

Reef's problems began with the train by Sue Wells

Results of a study on coral growth rates in Looe Key National Marine Sanctuary, near the south end of the Florida reef tract in the USA, provide an interesting example of the long-term impact that man's activities may have on coral reefs. Dr Harold Hudson of the US Geological Survey in Miami has been looking at annual growth bands of corals using core samples from the coral *Montastraea annularis*. He found that stress bands were visible, which correlated very closely with unusually cold fronts in this area. This is not entirely surprising, since the Florida reefs are at the northernmost edge of the range of corals; there is a low diversity of species and the reefs tend to be very susceptible to cold weather.

However, although severe, these short-lived winter storms depressed coral growth only in the year they occurred and were insufficient in themselves to explain an additional long-term decline in growth rate that was observed to have started about 1908. Had some permanent change in the Florida Keys environment at that time triggered this latter event? Between 1904 and 1916, Henry Flagler's Overseas Railway was built linking Miami with Key West. Dr Hudson suggests that the construction of the 32 km of earthen causeways to span shoal areas between islands effectively dammed up a sufficient number of tidal relief channels to divert large amounts of seasonally cold and sediment-laden water to less restricted passes. These effluents are thought to explain the poor coral growth rates seen in Looe Key.

Unfortunately, Henry Flagler's Railway was only the beginning of the reef's problems. Despite the existence of several parks and reserves and long-term management plans in the Keys, the reefs are coming under increasing pressure from snorkellers, divers, recreational boaters, coastal development and pollution. The John Pennekamp Coral Reef State Park in the north of the Florida Keys, one of the oldest marine parks in the world, was listed as one of the most threatened protected areas at the IUCN General Assembly held in Madrid in November 1984. The Florida reef tract is a prime example of an area where

conflict arises between tourism and recreational industries, and the future survival of the reefs on which such activities are based.

Asset-stripping in Tanzania threatens endemics

There are plans to fell the greater part of two areas of ancient forest in Tanzania, which contain large numbers of plant and animal endemics. The East Usambaras Project involves the felling of more than 10,000 ha (24,700 acres) of the now fragmented relic forests, which total 21,036 ha (51,980 acres). A 50-m strip of forest will be left on either side of the streams 'to protect the water catchment'. The felling will be conducted by Sikh Sawmills, a firm that has a long experience of timber stripping in East Africa, with aid from the Finnish Ministry of Foreign Affairs and a Finnish sawmilling consultancy group, Jaako POYRY, in association with the local Government subsidiary, the Tanzania Wood Industry Corporation. There are no research or conservation components in this project.

Jaako POYRY is also involved in planning timber extraction from the Kilombero Scarp Forests, and its report suggests that 40,000 ha (98,800 acres) may be felled. The exploitation will begin from Mangula Sawmill, near Magombera, which was built by the Chinese builders of the TanZam railway to provide the timber they needed. The Kilombero project is a continuation of that initiative and is a joint Chinese/Tanzanian Government scheme.

There will be huge losses in species if these projects go ahead. The forests have been isolated for perhaps millions of years, and within the last few years 60 species of endemic plants have been discovered in the Kilombero forests. Both forests harbour 18 of the 20 known species of African violet *Saintpaulia*. There are numerous endemic frogs, birds and mammals, including the highly endangered Gordon's red colobus monkey *Colobus badius gordonorum* and the Magombera mangabey *Cercocebus galeritus*.

The authorities involved appear to have no appreciation of the tremendous ecological and conservation value of these relic forests, and the strongest possible protests are called for.

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Zebra foal with its Welsh pony surrogate mother at London Zoo in August (*Michael Lyster/Zoological Society of London*).

Britain's first embryo-transplant zebra

In June a Welsh pony gave birth to a zebra, the first in Britain, and only second in the world, to be born by embryo transplant. It is another success in the study by scientists in the Zoological Society of London's Institute of Zoology and the Thoroughbred Breeders' Association's Equine Fertility Unit at Cambridge. The technique, which has also resulted in the birth of four Przewalski foals to surrogate pony mothers, will help breed other rare equids.

Brunei plans for conservation forest

The Brunei Government has taken a commendable step in agreeing, in principle, to setting aside almost 64,000 ha (158,000 acres) of commercially 'good' forest as a Conservation Forest. The acceptance of the need for this came about as the result of a report commissioned by the Brunei Government from Anderson and Marsden (Forestry Consultants) Ltd. With the exception of mangrove, which was excluded from the consultant's brief, all the country's forest types are represented in the Conservation Forest, which contains 20 per cent of the country's combined area of freshwater and peat swamp, kerangas (tropical heath), mixed dipterocarp and montane forest types.

