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THE DISTRIBUTION OF FEEDING HABITS AMONG ANIMALS IN A TROPICAL RAIN FOREST

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Tropical Rain forest is an enormously complicated habitat, of which the animals have been so far but little studied. Our knowledge of these animals, however, is now emerging from the taxonomic stage, and the botanical studies, upon which the zoological are inevitably based, are now sufficiently advanced to support this. In particular the invaluable work of Richards (1952) has done much to draw together scattered knowledge and make it available to the non-botanist.

The great difficulty in the study of Rain forest is one of integration. It is literally true to say that one cannot see the wood for the trees. There is no one position in which one can stand and get a good view of a complete sample of forest, and it is correspondingly difficult to visualize the relationships between, say, animals living on the forest floor and those out of sight in the canopy, perhaps a hundred feet above. In such circumstances, ideas and patterns into which one can fit (or fail to fit) one's observations assume a special value. The present paper uses the results of some observations, made over the last decade, on the food of mammals in Malaysian and Australian Rain forests to draw up a simple scheme of the classification of feeding habits within forest of this kind.

THE STRUCTURE OF TROPICAL RAIN FOREST

This subject is discussed at some length in most ecological text-books, but, since the terminology varies slightly, it needs to be summarized for the present purpose.

Physically, Rain forest is composed of woody plants. The trees of the main storey rise on 30 m or more of slim, bare trunk to small, compact crowns, which are usually more or less in contact. Below and between these are the smaller trees, of the under-storey, either young specimens of the giants, or smaller species, which fill up small gaps and generally reinforce the overhead cover, so that there is no clear view of the sky. Beneath the trees are layers of shrubs, and of sparse herbage which are developed in inverse proportion to the completeness of the overhead cover, so that Rain forest with a completely unbroken canopy is relatively bare underfoot. The whole of this structure is bound together with lianes (woody climbing plants) and plentifully sprinkled with epiphytes.

Taxonomically there is a bewildering array of species. Exceptionally stretches may be dominated by one species of tree, but normally the variety is such that two trees of the same species are rarely in view at the same time. Thus Wyatt-Smith (1949) records 227 species among the 559 trees per hectare in Lowland Rain forest near Kuala Lumpur, of which the most abundant species comprised less than 7%. When a major tree falls the resulting space is filled by the sudden rapid growth of the smaller trees, one of which will usually win the race to fill the gap. A tree is thus rarely replaced by another specimen of its own species, and the diversity is maintained.

To this diversity is added a comparative lack of seasonal variation, so that flowering and fruiting of the various species are spread throughout most of the year. Thus, even

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