

# THE TROPICAL RAINFOREST RAPTORS: STATE OF KNOWLEDGE, WORLD SITUATION AND CONSERVATION STRATEGY

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## INTRODUCTION

Tropical rainforests are typically high, dense, humid evergreen lowland forests, mostly within 15° of the equator. They are by far the richest and the most threatened of the various forms of tropical forest, which include drier, more seasonal monsoon forests and particular habitats such as mangrove, marsh and savannah woodlands, riverine galleries, montane and cloud forest.

Since national and international statistics usually include several of these habitats, both primary and secondary, under the general heading 'tropical forest', it is difficult to estimate what proportion of the original rainforest remains today. It is likely that more than 90 percent of the primary forest has been destroyed during the last 50 years, or turned into a variety of secondary communities whose floristic composition and faunal structure are often very different from the primitive habitat. This decrease seems to be accelerating everywhere.

The status of most forest raptors is completely unknown, and we can only infer a decline from the destruction of their habitat. Using Leslie Brown's categorization, no more than 15 of the 111 species of rainforest Falconiformes would reach the 'well known' level, and for this minority our knowledge comes from marginal habitats or non-rainforest subspecies. More than half the species can be classified as unknown, especially if we consider their purely rainforest populations. Our lack of knowledge about their ecology prevents any management of their populations. Hence there is a very urgent need both for species status surveys and for specific ecological studies, which so far have been hindered by the difficulties of detecting tropical forest raptors, let alone studying them. Many new taxa will probably have to be included in the *Red Data Book*, notably from Southeast Asia, where we lack recent information on a large number of endemic island subspecies.

## DISCUSSION AND CONCLUSIONS

Traditional methods of study must be adapted to a difficult environment and to very inconspicuous birds. The following were discussed:

- Radio tracking is the most promising technique, but few species (e.g. *Accipiter*) are easy to catch, and tracking would probably be hard in high dense forest.
- Watching from hides near nests may provide useful data, but active nests of small species are extremely difficult to find, even with the help of native hunters.
- Observations of some species in semi-open (secondary or edge) habitats is the easiest way to study forest species in the wild, but behaviour recorded in such places is not necessarily similar to that in dense forest.
- Attempts to attract some birds of prey with taped vocalizations or using *Bubo* species as decoys could be successful.
- Studies on captive birds (behaviour, breeding biology, food preferences) provide useful information, but some results (e.g. on clutch sizes and prey selection) may differ from those typical of the wild.

A high proportion of the world's avifauna (39 percent of the species of Falconiformes) inhabits the tropical rainforest alone, and is dependent on this limited habitat for survival. The most diverse avifauna (168 subspecies) is found in Southeast Asia with its numerous islands (from southern India and Sri Lanka to New Guinea, its adjacent archipelagos, and northeastern Australia). On the continents, the northern half of South America harbours two to three times more sympatric diurnal raptors than any Old World tropical forest region.

The main, and really the only important, threat to tropical forest raptors throughout the tropics is the incredibly rapid **habitat destruction**. The fundamental reasons are (1) the pressures from developed countries for timber extraction, cattle ranching or commercial tree plantations, and (2) a rapidly-growing local human population with no advanced agricultural technology and no employment opportunities outside the agricultural sector. Many species are strongly adapted to forest life, especially to the structure, microclimate and fauna of the undergrowth which are greatly modified, even in tall secondary forest. Thus different types and levels of exploitation result in different raptor population compositions, each species showing its own distribution pattern along the succession of habitats induced by man's activities. In every fauna studied, about 80 percent of the forest species reach their highest density in the primary undisturbed forest, and decrease more or less rapidly as the forest is modified and cleared.

**Shooting**, especially of large species, may be locally important, but less so than the widespread overhunting which reduces prey availability for eagles. **Pesticides**, increasingly used throughout the tropics, may affect birds of edges, secondary vegetation and partially cultivated areas, but their action has not yet been recorded on rainforest birds. **Introduced predators** or competitors may be a limiting factor on some small islands.

The most realistic and long-term **preservation strategy** is to set aside very large areas of undisturbed mature forest, if possible with National Park status, to ensure a high level of protection for both fauna and flora. Such reserves now exist in a few countries, but large tracts of virgin rainforest are still available and threatened by future exploitation (for instance in the Guianas, Brazil, Gabon, Zaïre, New Guinea and New Britain). Maintaining a reasonable population of raptors in unprotected forests under exploitation requires selective logging, with preservation of undisturbed areas during the lumbering operations, the conservation of forest patches and large trees within the cultivated areas, and the limitation of hunting pressures.

Rigidly enforced **laws** protecting all birds of prey are a basic requirement to stop raptor hunting for food, sport and the trade in living or stuffed birds. Such laws must be supported by **education programmes** for local people, who often have no awareness of the need to protect the forest and its fauna and who often have a strong preference for the meat of wild animals, even when other foods are readily available. To prevent poorly-managed or free logging with no attempt to help regeneration (still a dominant pattern of exploitation in tropical forests), government agencies and logging companies should be approached and informed of the dangers threatening this unique ecosystem, of the necessity or advantages in protecting it, and of the economically feasible ways of achieving this goal. **Captive breeding** is a useful measure for species reduced to a very small population and as long as a significant area of natural and safe habitat remains available. Some species breed in captivity (such as African forest accipiters) but successful reintroduction in the wild has never been done and would be more difficult than for temperate, open habitat raptors. **Manipulation of wild broods** (double clutching and foster rearing) can also be recommended for remnant populations, if nests can be found and specific habits are well known.

The future is dark for many species, which will disappear without having been studied before effective measures can be taken to ensure their long-term survival in what are among the most complex, rich and interesting of all ecosystems. Understanding the life histories of the highly diverse raptors in tropical forest would provide not only a valuable addition to our knowledge of avian biology, but also a new insight into some fundamental ecological problems.