indonesia's most endangered animals, along with the Javan and Sumatran rhinos. It is almost entirely confined to one reserve, in the north-west of the island, which has been severely reduced and disturbed in the 30 years since it was created. Only 13,000ha of the original 20,000ha of monsoon forest now survives, and estimates of starling numbers are 200 birds or even fewer. Capture for sale has also contributed to the bird's decline. The author urges the need for proper management of the reserve.

The beautiful white Rothschild's starling *Leucopsar rothschildi*, the only endemic bird on Bali, is on the verge of extinction. It will be a sad day for Bali, the island of animal lovers, when it loses the bird for which it is famous among naturalists. Like the Balinese dancers, the bird should be a symbol of Bali; it should be called not 'Rothschild's starling', but the Bali starling.

The Bali starling occurs only in the westernmost part of the island, in the Bali Barat Game Reserve. When Stressmann described it in 1912 the distribution area extended to Bubunan, about 50km to the east of the present reserve. But today, as a result of forest destruction outside the reserve and uncontrolled capturing, the bird is restricted to the reserve, except for a small area to the south-east.

When it was established in 1947 to protect the Bali ecosystems, the reserve comprised 19,600ha of forest; since then 6500ha has been converted into plantation forest. The main road from the ferry in Gilimanuk to Singaraja divides the reserve into two, the northern Prapat Agung area with the highest point only 310m, and the southern area with higher mountains up to 810m. Most of Bali is of quaternary volcanic origin with some still-active volcanoes, like G. Agung (3142m) and G. Batur (1717m). The western part consists of old volcanic formations; the north-western Prapat Agung is an old raised limestone reef.

Above: In the Surabaya market



Vegetation

The Prapat Agung area consists of dry monsoon forest, which is very susceptible to fire in the dry season, and large fires are frequent. The forest is dominated by fire-resistant trees such as pilang *Acacia leucophloea*, asam *Tamarindus indicus* and kesambi *Schleichera oleosa*, with an undergrowth of grasses and many thorny shrubs. On the southern slopes of Prapat Agung there is a small 32-ha stand of sawo kecil *Mamilkara kauki*, a tree with red wood, much sought after for carving, that has almost completely disappeared from natural forests on East Java, Bali and the Lesser Sundas; this is one of the last natural stands. Near Gilimanuk there is a small stand of lontar palms *Borassus flabellifer*, a palm common in the burned grasslands of the Lesser Sundas.

The south-eastern part of the reserve, which is both higher and wetter, supports a more luxuriant mixed forest. On Gunung Klatakan even dipterocarps grow in the forest, and this, together with the Sangeh Reserve, also on Bali, represents their easternmost limit in the Lesser Sundas. Mangrove forest on the coast is dominated near Banyuwedang by *Sonneratia acida* and *Avicennia*, with a lot of *Grewia*. But since the creation of the reserve the Forestry Department has replaced much of the lowland forest with plantation forests, including teak *Tectona grandis* and sawo kecil.

The Starling

The Bali starling, or jalak putih, as Indonesians call it, is a white starling with black wing coverts, blue orbital skin, and a white crest. The birds live gregariously in flocks of up to 40 except in the breeding season, September to March, when they pair. As with many other starlings, they have a rather fixed daily movement pattern, which makes observation relatively easy. They roost in the dense coconut trees, and at certain times of day move to their feeding and drinking places and back. Their breeding areas are on lower ground, mainly to the north and south of Gunung Prapat Agung and around Banyuwedang Bay, areas formerly covered with monsoon forest but now partly given over to plantation forests. The nests are often in old woodpecker holes. During breeding the male aggressively attacks visitors. The main food consists of caterpillars, ants, termites and other insects, but also seeds of, among others, the kepuh *Sterculia foetida*, which they pick open, and the fruits of *Zizyphus jujuba* and *Ficus* spp.⁵

Three other starlings occur in the area: Asian pied starling *Sturnus contra*, the very common black-headed starling *S. melanopterus* and white-vented



North coast of the Bali Barat Game Reserve

myna *Acridotheres javanicus*. All three are also found in eastern Java, just 25km over the Bali Strait, but the Bali starling never crosses the Strait.

Since 1970 the Bali starling has been fully protected by Indonesian law; it is included in the IUCN Bird Red Data Book, with the status endangered. It is reported from Nusa Penida, an island to the south of Bali, but with unclear status (perhaps introduced).

Numbers

All estimates of Bali starling numbers in recent years indicate a steep decline. In 1925 hundreds were seen in the areas of greatest concentration.¹³ In 1975 and 1976 the Nature Conservation Department estimated a total of at least 1000; in 1976 Sieber estimated 500, and certainly not more than 1000, and my estimate was at most 300-400 starlings. Several other estimates were even lower: Alikodra, in 1977, about 100, and Ismu Sutanto Suwelo, in 1978, between 95 and 217. In October 1978 both the habitat and the Bali starling's situation seemed much worse than in 1976; we saw one couple of starlings near the Banyuwedang Bay, but in the best area, north of G. Prapat Agung, we did not see any. In 1979 de Jongh saw 95 starlings and estimated the total at 200.