The largest single area (35,300 ha/87,200 acres) of Conservation Forest lies in the rugged Tem-

burong district and comprises magnificent primary mixed dipterocarp forest and nearly all the country's montane forest. A smaller area (18,500 ha/45,700 acres) abuts the Gunung Mulu National Park (Sarawak, Malaysia) along the international border, and comprises primary lowland mixed dipterocarp and kerangas forest. A further 18,500 ha (45,700 acres) has been designated as Protection Forest, primarily for watershed protection.

Although, as yet, Brunei enjoys no legislation under which areas of land, or water, can be legally constituted as protected areas for wildlife, the wildlife itself can be protected under the Wild Life Protection Enactment of 1978. However, the areas designated as Conservation and Protection Forests, within which logging should be prohibited, are either within legally constituted forest reserves or in proposed forest reserves, and this affords some measure of protection under the Director of Forests, although the responsibility for wildlife, under the Enactment, is vested in the Director of the Brunei Museum. Fortunately, the possession of firearms is strictly controlled in Brunei and there is little or no serious pressure on the fauna as a result of either traditional, or modern, hunting techniques, as used by Bruneians. Incursions by more energetic, and hungrier, neighbours poses a greater, although still low-level, threat.

Almost 60 per cent (341,000 ha/843,000 acres) of the country's land area is under primary, undisturbed forest, and, should the consultant's recommendations gain legal status, more than 80 per cent of this primary forest will be within forest reserves—currently 57 per cent of the primary forest is within legally constituted forest reserves.

Logging and shifting cultivation have been, and still are, strictly controlled, and the export of logs and most wood-based products has been prohibited, and enforced, for many years. However, Brunei is a heavy consumer of timber on a *per capita* basis, and much of it is used wastefully in the booming construction industry. As a result of the report, it is hoped that more rational use will be made of sawn timber through improved construction methods and the use of wood preservatives, thus helping to conserve the resource and to delay the inevitable day when the primary

mixed dipterocarp forest within the Production Forest will be cut over for the first time—possibly 30 years hence. Although a temporary deficit of hill logs is forecast, the consultant considers that the Production Forest has the potential to supply the country's domestic timber requirements without the need for a permanent commitment to plantations—provided that sound management and silvicultural practices are implemented now.

A rare sighting of the golden langur by Hugo Varley

On 15 March 1982, I was returning from an unsuccessful attempt to reach the Annapurna Sanctuary in Central Nepal. We were approaching Kuldi Ghar at approximately 7800 feet (2377 m) when my Sherpa Sirdar spotted a group of golden langur *Presbytis geei* about a mile away to the east, across the Modi Khola valley. He was evidently quite excited by his find and told me that he had seen golden langur before, near his village in Eastern Nepal.

I watched them with great interest for about 10 minutes, but was unaware at the time that it was a rare event for a European to see them in their natural wild state. There were about 30 of them sitting or moving about in a leisurely way, high up in the branches of a dense coniferous forest. About half were in the shade and appeared to be quite golden in colour, but those that were caught in beams of sunlight filtering through the trees looked as though they were wearing coats of brightly burnished gold! It was a fine sight. I was surprised to note that some of them appeared to have white and yellowish coats, and asked my Sirdar if they could possibly be common langur, which were known to inhabit the area. He assured me that they were not. He had himself seen groups of common and golden langur living within a short distance of each other in Eastern Nepal, but said that the two species would never intermingle.

I have since learnt that golden langurs in captivity show seasonal variation in colour, becoming cream-coloured or almost white in the summer (Roonwal and Mohnot, 1977). Roonwal and Mohnot (1977) also report that golden langurs live in dense, tropical deciduous forests with sal

Shorea robusta as the dominant tree, so it was rather strange to find them in this valley, which is largely filled with coniferous and bamboo forests.

On returning to England, I discussed the sighting with two zoologists, The Earl of Cranbrook and Dr J. Payne, one of them an authority on primates. Both were surprised to hear that I had seen them so far to the west. It might be worthwhile for a party of young zoologists to carry out a field study of these elusive and endangered primates. A journey of one day from Kathmandu to Pokhara, two days trekking to Landrung, and 4–5 days travelling up the eastern bank of the Modi Kholà would bring them to the areas in which we saw them.