Other Wildlife

Other wildlife in the Bali Barat Reserve includes the rusa deer *Cervus timorensis*, barking deer *Muntiacus muntjak*, wild pig *Sus scrofa*, pangolin *Manis javanica*, macaque *Macaca fascicularis* and leaf monkey *Presbytis cristata*, porcupine *Hystrix javanicus*, and wild cat *Felis bengalensis*. Formerly the reserve was famous because of the endemic Bali tiger *Panthera tigris balica*, but this smallest tiger subspecies is now believed to be extinct. The banteng *Bos javanicus* is reported from Bali Barat, but probably these are all feral animals which ran wild – Bali's domesticated cattle are of banteng origin. The salt water crocodile *Crocodylus porosus* is said still to occur in the swamps near Gilimanuk.

Disturbance

The reserve has suffered much disturbance since its establishment in 1947, including two large roads. Despite its game reserve status, the Forestry Department has planted 6300ha mainly in the lower areas with teak, sawo kecil and many other species, and 1251 families (5010 people) were brought

from Java. The planting was stopped in 1976, but the people are still in the reserve without any real possibility of making a living, and inevitably they make ladangs and collect forest produce in the reserve. Only 13,100ha of the original forest now remains.

Firewood is cut on a large scale in the monsoon forest on the northern Prapat Agung slopes. The tree mainly used is *Acacia leucophloea*, which is also one of the most important for the starling. Many trees are killed in the process, and only about 20 per cent remain undamaged. People also take wood in small sailing boats to sell to the limestone factories in Bali and East Java; they also collect coral for the factories. In August and September each year hundreds of people invade the reserve to catch the young nener fish, which they sell to the fish farms in Surabaya. They build huts along the coast, take firewood from the forest, and often start grass fires for hunting animals. Groups of hunters from Denpasar also sometimes come to hunt in the reserve. Fortunately, most of the grazing near the Banyuwedang Bay has now been stopped, a step towards better protection in one of the scenically most attractive parts of the reserve.

Illegal capture still occurs. Local people use lime to catch the birds, and also collect young from the nests. In 1976 it was estimated that 40-60 Bali starlings left Bali every month to be sold in the bird markets in Jakarta and Surabaya (Ismu Sutanto Suwelo, 1976); now fewer are captured because they have become scarce and difficult to find. But Bali starlings are still being sold in the bird market at Surabaya. In October 1978 two pairs were offered to me for Rp25,000 (US \$40) per pair, and in April 1979 de Jongh *et al* noticed them at the market of Denpasar for Rp40,000 (US\$65) per bird. * The result of all this destruction, disturbance and outright capture is a serious decline in the number of Bali starlings, which, together with the Javan and Sumatran rhinos, is now one of Indonesia's most endangered animals.

Future Development

Bali Barat has been proposed as a national park, but in its present condition this status could hardly be justified. In comparison with the spectacular areas of East Java, such as Baluran with its abundant wildlife, Ijen with its beautiful crater lake, Yang with its temple ruins and extensive grass plains, and Bromo-Tengger-Semeru with the sand sea and the active Bromo and Semeru volcanoes, Bali Barat has much less to offer. Nevertheless, despite the damage already done, this reserve is still, with the endemic Bali starling, the monsoon forest and some good coral, a valuable area worth saving. By careful management its original value can be restored. This will need cooperation with the Forestry Department for managing the forestry plantations, with the local authorities for removing and resettling the people living in the reserve, as the Governor of Bali has already proposed, and with the Directorate General of Tourism, to work out a promotion scheme for selected tourism. In the long term the area should probably be developed as a Provincial Park, under the authority of the Provincial Government, but for the present its game reserve status should be maintained with the Prapat Agung area as a strict nature reserve.

* Alastair Morrison, of Ainslie, ACT, Australia, who has also written to us about the serious situation of Rothschild's starling, says that he was offered 19 in a Singapore bird shop, 'at the comparatively low asking price of US\$150 each - clearly indicating that it is commonly available'. *Editor*.

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Gorse – Noxious Weed or Nursemaid?

In New Zealand, gorse *Ulex europaeus*, introduced as a hedge plant and livestock fodder by the early settlers, became so widespread that in 1900 it was declared a noxious weed, since when it has been systematically burned and poisoned. In 1978 some \$6.4 million was spent on chemicals for gorse control. But is this either effective or necessary, asks Kevin Hackwell, a Government botanist writing in *Forest and Bird*. Gorse only colonises land which has been cleared of native forest; left alone it serves as a nursery plant for forest regeneration, protecting native seedlings by stabilising moisture and temperature and providing fertile litter. Eventually the native plants overtop the gorse, which then dies. Burning gorse is particularly futile, since gorse seeds are fire-resistant, and the only plants affected are the native ones. Burning, in fact, assures a permanent stand of gorse.

US Attitudes to Wildlife

A three-year study of attitudes to wildlife by Dr Stephen Keller, of the Yale School of Forestry and Environmental Studies, based on interviews with a questionnaire, showed overwhelming support for protecting the bald eagle, mountain lion, American crocodile and an endangered butterfly, even if it increased costs for an energy project, but not for an endangered plant, snake or spider in the same situation. 77 per cent thought it would be all right to kill whales to get a useful product if the species was not endangered, but 69 per cent were prepared to pay more for tuna fish rather than allow the killing of porpoises trapped in the tuna nets to continue. On the control of livestock killers, notably coyotes, most people were strongly opposed to poisoning and also to indiscriminate shooting and trapping.