Reference

Roonwal, M.L. and Mohnot, S.M. 1977. *Primates of South Asia*. Harvard University Press, Cambridge, MA and London.

Dramatic declines in Tana River red colobus monkeys and mangabeys by Clive Marsh

A survey of red colobus monkeys *Colobus badius rufomitratus* and crested mangabeys *Cercocebus galeritus galeritus* on the lower Tana River, Kenya, was carried out in January and February 1985. The survey results indicate that, since 1975, when the last survey was completed, the population of red colobus has declined by about five-sixths, from a former size of 1200–1800 animals. Mangabeys have also declined, but to a lesser extent: perhaps by one-quarter of a former population estimated at 1000–1500 animals. Although both species are quite widely distributed elsewhere in Africa, they are now among the most critically endangered mammals in Kenya.

The apparent cause of these declines is the death of large trees, especially some key food sources, which are not being replaced by young growth. It is suggested that most of the remaining forest patches are becoming senescent due to their location on high embankments, which now rarely flood. The establishment to sapling size of most of the common tree species is believed to require frequent flooding. Such areas are mostly occupied by farms or maintained as grasslands or

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bushland by occasional fires. Thus, the principal perceived threat to these primates has changed from the cutting of forests, which has almost entirely ceased since the early 1970s, to the paucity of tree regeneration, which is equally lethal to the forests, but much less well understood or easily redressed.

Management of the Tana River National Reserve has been effective in restricting direct habitat loss, but now urgently needs both further studies of forest regeneration in relation to colobus population dynamics, and a modest injection of funds to complete the basic infrastructure of the Reserve.

This study was funded by the New York Zoological Society's Wildlife Conservation International, and a full report is being published in a new publication of the IUCN Primate Specialist Group, *Primate Conservation*.

The Mediterranean tortoise in Mallorca

by Ben Vickers

The Mediterranean tortoise *Testudo hermanni robertmertensi* was listed as of high priority in conservation work by the IUCN Tortoise Specialist Group at its meeting in 1981. The subspecies is restricted to southern Europe, from central Italy, Sardinia and Corsica westwards, where it is localized and depleted.

During 1982 and 1983, I conducted a study of its populations in a part of Mallorca in Spain. * In the summer of 1984, I returned briefly to the island to see how things had developed, not only in local attempts to preserve the remaining tortoise populations, but also to see how the habitat was faring the summer ravages of tourism and fire.

My original study near Aita and Manacor comprised the privately owned tortoise reserve of Son Cifre de baix, which suffered a scrub fire in early 1984. Local people told me that the fire was started by hunters in a densely vegetated gorge that runs through the property. These 'sportsmen' often use dogs for catching rabbits, which are present in large numbers now that hunting in the area has been curbed by the establishment of the reserve. The temptation to clear the ground to facilitate hunting was too great; the fire got out of hand and damaged over one-third of the reserve,

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including the area with the densest tortoise population. Fortunately, tortoise mortality was not great although numbers of damaged animals were found. The most serious implication of this fire is the loss of habitat.

Habitat regeneration can be swift, as has been shown in some parts of the same valley where, after three years, the vegetation of burned areas is more healthy than that of older stands. However, at another site near the coast where burning occurred accidentally in 1982, one year saw a significant regeneration of the scrub, but this summer, after a further 12 months, I noticed very little difference; the layer of soil is often too shallow to promote regeneration if the year is at all dry.

The municipal and ICONA (Instituto Nacional para la Conservacion de la Naturaleza) fire services were of great assistance in controlling the Son Cifre blaze, as they have been in controlling all the fires in the last couple of years. Their increased efficiency results from public relations work of their own and of the ornithological club, Grup Ornitologic Balear (GOB) to increase public awareness of the danger; now, earlier warnings of the fires come in, and fire-fighting forces are better co-ordinated.

The work on tortoises carried out in the valley has awoken the interest of landowners and residents in these animals. On another front, ICONA is continuing with its attempts to breed tortoises in captivity in the south of the island. They are meeting with increased success now that their programme has settled down, and tens of hatchlings are produced annually, to be released in the scrubland. The major influences on tortoise numbers are predation on immature animals—not eggs—and destruction of the habitat; both aspects are excluded from this concentration of ICONA's effort. Nevertheless, their interest is to be applauded. No specific work is now being done, either to study the Mallorcan animals or preserve their habitat, and there is a need for concerted public relations and practical projects to conserve them.

*The 1982–83 study was funded by the People's Trust for Endangered Species (UK) and Protecfauna s.a. (Spain). The findings are yet to be published.
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